USING COMMON ASSIGNMENTS TO STRENGTHEN TEACHING AND LEARNING:

RESEARCH ON THE 2ND YEAR OF IMPLEMENTATION

Prepared for the Bill and Melinda Gates Foundation

September 2015

Rebecca Reumann-Moore • Mark Duffy

RESEARCH for ACTION

About Research for Action

Research for Action (RFA) is a Philadelphia-based nonprofit organization. We seek to use research as the basis for the improvement of educational opportunities and outcomes for traditionally underserved students. Our work is designed to: strengthen public schools and postsecondary institutions; provide research-based recommendations to policymakers, practitioners, and the public at the local, state, and national levels; and enrich the civic and community dialogue about public education. For more information, please visit our website at www.researchforaction.org.

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Executive Summary:
Using Common Assignments to Strengthen Teaching and Learning: Research on the Second Year of Implementation

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I. The Common Assignment Initiative

Initiated for the 2013-14 school year, the Common Assignment Study (CAS) is a three-year effort being led by the Colorado Education Initiative (CEI) and The Fund for Transforming Education in Kentucky (The Fund) with support from the Bill & Melinda Gates Foundation. Conceptually, CAS builds on previous efforts to improve instruction through the Literacy Design Collaborative (LDC). LDC's template-task approach to supporting key instructional shifts has demonstrated utility for teachers working to enhance literacy instruction across multiple content areas. With CAS, larger science, social studies and English/language arts (ELA) units have been developed that also focus on building literacy skills, in part, by incorporating LDC modules into the units.

The CAS initiative has two components:

1. Teachers in separate locations collaborate on unit development, revision and implementation.
2. Teachers use common pieces of student work to have instructional conversations and calibrate their expectations for students.

CAS enables schools and districts to develop teachers and strengthen instruction by providing:

1. Professional learning opportunities, largely through teacher collaboration;
2. Student work to teachers with information on their students' academic needs and performance; and,
3. Evidence of teachers' impact on their students' academic outcomes.

Technical assistance for the project is being provided by the Stanford Center for Assessment, Learning and Equity (SCALE) and Westat. Center for Assessment is conducting research on the value of CAS student work as an indicator for measuring teacher impact and how participation in CAS affects student performance on Common Core-aligned measures, while Research for Action (RFA) is studying the implementation and scale-up of the initiative.

Overview of Participating States, Districts, Students and Teachers

The CAS initiative experienced substantial growth from the first to second year. CAS began with four districts in the 2013-14 school year and grew to twelve districts[1] ahead of the 2014-15 school year (see Table ES1).

Table ES1. CAS Districts and Teachers *(Years 1 and 2)*

STATE	DISTRICT/BOCES	TOTAL STUDENT ENROLLMENT	TOTAL CAS TEACHER PARTICIPANTS	
			Year 1	Year 2
Colorado 	Adams 12 Five Star Schools	42,230	-	7
	Eagle County School District	6,724	8	-
	San Juan Board of Cooperative Educational Services (BOCES): Archuleta, Bayfield, Ignacio and Mancos School Districts	3,802	-	9
	Thompson School District	16,226	13	23
	State Total		***21***	***39***
Kentucky 	Fayette County Public Schools	37,957	11	32
	Fleming County Schools	2,278	-	5
	Kenton County School District	14,253	9	17
	Simpson County Schools	2,885	-	3
	Washington County Schools	1,638	-	3
	State Total		***20***	***60***

CAS teacher participants were similarly distributed across both years in terms of school levels (middle and high school) and content areas taught (ELA, social studies and science).

Overview of the Research

RFA's CAS research focuses on providing formative feedback on unit implementation; teacher collaboration; the status of context and conditions for CAS success, including school and district leadership and CAS alignment with curricula, assessments and teacher effectiveness systems; and prospects for sustaining CAS. RFA is also investigating participant perceptions of enhanced teacher practice and improved student learning. An extensive amount of data for this study was collected through teacher, administrator, and partner interviews, student focus groups, teacher surveys, administrator surveys, observations of teacher collaboration on unit revision and review of student work.

II. Findings

Table ES2 summarizes major findings from RFA's research on the second year of CAS. The findings are broken into five focus areas: 1) unit implementation and alignment; 2) teacher collaboration; 3) influence on teacher practice and student learning; 4) leadership and teacher effectiveness; and 5) CAS sustainability. This executive summary concludes with recommendations.

[1] One of the Year 1 districts did not continue in Year 2. Four of the new districts entered the initiative jointly as part of the San Juan Board of Cooperative Educational Services (BOCES).

Table ES2. Key Year 2 Implementation Findings

KEY FINDINGS
Unit Implementation and Alignment
Teachers and administrators rated CAS unit quality as high and were pleased with unit implementation.
Teachers identified implementation challenges, including (1) the time it takes to teach a unit; (2) lack of previous LDC experience; and (3) version control and accessing unit materials.
Participants reported that CAS units are well-aligned to local curricula and state standards, but reported somewhat less positively about CAS alignment with state assessments.
Teacher Collaboration
Teachers reported that collaboration enhanced their capacity to implement CAS units.
Teachers reported that CAS increased their collaboration with school and district colleagues.
Unit implementation was more challenging for teachers without a school-level CAS partner.
Influence on Teacher Practice and Student Learning
Teachers in some districts reported that CAS instruction was similar to their typical instruction, in part due to their experience with LDC prior to CAS, but a strong majority still felt that CAS further improved their instructional practice.
CAS strategies have influenced teaching strategies outside of units, as well as planning of non-CAS instruction.
Reports of CAS units' positive influence on student learning were widespread during Year 2 research; teachers particularly highlighted students' writing skills and understanding of content as improved through CAS units.
Teachers reported high levels of student engagement during CAS units.
Leadership and Teacher Effectiveness
While the new role of teacher leader was still evolving in Year 2, CAS implementers and revisers reported that CAS teacher leaders were knowledgeable about CAS and provided support for unit implementation
District administrators continued to provide help to teachers in implementing CAS units in Year 2 of the initiative, but not as consistently across sites as in Year 1.
School administrators have played a limited role in CAS across both school years.
CAS shows promise in providing measures of student learning and teacher effectiveness.
CAS Sustainability
CAS has scaled up in terms of both breadth and depth in Year 2.
Teachers and administrators want to see unit instruction continue and grow in Year 3.
CAS participants indicated that collaboration, as well as professional development and ongoing support for new CAS teachers, are necessary for CAS to scale successfully.
Some participating districts, especially those in their second year of the initiative, had already developed plans for CAS in Year 3.

III. Areas for Improvement

CAS has continued to evolve in Year 2 and more change is ahead in Year 3 as the initiative continues to spread within existing districts and into new districts. Data from the first two years of implementation suggest that CAS has been able to support increased teacher ownership of new approaches to instruction, while also providing initial glimpses, based on educators' own reports, of improvements in teacher practice and student learning. Below we provide recommendations for improving and strengthening CAS.

Unit Implementation and Alignment

- **Help teachers address the time pressures that can undermine implementation.** Districts and states need to pay attention to CAS's relationship to curricula and assessments and the related time pressures that teachers face. While teachers overall valued the units highly and reported that using instructional time for CAS was beneficial for teachers and students, a majority still found it difficult to find enough time for implementation. If districts and states value this instruction, they can take several steps: (1) Communicate how CAS instruction fits larger overall goals, including preparing

for standardized assessments. (2) Help teachers, especially science and social studies teachers, adjust pacing schedules. (3) Support teachers in making sure that CAS units and writing prompts cover areas that are central to the curriculum.

- **Provide support for new CAS teachers without LDC experience.** Teachers without LDC experience struggled more with implementation. Districts could address this challenge in a variety of ways, including providing strong orientation about and professional development on LDC or staging implementation so that such teachers first receive LDC training and implement a module before teaching a CAS unit.

- **Engage experienced CAS teachers in providing support for teachers implementing the units for the first time.** Experienced CAS teachers reported fewer challenges with unit implementation than did new CAS teachers. New CAS teachers reported how helpful it was to turn to experienced CAS teachers with questions about the unit. Finding creative ways for experienced CAS teachers to work with new CAS teachers could help strengthen teachers' initial CAS instruction.

Collaboration

- **Continue to strengthen collaboration opportunities at every level.** Collaboration has been central to the successes of this initiative and to teachers' growth as professionals and leaders. Aim to implement units so that as many teachers as possible have a school partner teaching the unit. In addition, consider supporting teacher collaboration across "boundaries," e.g., for teachers at the same school to collaborate across content areas and for teachers to collaborate within their district or state with others who teach the same content area.

- **Offer convenings across districts to allow teachers to share best practices on unit implementation.** Teachers reported that meeting face-to-face with educators from other districts and states was one of the most powerful aspects of CAS. Where possible, continue to create opportunities for teachers to meet and collaborate with teachers from other districts.

Leadership

- **Cultivate CAS teacher leadership across districts equitably.** Access to CAS teacher leadership was not consistent. Teachers in districts new to the initiative during 2014-15 in particular did not have that level of support. When possible, CAS teacher leaders in each content area should be available to teachers in each district to facilitate collaboration and ongoing technical assistance. If new districts do not yet have CAS team leaders, states can experiment with different ways to connect these new teachers to more experienced CAS teachers in other districts, either in person or virtually.

- **Involve school administrators in understanding and sustaining CAS.** In both Years 1 and 2 of the research, principals have been found to be the least knowledgeable and involved in the CAS initiative. For CAS units to take hold and continue to be used in the long term, principals need to understand and help to implement the units in a more intensive way. To facilitate this shift, the role of school administrators in the CAS initiative needs to be clearly defined and supported.

Sustainability

- **Package units in a straight-forward way so that they are accessible to educators new to the initiative.** Confusion around organizing, storing and accessing CAS units, even among teachers who helped create the units, underlines the importance of organizing the materials and lesson plans in a coherent, accessible way, especially as teachers new to CAS or who may not receive extensive training gain access to the units.

- **Plan how to embed collaboration in the ongoing CAS work in existing and new districts.** Research on CAS has emphasized the centrality of collaboration to the successes of this work. The shape of and formats for collaboration will likely continue to grow and change as the initiative evolves. Collaboration should still connect participants with colleagues in meaningful ways. Clear communication from district or state leaders with current teachers, both about how collaboration is changing and how it will continue to be central to CAS, will be important.

- **Plan for the varied types of professional development and support needed by new and continuing CAS participants.** Teachers new to CAS in existing districts, teachers new to CAS in new districts and experienced CAS teachers will need different types of professional development opportunities to support their ongoing involvement in the work. In addition, school and district administrators can provide stronger support for CAS if they are involved in CAS training and collaboration.

- **Provide professional development resources for districts and states.** As the use of the CAS units scales, experienced CAS educators may not be accessible to teachers in all districts for training and support. For this reason, resources will be needed to provide educators with an orientation to the units, the process of development and revision, the central nature of collaboration, and the use of the rubrics to score student work and provide feedback.

- **Collect evidence that empirically tests the effect of CAS on student achievement.** For CAS to successfully scale up and meet the needs of teachers and students, district and state decision-makers will look for evidence that CAS is having an impact on student achievement. For this reason, it will be critical to mount a study that explores this issue, as well as whether and how CAS collaboration and units continue to influence teacher practice and support teacher effectiveness systems.

RESEARCH for ACTION

Using Common Assignments to Strengthen Teaching and Learning: Research on the Second Year of Implementation

Prepared by Research for Action for the Bill & Melinda Gates Foundation
September 2015

I. Introduction to Common Assignment and Overview of the Research

Initiated for the 2013-14 school year, the Common Assignment Study (CAS) is a three-year effort being led by the Colorado Education Initiative (CEI) and The Fund for Transforming Education in Kentucky (The Fund) with support from the Bill & Melinda Gates Foundation. The CAS initiative was designed to address the gap between educators' current instructional practice and the level of practice necessary to dramatically increase the number of students who master the knowledge and skills called for in state College and Career Readiness Standards. Conceptually, CAS builds on previous efforts to improve instruction through the Literacy Design Collaborative (LDC). LDC's template-task approach to supporting key instructional shifts has demonstrated utility for teachers working to enhance literacy instruction across multiple content areas. With CAS, larger science, social studies and English/language arts (ELA) units have been developed that also focus on building literacy skills, in part, by incorporating LDC modules into the units.

WHAT IS A COMMON ASSIGNMENT STUDY UNIT?

Common Assignment Study (CAS) units focus on utilizing challenging and engaging tasks in English/language arts, social studies and science classrooms to improve student content knowledge and literacy skills aligned to state college and career readiness standards. Each unit includes a Literacy Design Collaborative (LDC) module, but covers an entire curricular topic area, such as the Cold War or Ecology. Common elements of these units include the following:

- **Pre-Assessment:** *an initial measure to gauge student knowledge and skills related to the focus of the unit, administered before instruction begins;*
- **Formative Assessment(s):** *one or more measures used during the unit to determine whether and to what degree students are learning the content and literacy skills included;*
- **Summative Assessment:** *the final unit assignment in which students incorporate evidence of the content and skills they have learned during the entire unit to complete a student work product. Many summative assessments were performance-based.*
- **LDC teaching task:** *the reading and writing assignment that defines the content and literacy skills included in the LDC module and the essential question students will address.*
- **Texts and Materials:** *resources used by the students (e.g., articles, books, internet sites) as the basis for building content knowledge on the unit topic and to provide evidence to support the arguments made in their written products, including any formative or summative assessments;*
- **Learning or "mini" Tasks:** *the sequence of activities used to prompt and guide student learning on unit content and skills; in science units, this typically includes one or more lab activities; and*
- **Scoring Rubric:** *evaluation criteria and guidelines for assessing student work.*

CAS has two components:

- Teachers in separate locations collaborate on unit development, revision and implementation.
- Teachers use common pieces of student work to have instructional conversations and calibrate their expectations for students.

These two components reinforce each other. Further, the Common Assignment initiative enables schools and districts to develop teachers and strengthen instruction in three ways:

- By providing professional learning opportunities, largely through teacher collaboration;
- By using student work to provide teachers with information on their students' academic needs and evidence of their academic performance; and,
- By providing evidence of teachers' impact on their students' academic outcomes.

Multiple partner organizations have supported CAS. Technical assistance for the project is being provided by the Stanford Center for Assessment, Learning and Equity (SCALE) and Westat. At the same time, the Center for Assessment is conducting research on the value of CAS student work as an indicator for measuring teacher impact and how participation in CAS affects student performance on Common Core-aligned measures, while Research for Action (RFA) is studying the implementation and scale-up of the initiative.

Since its beginning two years ago, CAS has continued to evolve in multiple ways. These shifts provide important background for understanding Year 2 of the CAS initiative, and are summarized in Table 1.

Table 1. Structural Changes in the CAS Initiative from Year 1 to Year 2

STATE	YEAR 1 *(SY 2013-14)*	YEAR 2 *(SY 2014-15)*
Units	• Teachers focused on designing the CAS units.	• Teachers focused on revising the units based on lessons from Year 1 implementation.
Leadership	• Partner organizations coordinated and facilitated unit design and supported unit implementation.	• Partners created a Teacher Leader role in Year 2. Teacher leaders played a strong role in guiding unit revision and supporting implementation of the CAS units. Partners continued to be involved, including by supporting the teacher leaders.
Collaboration	• In-person cross-state convenings where teachers worked to develop units were a key focus of collaboration.	• With increasing emphasis on state-level collaboration, as well as opportunities within schools and districts, CAS sponsored only one full cross-state convening.
Number of Districts and Teachers	• 4 districts • 44 teachers	• 12 districts • 99 teachers

A. Participant Demographics

The CAS initiative experienced substantial growth from the first to second year. CAS began with four districts in the 2013-14 school year and grew to twelve districts[2] ahead of the 2014-15 school year (see Table 2). The size of the districts varied considerably, ranging from less than 3,000 students (individual districts in the San Juan BOCES and districts in Fleming, Simpson and Washington counties) to districts with over 35,000 students (Adams 12 Five Star Schools and Fayette County Public Schools).

[2] One of the Year 1 districts did not continue in Year 2. Four of the new districts entered the initiative jointly as part of the San Juan Board of Cooperative Educational Services (BOCES).

Table 2. CAS Districts and Teachers *(Years 1 and 2)*

STATE	DISTRICT/BOCES	TOTAL STUDENT ENROLLMENT	TOTAL CAS TEACHER PARTICIPANTS	
			Year 1	Year 2
Colorado 	Adams 12 Five Star Schools	42,230	-	7
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	Simpson County Schools	2,885	-	3
	Washington County Schools	1,638	-	3
	State Total		***20***	***60***

CAS teacher participants were similarly distributed across both years in terms of school levels (middle and high school) and content areas taught (ELA, social studies and science). Overall, the total number of teachers involved more than doubled from Year 1 (41) to Year 2 (99) (see Table 3).

Table 3. Year 1 and Year 2 CAS Teacher Participants by Content Area

CAS TEACHER PARTICIPANTS BY SCHOOL LEVEL AND CONTENT AREA		
	Year 1	Year 2
High School Teachers	18	53
Middle School Teachers	23	46
English/Language Arts	16	33
History/Social Studies	12	30
Science	12	36
Total CAS Teacher Participants	***41***	***99***

Glossary of Common Assignment Study Terms

The following terms will be used throughout the report:

- **Subject-grade teams:** Teachers worked in six subject-grade teams (middle school and high school ELA, science and history) to create, revise and implement units and to examine related student work.
- **Experienced CAS teachers:** Teachers formally involved in CAS in both Year 1 (2013-14 school year) and Year 2 (2014-15).
- **Literacy Design Collaborative (LDC):** LDC is an instructional framework for developing students' literacy skills based on modules, which typically take two to four weeks to complete. Modules are centered on the completion of a "teaching task" or question for students to answer using evidence and instructional mini-tasks to help students complete the larger "teaching task".[3]
- **New CAS teachers:** Teachers formally involved in CAS since the 2014-15 school year (Year 2).
- **School or district CAS partner:** Teachers from the same content area and grade level who collaborated on CAS units within their school or district.
- **Teacher Roles:** In Year 2, CAS developed three different levels of teacher involvement:
    - *Implementer:* Teachers formally involved with CAS who were expected to: "implement two common units during the year, enter student scores on all common assignments for two class sections, submit student work samples, complete reflection templates, attend in-state and in-district convenings and interact with the CAS website."[4] These teachers did not participate in the summer 2014 Convening to revise the units for Year 2.
    - *Reviser:* Teachers formally involved with CAS who, in addition to the responsibilities of an Implementer, were also expected to: attend summer convenings and revise 2013-14 units based on student work.
    - *Teacher Leader:* In addition to the expectations for CAS implementers and revisers, this role was designed to develop a cadre of teachers to take on leadership at multiple levels within CAS – school, district, state and across states. Teacher Leaders helped lead their team's revision of the original CAS units, design new ones and helped facilitate their subject-grade team's work at the CAS convenings. They also served as a team liaison with the initiative's partners during implementation.

B. Overview of the Research

CAS is, in part, a research project designed to explore the progress and outcomes of the initiative. RFA's research focuses on providing formative feedback on unit implementation; collaboration on unit revision and implementation; the status of context and conditions for CAS success, including school and district leadership and CAS alignment with curricula, assessments and teacher effectiveness systems; and prospects for sustaining CAS. RFA is also investigating participant perceptions of enhanced teacher practice and improved student learning. Data for this study was collected through teacher, administrator, and

[3] See ldc.org for more information about the Literacy Design Collaborative.
[4] CAS Teacher Participation Agreement

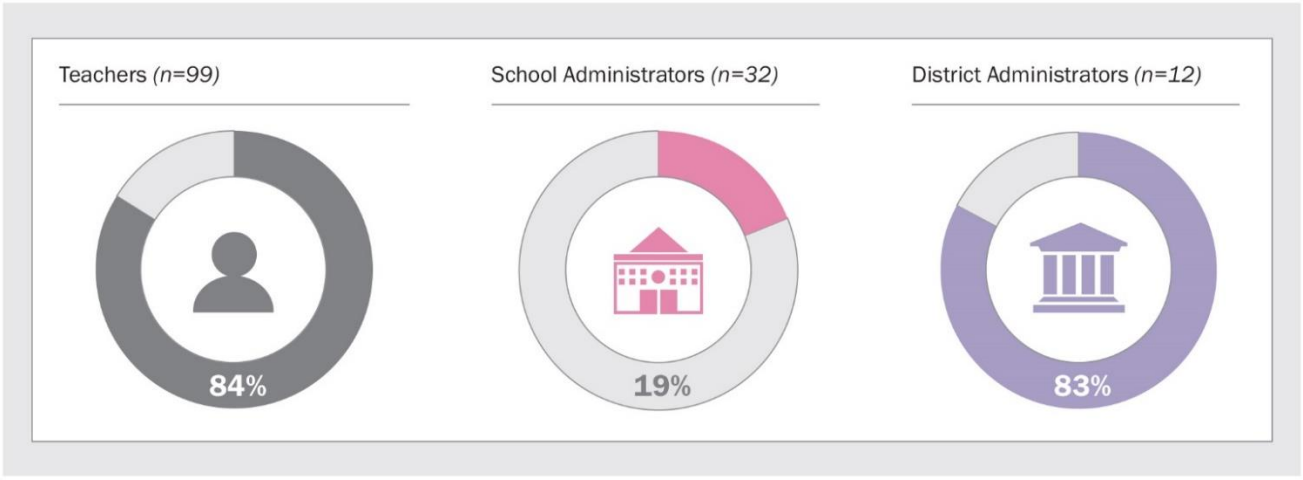
partner interviews, student focus groups, teacher surveys, administrator surveys, observations of teacher collaboration on unit revision and review of student work. Over the course of this year's research, the following research questions guided RFA's work (see Table 4).

Table 4. CAS: Year 2 Guiding Research Questions

COMMON ASSIGNMENT STUDY: YEAR 2 GUIDING RESEARCH QUESTIONS
• What challenges and successes arise related to Common Assignment implementation and scale up in Year 2?
• How do participants and partners perceive unit quality?
• What kinds of roles do school, district, and teacher leaders play in CAS?
• How does collaboration support implementation and scale-up?
• What are stakeholders' perceptions of how CAS is influencing teacher practice and student learning?
• How do teachers' roles in CAS influence their participation and perceptions of implementation and impact?
• What connections do administrators and teachers perceive between teacher effectiveness systems and CAS?
• What are the contexts and conditions at the classroom, school, district, and state levels that influence successful implementation and scale up of CAS?

Major data sources for this report include spring surveys administered to all CAS teachers and administrators and interviews with CAS partners, school and district administrators, teachers, and student focus groups (see Figure 1 and Table 5).

Figure 1/Table 5. Survey Response Rates and Interview Data



RESPONDENTS	INTERVIEWS
Teachers	69
District Administrators	8
Principals	13
Student Focus Groups	9 Groups *(45 Students)*
CAS Partners	9

As can be seen in Figure 1, the teacher and district administrator survey response rates were strong (teacher: 84 percent, n=99; district administrator: 83 percent, n=12). However, school administrators were much less responsive (19 percent response rate, n=32). We attribute the low response rate among school administrators to their limited familiarity and involvement with CAS, as compared to other initiative leaders.

Despite the low survey response rate of CAS school administrators, RFA is able to rely on robust interview data to understand the perspectives of this population. RFA interviewed 40 percent of the school administrators surveyed (13 out of 32).

RFA conducted interviews in six of the seven districts independently involved in the initiative, as well as teacher representatives from the districts in the San Juan Board of Cooperative Educational Services (3 out of 4 districts represented)[5]. Results were triangulated with survey data, observations at the summer 2014 convening and informal discussions at partner meetings.

During the first year of our research on CAS, RFA conducted research on CAS implementation and produced a formative memo and comprehensive Year 1 memo. The Year 1 analysis reported on teachers' perceptions of how CAS units influenced instruction and student learning, as well as the development and implementation of the units during the 2013-14 school year.[6]

This report explores RFA's research findings on the second year of CAS implementation. This report builds on the Year 1 memo by examining the status of key aspects of the project (e.g., collaboration, unit implementation, leadership) in Year 2. In contrast to our analysis in Year 1, in this report we look more deeply at sustainability and links between CAS and teacher effectiveness. Where relevant we also analyze to what extent findings changed or remained the same from Year 1 to Year 2 and examine to what extent the experiences and perspectives of teachers new to CAS this year align with or differ from those of teachers who began CAS work in Year 1. Table 6 highlights key findings about Year 2 implementation of CAS. The sections below will explore these findings in more detail.

[5] RFA conducted site visits in two Colorado districts, Thompson School District and Adams 12 Five Star Schools, and in two Kentucky districts, Kenton County School District and Fayette County Public Schools. Additional phone interviews were conducted with a select number of teachers across the other eight districts participating in Year 2.

[6] Access the first year reports at: http://www.researchforaction.org/wp-content/uploads/2015/08/RFA-Gates-CAS-Year-1-Memo.pdf

Table 6. Key Year 2 Implementation Findings

KEY FINDINGS
Unit Implementation and Alignment
Teachers and administrators rated CAS unit quality as high and were pleased with unit implementation.
Teachers identified implementation challenges, including (1) the time it takes to teach a unit; (2) lack of previous LDC experience; and (3) version control and accessing unit materials.
Participants reported that CAS units are well-aligned to local curricula and state standards, but reported somewhat less positively about CAS alignment with state assessments.
Teacher Collaboration
Teachers reported that collaboration enhanced their capacity to implement CAS units.
Teachers reported that CAS increased their collaboration with school and district colleagues.
Unit implementation was more challenging for teachers without a school-level CAS partner.
Influence on Teacher Practice and Student Learning
Teachers in some districts reported that CAS instruction was similar to their typical instruction, in part due to their experience with LDC prior to CAS, but a strong majority still felt that CAS further improved their instructional practice.
CAS strategies have influenced teaching strategies outside of units, as well as planning of non-CAS instruction.
Reports of CAS units' positive influence on student learning were widespread during Year 2 research; teachers particularly highlighted students' writing skills and understanding of content as improved through CAS units.
Teachers reported high levels of student engagement during CAS units.
Leadership and Teacher Effectiveness
While the new role of teacher leader was still evolving in Year 2, CAS implementers and revisers reported that CAS teacher leaders were knowledgeable about CAS and provided support for unit implementation
District administrators continued to provide help to teachers in implementing CAS units in Year 2 of the initiative, but not as consistently across sites as in Year 1.
School administrators have played a limited role in CAS across both school years.
CAS shows promise in providing measures of student learning and teacher effectiveness.
CAS Sustainability
CAS has scaled up in terms of both breadth and depth in Year 2.
Teachers and administrators want to see unit instruction continue and grow in Year 3.
CAS participants indicated that collaboration, as well as professional development and ongoing support for new CAS teachers, are necessary for CAS to scale successfully.
Some participating districts, especially those in their second year of the initiative, had already developed plans for CAS in Year 3.

In the next section, the Year 2 research findings are organized in the following sections:

1. Unit Implementation
2. Alignment
3. Teacher Collaboration
4. Influence on Teacher Practice and Student Learning
5. Leadership Roles
6. CAS as a Measure of Teacher Effectiveness
7. CAS Sustainability
8. Areas for Improvement and Further Research

II. Findings

Below we draw on survey, interview and observation data to report findings about key areas of the initiative, including the status of unit implementation in Year 2 and how teachers thought units aligned with curricula and standards; the role of teacher collaboration in CAS; educators' perspectives on how CAS

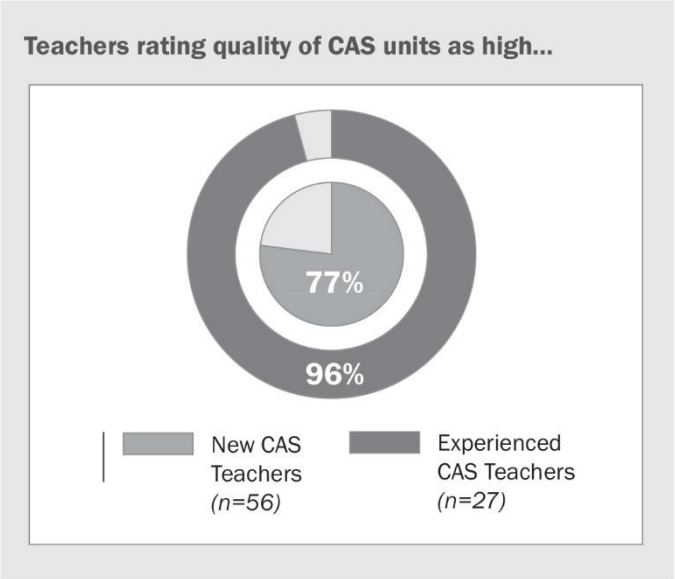
is influencing teacher practice and student learning; the roles school and district leaders played in CAS; educator perspectives on CAS as a measure of teacher effectiveness; and the status of CAS scale up.

A. Unit Implementation

CAS teachers began the school year in 2014 (Year 2) with ready-to-teach CAS units. For the most part, the Year 2 units were revised, rather than created from scratch. While the Year 1 units generally still needed a great deal of work after the summer convening, in Year 2, teams left the convenings with relatively complete units. Through the revision process at the Year 2 summer convenings, subject-grade teams[7] sought to make the units more focused and manageable and to keep strengthening the prompts and mini-tasks.

Teachers, as well as district and school administrators, said CAS Year 2 Units were high quality. In every interview site, district administrators reported that the units were high quality. More than three-quarters (77 percent) of new CAS teachers, and almost all experienced CAS teachers (96 percent) rated the units as "higher quality" on a five point scale (see Figure 2). The higher ratings given by experienced CAS teachers may be due to their strong sense of ownership of units and their design; they understood how the units had improved from Year 1. Some participants believed that the collaborative process greatly strengthened unit quality, including one teacher who said, "It was one of the highest quality units I've taught all year, because when you have 20 brains together instead of one, the strategies and mini-tasks can be so much stronger."

Figure 2. CAS Teacher Ratings of Unity Quality in Year 2



Note: Rating scale was 1-5 with 5 highest quality and 1 lowest quality.

The survey also asked experienced CAS teachers to compare the quality of units from Year 1 with those from Year 2. These CAS teachers indicate an increase in unit quality from Year 1 to Year 2. Using the same scale to rate the quality of the units, only 48 percent (n=27) of experienced teacher respondents rated the Year 1 units as high quality, whereas 96 percent of that same group of teachers rated the Year 2 units as high quality. In interviews, experienced CAS teachers and administrators noted that the Year 2 units were more focused and more clearly structured than those in Year 1.

The quotations below illustrate these perceptions.

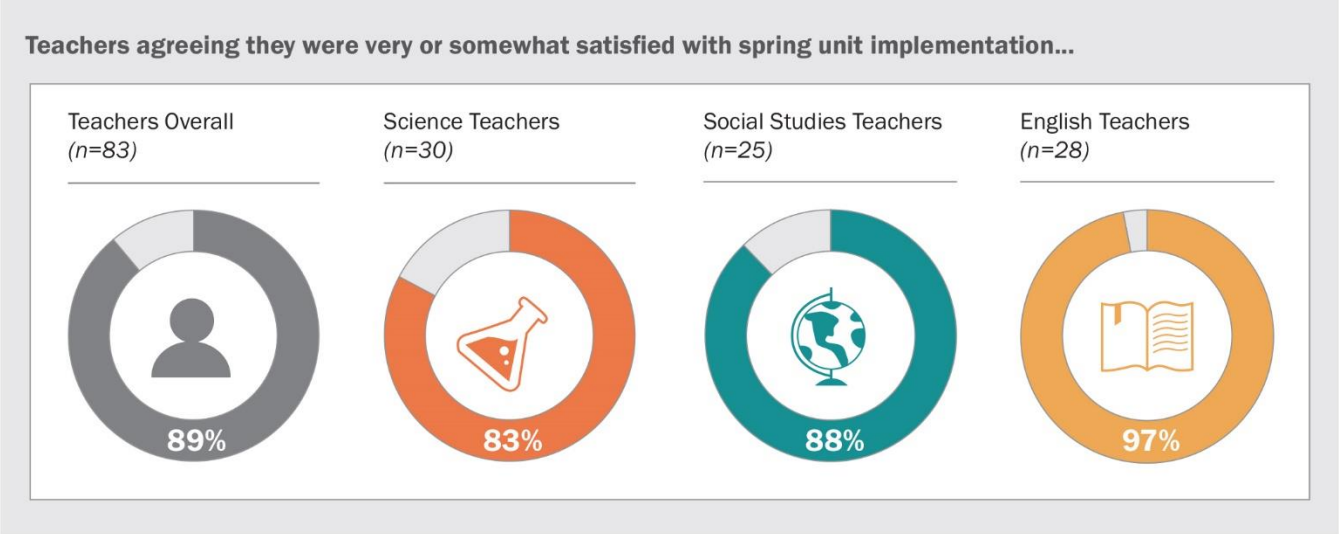
This year, [the quality of the units is] fabulous….That first year, what we got was the foundation of it, and we didn't have everything figured out. And then, meeting together this past summer and getting those kind of details out and having more input…we got some very quality assignments created. [It's a] quality unit as a whole. - Experienced science teacher

[7] There were six subject-grade teams in both Year 1 and Year 2: middle school science, high school science, middle school ELA, high school ELA, middle school social studies, high school social studies.

They've been cleaned, [and are] much easier to implement and more logical to follow. It's most important that it makes sense to those teachers. [With the] first year first unit [it was] like, what are we even doing? It's not at all like that now. - District administrator

Overall, teachers, as well as school and district administrators were pleased with the implementation of CAS Year 2 units. A solid majority of teachers (89 percent, n=83) reported being satisfied with implementation of the spring units. Satisfaction with CAS was high across all content areas, with 83 percent of science teachers, 88 percent of social studies teachers and 97 percent of English teachers agreeing they were satisfied with the spring unit (see Figure 3).

Figure 3. CAS Teachers Satisfaction with Spring Unit Implementation



In both fall and spring interviews, the vast majority of teachers said that implementation went well. A new CAS social studies teacher said, "[My school CAS partner] and myself, we had done [this topic before.]. But, I'll be honest, I don't think we probably did it that well until we did [CAS]." A principal noted, "They [CAS teachers] feel they are reaching students like they haven't before."

In interviews, many experienced CAS teachers favorably compared Year 2 implementation with that in Year 1. Some school and district administrators with CAS experience echoed this perception. Teachers, principals and district administrators commented that the units were more manageable in Year 2. As an experienced CAS social studies teacher said, "This year the timing is [good] and it seems more doable for the time frame." Experienced CAS administrators echoed this theme. One district administrator commended a revised unit's "clarity for students. It's not disjointed so the students see the path…and the products have been much richer than they were last year."

Subject-grade teams made strides in differentiating CAS units. During unit revision, CAS subject-grade teams incorporated differentiation in two main ways: (1) some teams built differentiation into their units (e.g., by including readings or labs at different skill levels); and (2) teachers instituted further differentiation back home. This later phase of differentiation often focused on creating more scaffolding and support for struggling students.

In interviews, some teachers reported that the units worked successfully for different populations. According to an experienced CAS ELA teacher, "They have enough scaffolding so you can differentiate across the regular and accelerated populations."

Teachers identified a number of implementation challenges. Major challenges included the time needed to teach a CAS unit and how to balance CAS and other curricular demands, lack of LDC experience, and simply accessing and organizing unit materials within teams.

(1) Many teachers reported that dedicating the amount of time needed to teach a CAS unit was a challenge. Time was the most frequently identified challenge during interviews and in the teacher survey data. Nearly two-thirds (64 percent) of teachers responding to the survey agreed that finding enough time to implement the CAS unit was a challenge. Year 1 research also indicated that the time demands, including responding to student work and integrating CAS into required curriculum content, were challenging.

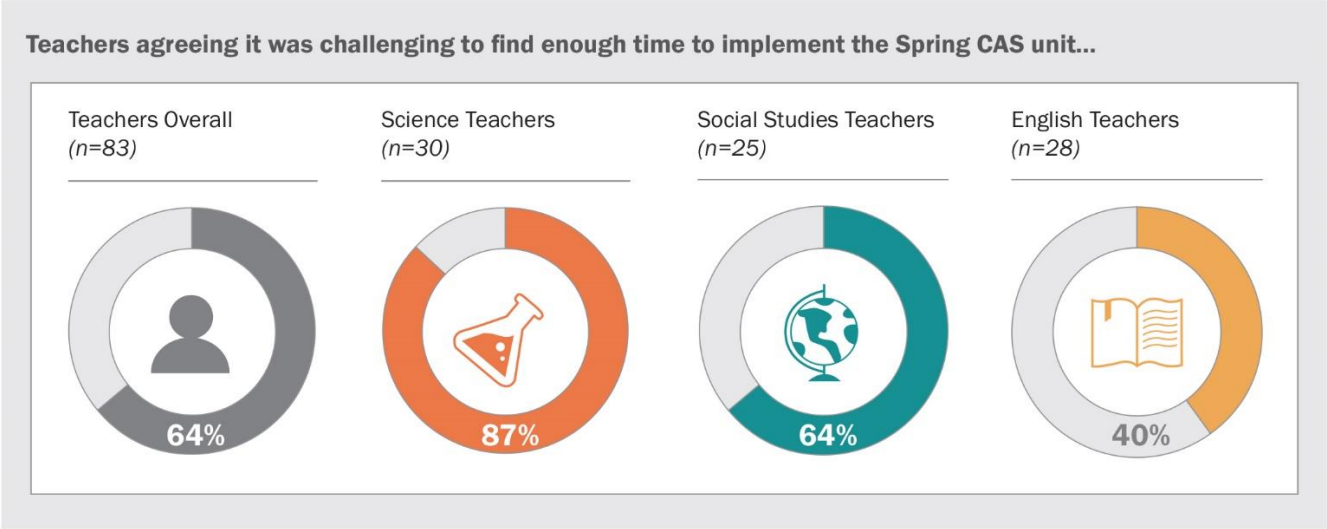
In interviews, experienced CAS teachers reported that the time required to teach the units in Year 2 was more reasonable than in Year 1, but many teachers still felt pressed by time challenges related to CAS. These included grading, which took more time than many were accustomed to, and the fact that CAS units go into greater depth in some areas than does their existing school curricula. Some social studies and ELA teachers indicated that the focus of one of their units was too narrow, i.e., the content was not complex or broad enough to justify the time required. They wanted to revise these units to better align them with the significant amount of time needed.

Below, a teacher describes the additional time CAS required while also indicating that time spent on CAS units was valuable learning time.

> *I had to shift some things to teach the units. I felt like the fall one went on way too long…at the same time I didn't feel too terrible about shifting things around because of what we were teaching. I felt strongly about what we were teaching and what they needed to know. – New ELA Teacher*

Science and social studies teachers were especially likely to report challenges with the time necessary to implement CAS. While 40 percent of English teachers named this challenge, the proportion jumped to 64 percent of social studies teachers and 87 percent of science teachers (see Figure 4).

Figure 4. Teacher Reported Difficulty Finding Enough Time to Implement CAS Units



The Year 2 survey indicates that teachers may get a better handle on managing this challenge as they gain CAS experience. While 40 percent (n=27) of experienced CAS teachers agreed that it was challenging to find enough time to implement the CAS unit, 75 percent (n=56) of new CAS teachers did so.

Part of the time pressure on teachers is due to the need to deeply address both content and literacy skills in their CAS instruction. Forty-nine percent (n=82) of teachers surveyed agreed that teaching all of the content along with the literacy skills was a challenge. Several teachers had to shorten the unit, but regretted that they had not been able to spend as much time on writing and editing as they would have liked. As one science teacher explained,

> *We're always in a rush, it seems, in high school to get material covered…. I think I shortchanged the kids a little bit on more of the reading assignments, so I had to cut a couple classes. And even with that, my unit this year was at least a week-and-a-half longer….[with more time] I think I probably would have gotten a better product out of the kids. I had some good pieces [and] some pieces that just showed a lack of time that the kid could spend on it. – New science teacher*

(2) Implementation was more challenging for teachers without previous LDC experience. Of ten teachers surveyed who had never used LDC before joining CAS, nine agreed that experience with LDC before 2014-15 would have helped them implement CAS. In interviews, teachers with and without previous LDC experience affirmed that knowledge of LDC helps teachers implement CAS units. One teacher new to both LDC and CAS explained,

> *Not being familiar with LDC has affected use of the unit. It would have been nice to have the background. [I] got a crash course in Kentucky [at the convening]. If I would have known [about LDC] before, all of it would have made a lot more sense to me. – New social studies teachers*

In both rounds of fieldwork, experienced LDC teachers, as well as a few principals, also reported that lack of previous LDC experience as a challenge for new CAS teachers. One experienced LDC teacher said, "You probably need some basic understanding of LDC to implement a CAS unit or someone close by who does have that understanding and can walk someone through those steps."

(3) Version control, as well as accessing the units and supporting materials, sometimes presented a challenge for teachers. Representatives of five of the six subject-grade teams named this as an issue. In Year 1, teachers described the challenge of using the CAS website to house the units; it was often difficult to find the most current versions of the unit and its supporting documents. In Year 2, subject-grade teams used a variety of approaches for housing their units, including the website, Dropbox and live binders. However, teachers from four of the six CAS teams reported these could still be difficult to negotiate. In addition, the unit plan and multiple supporting materials (readings, graphic organizers, rubrics, etc.) were not necessarily clearly organized. Teachers explained:

> *The materials section might have been laid out a little more clearly, as far as the actual steps in the unit. They weren't laid out in order. – New social studies teacher*

> *[The unit] wasn't in a nice big bundle. There are too many places to find things. The CAS site […] might have something different than what we have on [our] Live Binders… Then we have the paper task that we print out. There are too many places. And all the information is not the same. All the way down to the prompt was different in two different places. – New ELA teacher*

One team addressed this challenge by creating an interactive daily plan with links to materials.

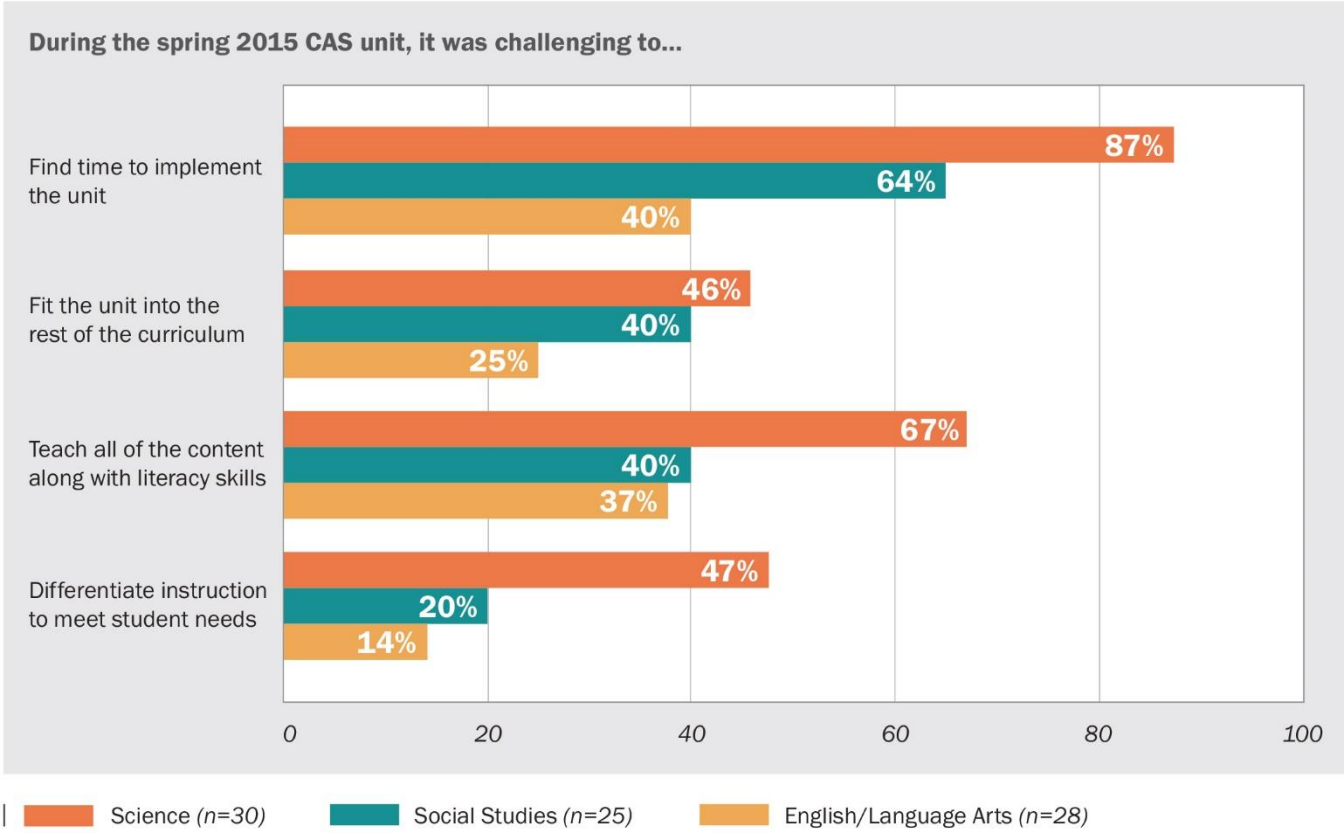
(4) Despite progress in differentiating units noted above, a minority (28 percent, n=83) of teachers surveyed agreed that differentiating CAS instruction to meet student needs was still a challenge. Certainly, differentiation is an ongoing challenge with any curricula and this challenge seemed especially acute for two CAS teacher subgroups--science teachers and new CAS teachers. Specifically:

- Science teachers made up more than half (61 percent, n=23) of the teachers identifying differentiation as a challenge.
- Differentiating CAS units does seem to get easier for teachers as they gain CAS experience. While 36 percent (n=56) of teachers new to CAS reported that differentiation was challenging, only 11 percent of experienced CAS teachers reported this.

Science teachers and teachers new to CAS were especially likely to report challenges.

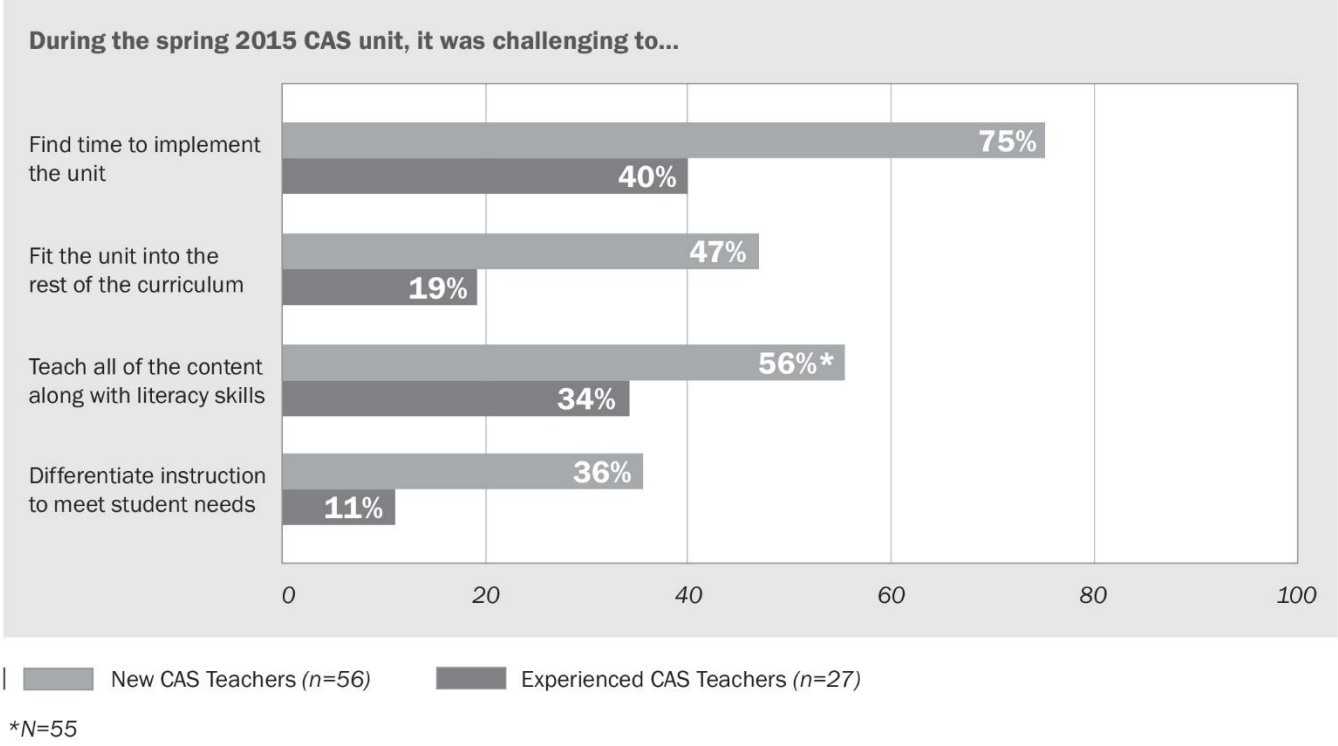
(1) Across the board, science teachers were more likely than social studies or English teachers to report implementation challenges. These challenges included finding time to implement the unit, fitting the unit into their curriculum, teaching all of the content along with literacy skills, and differentiating instruction (see Figure 5). English teachers experienced the fewest challenges.

Figure 5. Implementation Challenges and Teacher Content Area



(2) Teachers in their second year of CAS implementation reported fewer challenges than new CAS teachers. This may suggest that, as teachers gain experience with CAS units, implementation gets easier (see Figure 6).

Figure 6. Implementation Challenges and Teacher CAS Experience

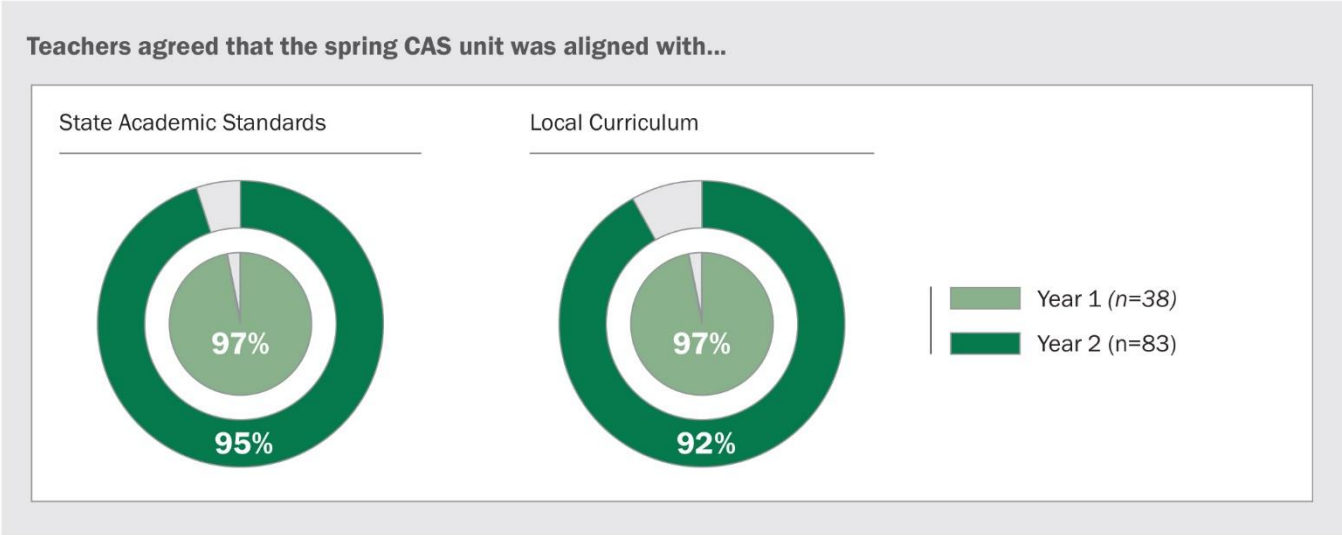


B. Alignment

Educators need curricular options that address the new state academic standards and assessments that have been developed in recent years. Therefore, alignment of the CAS units with state college and career readiness standards and with local curricula and assessment systems designed to measure student progress based on the standards is essential to achieving the goals of instructional improvement and increased student learning.

Teachers continue to report that CAS units are well aligned to local curricula and state standards. Over 90 percent of teachers agreed that the CAS units were well aligned with their curriculum (92 percent) and state standards (95 percent); these survey results were the same or very similar to those from the Year 1 teacher survey (see Figure 7).

Figure 7. Teacher Perceptions of Alignment between CAS Units, Standards and Curriculum, Years 1 and 2



Interview respondents were similarly clear that the CAS units are well aligned with state college and career readiness standards. For instance, one school administrator explained that in "making adjustments to new standards, [CAS] works beautifully." Similarly, a social studies teacher commented that, "the standard that this unit addressed…was a good fit" and an English teacher said "it's aligned to our Common Core State Standards, so….it fits."

Teachers also commonly reported that CAS units were closely aligned with the curricula for their content areas. For example:

> *It [CAS unit] fit really well into it [the curriculum]. It covered things that I already do. We always include a writing piece, we always include primary and secondary sources, analysis, and so forth. So, it was just a matter of, okay, am I going to take something out and put this piece in? And…and in a couple of places, that's exactly what I did. They fit fine. It's just replacing a piece that I normally used. – New CAS social studies teacher*

Furthermore, the two largest Kentucky districts in involved in CAS have also been implementing LDC for several years. Several science and social studies teachers from these districts reported that CAS units could be incorporated with their content and curricula more seamlessly than the previous LDC modules. Two experienced science teachers explained that,

> *Teacher 1: We feel like we step out of science and teach language arts for a month when we do LDC.*
>
> *Teacher 2: We're doing a unit instead. In science… we kept [saying about LDC]…this isn't really true science writing…. . You know, it should look like a lab report or it should look like collecting data. And I think common assignment helped us hone in on that and make it so it wasn't a language arts class.*

However, the gradual shift to the Next Generation Science Standards (NGSS)[8] is taking place on multiple timelines in the two states and study districts, which created some issues in determining which grade was most appropriate for unit implementation in some science classrooms. Teachers explained how they addressed this shift:

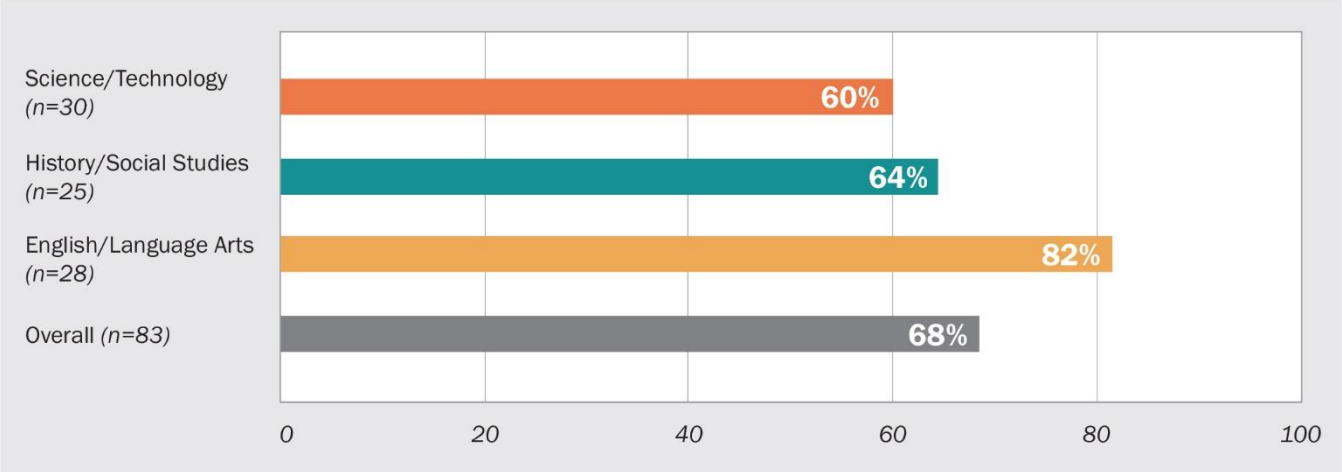
> *The way you can do course maps, you can align the standards to grades in different ways…maybe a unit is no longer taught in 7th grade, maybe it could be taught in 8th grade. – New CAS science teacher*

> *We…decided that we couldn't teach energy interdependence anymore because NGSS is flipping [it] around…It's definitely challenging because they had this awesome unit last year and we're not able to use it. – Experienced CAS science teacher*

Participants reported somewhat less alignment between CAS and state assessments. During Year 1 research, 76 percent (n=38) of teachers responding to the survey agreed that the CAS units helped prepare their students for the state assessments. In Year 2, 68 percent of teachers (n=83) and only 40 percent of district administrators (n=10) rated CAS units as useful in preparing students for their state assessments. A higher percentage of teachers in Colorado (76 percent, n=34) rated the CAS units as useful in preparing students to take the state assessments than in Kentucky (63 percent; n=49). While this may relate to Kentucky's decision to withdraw from the Partnership for Assessment of Readiness for College and Careers (PARCC), and the state's use of end-of-course tests that measure content knowledge in specific courses, this cannot be verified through our data. Colorado, however, continues to administer the PARCC assessment and does not use end-of-course tests.

Teachers' perspectives on CAS alignment with the instruction needed to prepare students for the state assessments vary considerably by subject area as well. While 82 percent of ELA teachers said that the CAS units help prepare students for the state assessments, only 64 percent of social studies teachers and 60 percent of science teachers agreed (see Figure 8).

Figure 8. Teachers Rating the CAS Units as Useful in Preparing Students for the State Assessments, by Subject Area



[8] The Next Generation Science Standards (NGSS) are based on the Framework for K-12 Science Education developed by the National Research Council. They were developed through a collaborative, state-led process managed by Achieve.

Just as in Year 1, teachers perceived a tension between the depth of the CAS units and the breadth of content that teachers feel they need to cover to prepare students for the state assessments. Teachers reported the following:

> *Because of the rigorous time demands of standardized testing, it is difficult to dedicate the time to each of these units with the type of fidelity and care we would like, when district and state testing continually impact our ability to teach these units in a cohesive, timely fashion. - Open-ended teacher survey response*

> *U.S. History has an end-of-course test and there's so much we have to cover. It's difficult to give that much depth for CAS. I think it's better to have LDC and CAS and to get more depth but our hands are tied somewhat. – New CAS social studies teacher*

C. Teacher Collaboration

As illustrated by this statement from the Common Assignment website, teacher collaboration has been an integral part of the initiative since its conception:

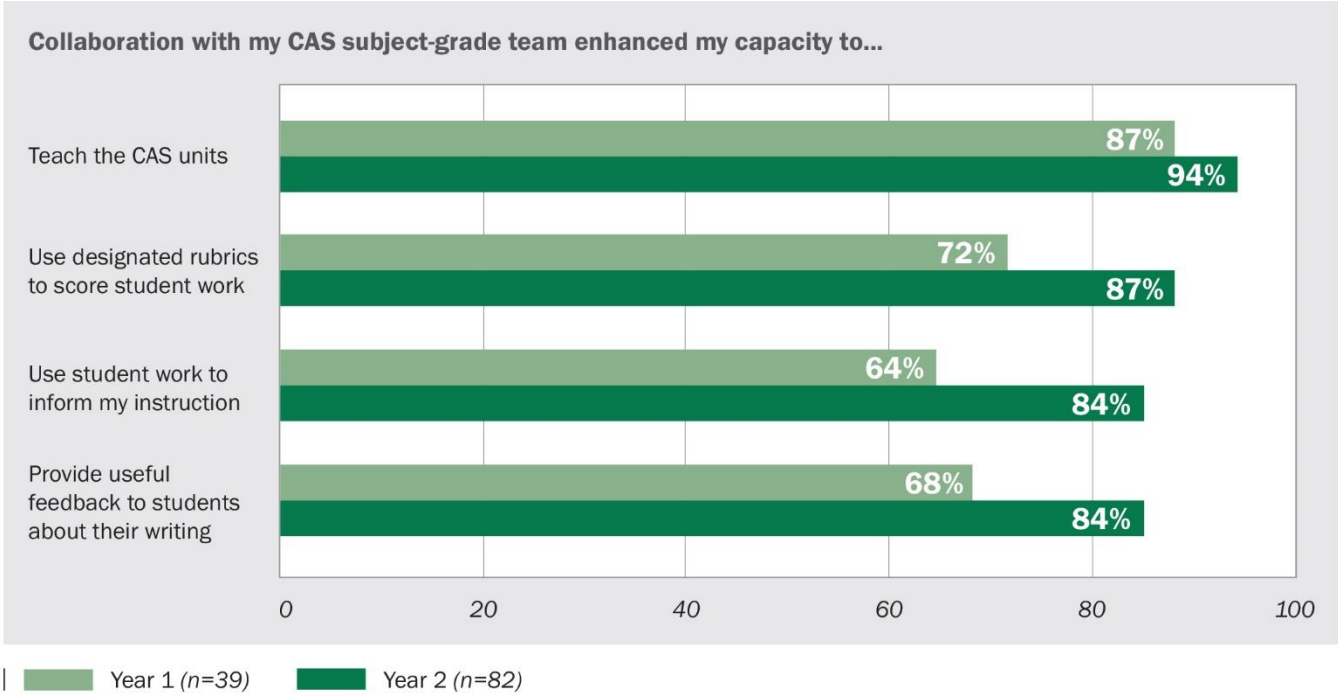
> *The Common Assignment Study is an opportunity to build new knowledge about how teacher collaboration and peer-feedback can support the development and use of high-quality curricula and improve the expectations for and quality of student work in key subject areas.*

Year 1 research indicated that CAS teachers highly valued collaboration and found it very helpful in supporting unit implementation. In Year 2, RFA sought to examine how and if collaboration changed as CAS grew.

In Year 2, teacher collaboration continued to be central to the Common Assignment initiative. Collaboration took place in both cross-state and in-state convenings, where subject-grade teams worked to revise units and to examine student work to calibrate scoring and discuss implications for instruction. Once they returned home, teachers continued to collaborate, sometimes with their team via social media and sometimes in person in their schools and districts.

Teachers reported that collaboration enhanced their capacity to implement CAS units. Over 80 percent of teachers reported that CAS collaboration enhanced their capacity to teach CAS units, provide useful feedback to students about their writing, use student work to inform instruction, and use designated rubrics to score student work. Notably higher percentages of teachers in Year 2 found collaboration helpful in Year 2 than in Year 1 (see Figure 9).

Figure 9. Collaboration as a Support for Implementation



Two key factors likely help to explain this difference between Year 1 and Year 2. First, substantially more teachers had access to local collaboration in Year 2. The percentage of teachers with school level partners increased from 49 percent (n=39) to 72 percent (n=81) and the percentage of teachers with district partners increased from 65 percent (n=20) to 82 percent (n=81). Secondly, Year 2 convenings devoted more time to analyzing student work and its implications for instruction than in Year 1.

Across most interviews, teachers explained the key role collaboration played in supporting their work. One teacher described how she worked with her school CAS partner:

> *We've compared our grades. We've swapped papers for each class. We ended up real close. From the planning to how we've taught it and what the kids are responding to. It helps us implement; it helps us see what needs to keep happening and what needs to change. – Experienced social studies teachers*

Another teacher described how collaborating with the team to revise units strengthened classroom instruction:

> *Collaboration…really took me to a different level. [The team shared many models of graphic organizers and other tools] …It really helps me to differentiate in my classroom at a different level…..just the sharing of that knowledge I think has been [so] valuable. The units are great, but it's that rich dialogue that you have when you're creating the units that takes you to another level as a teacher. – Experienced science teacher*

The most intensive CAS collaboration on implementation occurred at the school level. Seventy-one percent (n=58) of those with a school partner reported meeting weekly or several times weekly with their CAS school partner(s) during planning or implementation of CAS units. By comparison, only three percent of those with district partners (n=66) met weekly or several times weekly with their district partner during planning or implementation.

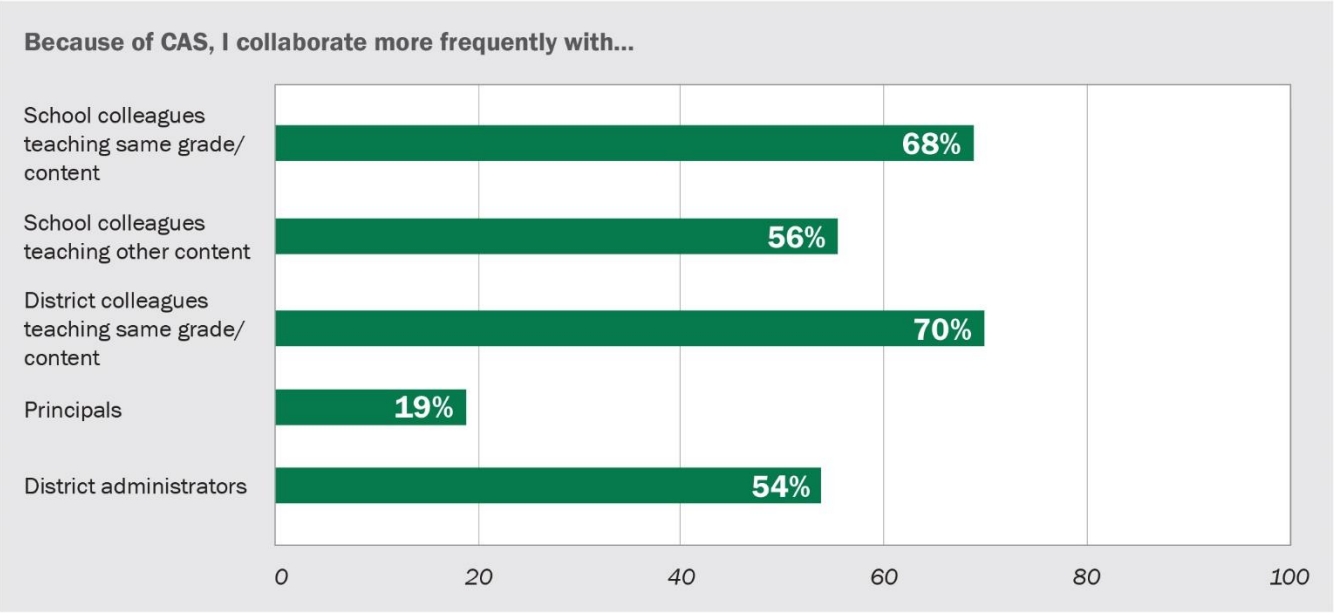
In addition, the vast majority (96 percent, n=56) of teachers who had a school partner agreed that collaborating with their partner was helpful. A solid majority (74 percent, n=65) of teachers with a district partner agreed that this collaboration was helpful. In interviews, many teachers described close collaboration with their school partners, which included preparing together, co-teaching, trouble-shooting problems, debriefing lessons and reviewing student work together. One new CAS teacher whose school partner is an experienced CAS teacher explained:

> *Having someone else in the building who's also a part of CAS has been really helpful. Especially someone who's taught it before. Because sometimes you do have those questions, where you're just like, I have no idea what to do with this population here because they're not getting it right now. – Experienced ELA teacher*

Teachers reported that CAS increased their collaboration with colleagues, both in and out of CAS. A strong majority of teachers (92 percent, n=83) reported that CAS units were useful in increasing teacher collaboration; these teachers rated CAS units' usefulness as four or five on a five point scale with five being very useful. Both survey and interview data indicate that CAS is catalyzing new types of collaboration for many teachers.

As can be seen in Figure 10, a majority of teachers reported that, because of CAS, they collaborated more frequently with multiple kinds of educators, including district administrators (54 percent), colleagues from their school who teach the same grade/content (68 percent), colleagues from their school who teach other content (56 percent), and colleagues in other schools their district/BOCES who teach the same grade/content (70 percent). Collaboration increased least with principals (19 percent), which is consistent with a range of data pointing to less overall principal involvement in CAS; see the leadership section below for a fuller discussion.

Figure 10. CAS is Increasing Collaboration with Colleagues



Note: N=80, except for principals whose n=79.

Increased collaboration was consistent across content areas. A higher percentage of experienced than new CAS teachers (81 percent vs. 41 percent) reported increased collaboration with district administrators, likely because of the strong ongoing involvement of district administrators in the three districts who began CAS in Year 1.

In Table 7, teachers describe examples of new collaborative relationships. Several noted that CAS collaboration had enabled them to move beyond competition with colleagues across district or school boundaries.

Table 7. New Types of Teacher Collaboration

TEACHERS REPORTED NEW COLLABORATION WITH COLLEAGUES FROM:	
Other content areas at their school who are implementing CAS	*The neat thing is that we have actually talked about how our students are performing, because we have similar students...those conversations would not have happened outside of CAS.* – Experienced Social Studies Teacher
Other district schools who teach the same content	*The beneficial part of this was that the school that we were competing with for numbers, we've really worked well together. The four of us [CAS teachers from two schools] have sat down to meet often and work together.* – New Science Teacher
Other school districts in the state who teach the same content	*There's no reason we should be working on this on our own and struggling when we could work on it together... being able to talk to these other counties when we normally would be competing. It's opened up conversations with other districts which has been great.* – Experienced Science Teacher

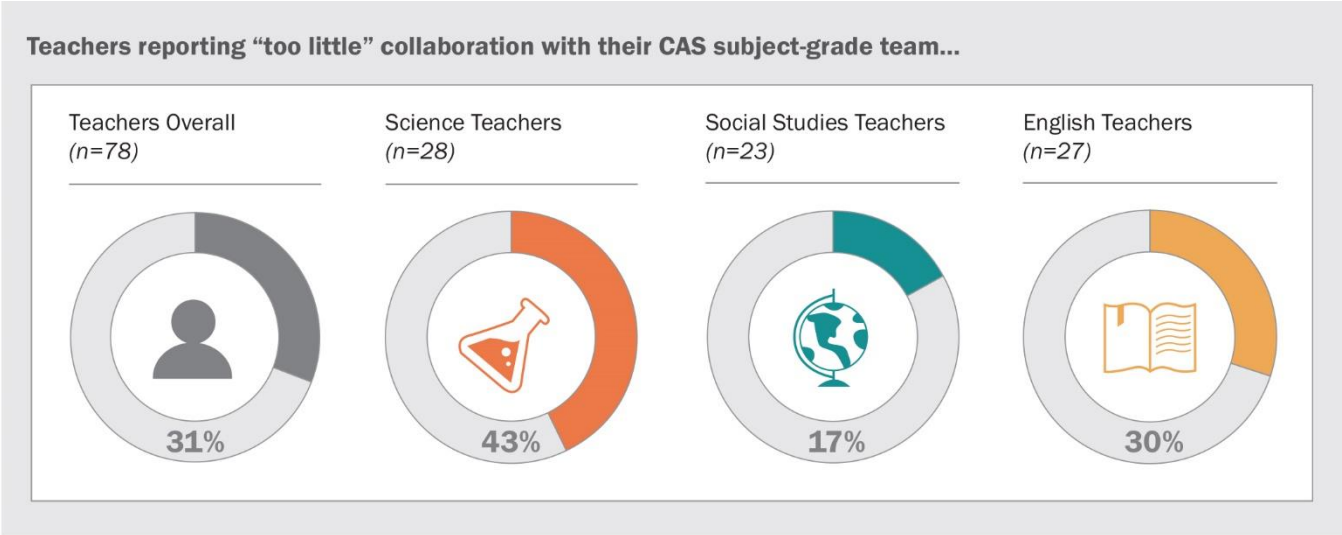
Subject-grade team collaboration during unit implementation decreased. In interviews, experienced CAS teachers reported less collaboration during implementation in Year 2. Because the units were more complete by the end of the convenings in Year 2, much less long-distance collaborative work on unit design was needed. Teachers identified possible causes of the relatively low level of team collaboration outside of convenings, including:

- The increased percentage of teachers with CAS school and district partners enabled shared problem-solving and collaboration locally, thereby reducing the need for team-wide communication;
- Lack of alignment in unit implementation schedules within subject-grade teams meant teachers taught shared units across a span of months, making collaboration on implementation more difficult; and
- The expansion of the initiative meant subject-grade teams larger, with some doubling in size, making collaboration more challenging.

More than two-thirds of teachers were satisfied with the level of subject-grade team collaboration, but almost one-third reported "too little" collaboration with their team. Sixty-nine percent of teachers (n=78) reported that the amount of collaboration was just right and no teacher thought that their CAS team had too much collaboration. However, 31 percent of teachers reported too little collaboration with their CAS subject-grade team.

Science teachers were most likely to report too little collaboration, with 43 percent of science teachers reporting this, compared with 30 percent of English teachers and 17 percent of social studies teachers (see Figure 11). New and experienced CAS teachers responded similarly on this question.

Figure 11. CAS Teachers Reporting "Too Little" Collaboration with Their Subject-Grade Team



Without a school CAS partner, unit implementation was more difficult. Through both the survey and interviews, teachers without a school-based CAS partner reported this as a challenge. Eighty-seven percent (n=23) of teachers without a CAS partner agreed that it would have been helpful to have a CAS teacher partner at their school. Below, two teachers describe their experience without a CAS school teaching partner:

> *Unless I just emailed somebody I knew already and said, 'Hey, how are you dealing with this,' I was really secluded here. I was really isolated. – New CAS ELA teacher*

> *I hate not having someone else in my school doing it….I feel like it's really important to have someone else on the same page with you so that you can bounce ideas off of each other…to have two people per school that you're bringing in would be fabulous. – Experienced CAS science teacher*

C. Influence on Teacher Practice and Student Learning

TEACHER PRACTICE

Districts participating in the Common Assignment Study (CAS) during the 2014-15 school year included those with and without prior experience with the Literacy Design Collaborative (LDC) framework, which is a central component of CAS. Previous experience with LDC was important. Those districts, schools and teachers involved with LDC had already shifted instructional practice, to varying degrees, toward a focus on building literacy skills in science and social studies, as well as ELA classes.

In the three districts with the largest numbers of teachers participating in CAS, teachers reported that CAS instruction was similar to their typical instruction, in part due to their prior experience with LDC. Kentucky has incorporated LDC statewide as one of the primary strategies for addressing college and career readiness standards in the classroom, and so each of the Kentucky districts where interviews took place had previous experience with LDC. As a result, teachers interviewed during site visits in Kenton and Fayette Counties reported that the use of CAS had not significantly changed their teaching style:

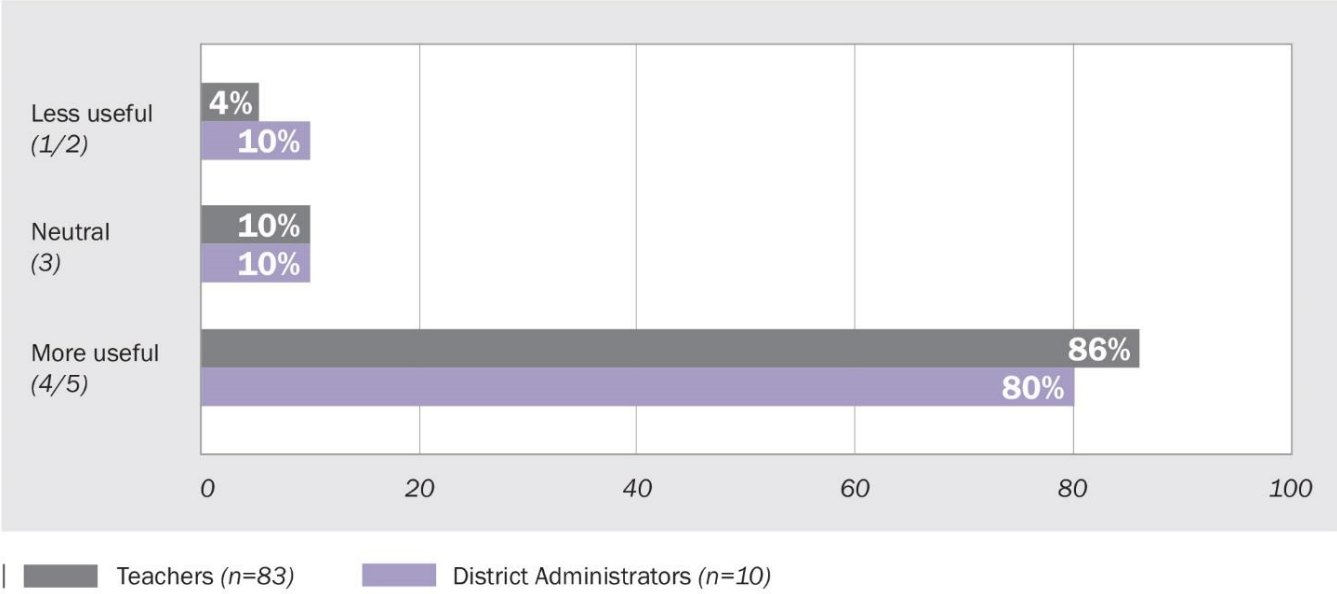
It's kind of how I teach now…since getting involved in the first LDC modules. - Kenton County teacher

I mean, we intentionally have two writing assignments each semester anyway, so [CAS] just changed the topics, but it didn't really change my teaching style at all. - Fayette County teacher

In Thompson County Colorado, where teachers have been implementing LDC for several years, teachers similarly reported that CAS had not changed their teaching practice substantially. However, in Adams 12 Five Star Schools, the district implemented LDC and CAS simultaneously for the first time during 2014-15. No teachers in the district mentioned CAS as similar to their traditional instruction.

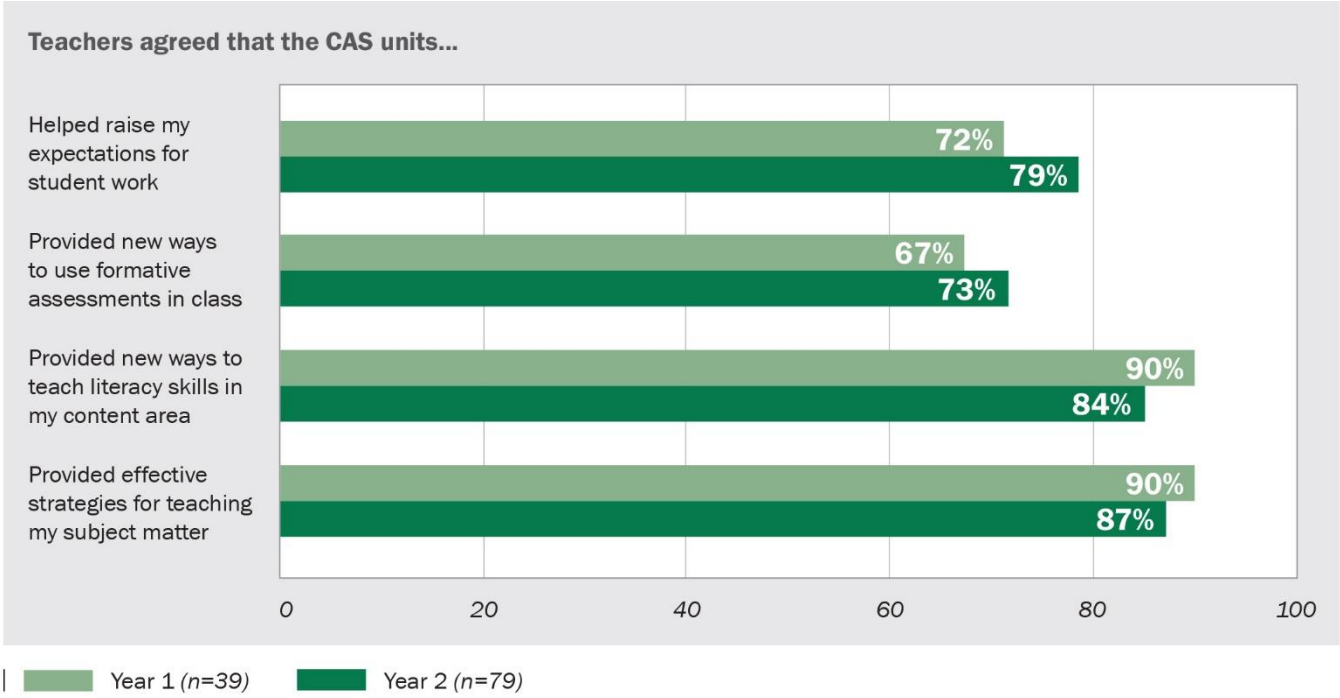
Even though many teachers and district administrators had experience with LDC, a strong majority felt that CAS further improved their instructional practice. Eighty-six percent of teachers and 80 percent of district administrators rated the CAS units as useful in improving instructional practice (see Figure 12); these ratings were based on a five point scale in which five was the highest rating.

Figure 12. Educator Ratings on the Value of CAS in Improving Instructional Practice



Across both years of the study, a majority of teachers reported that CAS positively influenced their teaching practice in multiple ways. As can be seen in Figure 13, across Years 1 and 2, over two-thirds of teachers agreed that implementing the CAS units positively influenced their teaching practice by: 1) raising their expectations for their student's work, 2) providing new ways to include formative assessment in their classes; 3) providing new ways to teacher literacy skills in their content areas and 4) providing effective strategies for teaching their subject matter. Notably, the change in teacher perceptions was small, despite the increase in the number of teachers and districts involved (see Figure 13).

Figure 13. Teacher Perceptions on the Influence of CAS Implementation on Teacher Practice



During interviews, teachers provided further evidence to support these survey findings. For instance, teachers across both states and in six of the seven districts/BOCES in which interviews were conducted reported a greater emphasis on writing in their instruction, as well as more instructional time on the development of in-depth writing skills. For instance, teachers stated that:

> *Prior to…CAS we weren't as meticulous about walking them through [the writing process] and teaching them the fundamentals to be able to write a regular paper. - New CAS social studies teacher*
>
> *I'm thoroughly teaching [students] how to do specific kinds of [writing processes]… rather than just opening up a notebook and having them taking notes… it's definitely more encompassing in terms of… teaching them the [writing] skills they need to be successful… in a more organized way. - New CAS science teacher*

Teachers also value the opportunity for formative assessment at different points in the unit. One teacher said that, "[CAS] becomes a constant formative check for any time I'm in the unit [so] I can see if kids are on task."

District administrators reported even stronger perceptions of the positive influence of CAS on teacher practice. All district administrators (100 percent, n=10) responding to the survey either somewhat or strongly agreed that CAS provided their teachers with new ways to teach literacy skills and detailed information about student strengths and weaknesses. Nine out of ten district administrators also believe that CAS provided teachers in their district with new ways to include formative assessment and strategies that could be transferred to non-CAS units.

CAS strategies have influenced teaching strategies outside of unit instruction. Teachers also reported that the CAS initiative had an influence on their non-CAS teaching practice. Specifically, nearly three quarters of teachers (73 percent, n=79) agreed that they were using CAS unit structures and ideas to design non-CAS units, and over four out of five teachers (85 percent, n=79) responded that they were using strategies learned through CAS in the rest of their teaching.

In interviews, teachers provided the following examples of how CAS is influencing their teaching:

> *It's helped me teach other units with more quality…it helps me make sure those skills are getting taught in other units as well. – Experienced social studies teacher*
>
> *I think the approach and the essential question changed everything for me… It's shifted the way I teach every unit now…I use the CAS planning unit or outline to plan all my lessons now – what are my goals? How do I implement? What are the mini-tasks? I threw all my other units away. – Experienced science teacher*
>
> *It has made me teach everything else in a different way; [it has been] transformative and what I have seen has made me think differently. – New ELA teacher*

STUDENT LEARNING AND ENGAGEMENT

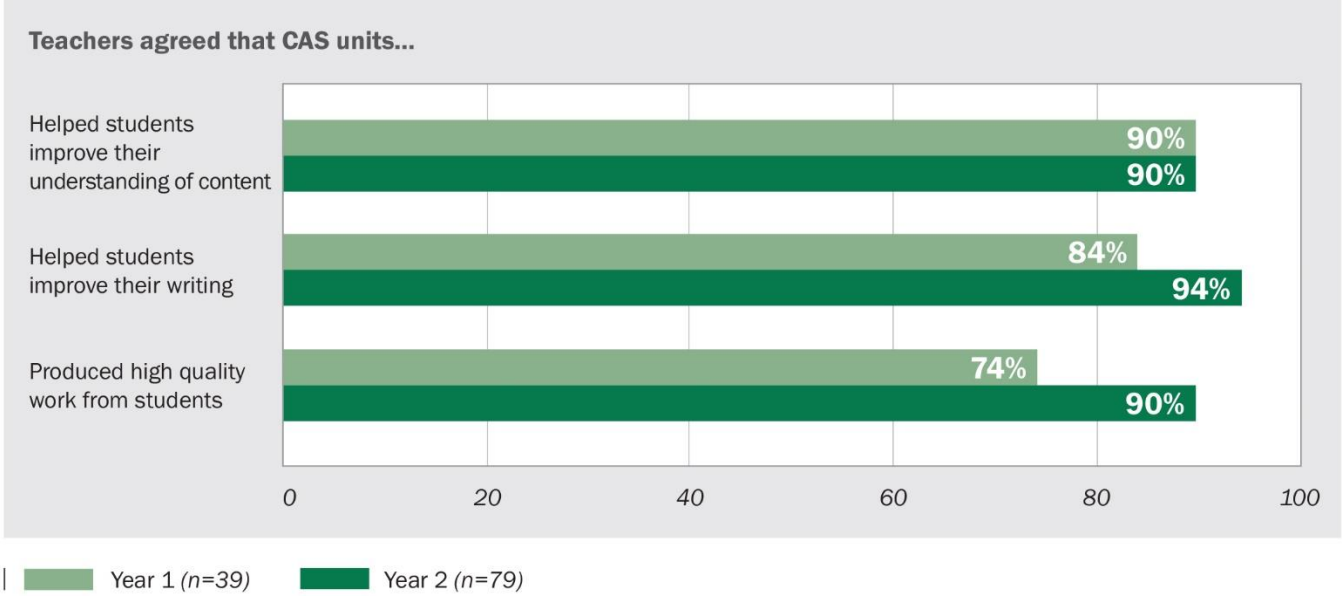
Reports of the CAS units' positive influence on student learning were widespread during Year 2 research. In both Colorado and Kentucky, administrators and students, as well as teachers across all three content areas, spoke in interviews about the positive influence CAS units had on learning (see Table 8).

Table 8. Teacher, Administrator and Student Comments on the Influence of CAS on Student Learning

TYPE OF RESPONDENT	LOCATION	REMARKS ABOUT STUDENT LEARNING DURING CAS UNITS
Teachers		
Science/Technology 	Colorado	*[Students] are taking what I taught them and they're [continuing] to talk about it [after the unit is over].*
	Kentucky	*For me the learning was evident.*
History/Social Studies 	Colorado	*I think that even good students get challenged by the tasks… it's helped enhance student learning.*
	Kentucky	*I don't think there's any question; [students] understand better when you go through a CAS assignment.*
English/Language Arts 	Colorado	*They [students] got a real good handle [on the content].*
	Kentucky	*It is so hard to get [students] to [use evidence]…I've been trying to do that for years. It worked this time [with CAS].*
Administrators		
School Level 	Colorado	*Kids are having a positive experience and the level of understanding seems deeper.*
	Kentucky	*What we're allowing students to do [with CAS] is apply their knowledge of content, not just recall facts and figures.*
District Level 	Colorado	*The level of…thinking on the part of the students was really deep when they went through this CAS unit.*
	Kentucky	*I have seen our kids can generate the data and think more about evidence.*
Students		
	Colorado	*You can get more information [from the CAS units] and remember it better.*
	Kentucky	*This unit helped a lot with understanding what I was writing… and how I can change it and fix things.*

In particular, teachers felt that their students' writing skills and understanding of content have improved through the implementation of CAS units. At least 90 percent of teachers agreed during Year 2 of the study that CAS helped students gain a deeper understanding of content, improve their writing skills, and produce high quality work overall. These survey results notably improved or remained constant from Year 1 to Year 2 (see Figure 14).

Figure 14. Teacher Perceptions of CAS Influence on Student Learning



The following findings are particularly notable:

In interviews, teachers across all three subject areas commonly reported that the CAS units resulted in deeper learning and better understanding or retention of the material. For instance, teachers said:

> *They enjoyed the depth and getting to know all the ins and outs. They didn't seem to mind writing the paper because they had so much information they could use to write. – New CAS social studies teacher*
>
> *I think they're gaining that knowledge more in depth…they're discovering as opposed to us feeding them information. Before they could rattle off vocabulary words, which they can still do, but now they understand the meaning behind them. – New CAS science teacher*

Students, school administrators and teachers interviewed also reported improved writing among students, at least in part, as a result of CAS. For instance, one teacher said that the last paper that the students had written for the CAS unit "was the best student writing that I'd ever seen…their papers were fantastic!" Another teacher said that "the writing I saw from my students blew my socks off compared to what I would've seen before."

Some teachers reported that the units supported struggling students in performing at higher levels. Seeing increased achievement from struggling students is likely one explanation for the previous finding that a solid majority of teachers reported that CAS was raising their expectations for students' work. One teacher explained the reason students were able to dig into rigorous tasks:

It was the step-by-step. It was the breaking things down into those smaller skill sets and working our way up and scaffolding and building. I would have never thought that they could have read Shooting an Elephant … That book is a really hard text to read…But I think those mini tasks and building their confidence in the formative assessment was huge. If we didn't have that formative assessment to gauge where they were and to re-teach them the writing skills, that was crucial….Working up to that formative assessment was a big confidence builder for my kids. - New ELA teacher

Teachers reported high levels of student engagement during CAS units. Teachers attributed learning advances to high levels of student engagement during the CAS units. Indeed, high levels of student engagement were consistently reported across both years of our research. During Year 1, 92 percent (n=38) of teachers responding to the survey agreed that the spring CAS unit was engaging to students, which increased slightly to 94 percent (n=77) in Year 2. In interviews, teachers shared the same enthusiasm about the way that students participated in the CAS units and how it supports learning. For instance, teachers said that:

I feel like both of the units are high engagement units and have a lot of relevant issues and activities. They are high interest and that naturally increases student learning because of higher student engagement on a daily basis. – New CAS ELA teacher

The whole engagement piece of this is what I think has really been so powerful with the kids, and it does impact their learning…I think that that's why their papers from that unit that we did were so good, because they were so vested and so engaged in it. – Experienced CAS ELA teacher

D. Leadership Roles

In the second year of the CAS initiative, the Colorado Education Initiative (CEI) and The Fund for Transforming Education in Kentucky (the Fund) continued to lead the overall initiative. CEI, the Fund and partners developed three possible roles for teachers: Implementer, Reviser, Teacher Leader. For the purposes of our discussion, Implementers and Revisers will be referred to as *Participating Teachers*; the glossary provides further descriptions of these roles.

The Teacher Leader role was designed to develop a cadre of teachers to take on leadership at multiple levels within CAS—school, district, state and across states. Teacher Leaders help lead their team's revision of the original CAS units, design new ones and help facilitate their subject-grade team's work at the CAS convenings. They also serve as a liaison with partners during implementation. While not specifically outlined as a unique activity for teacher leaders, an underlying expectation was that Teacher Leaders would also provide additional support to their peers within the schools and districts where CAS was implemented. In addition, during both Years 1 and 2, school and district administrators also provided leadership to differing degrees in support of CAS implementation.

CAS teachers who did not identify themselves as Teacher Leaders (i.e., Participating Teachers) were asked to select the support activities that teacher and administrative leaders provided. Table 9 illustrates how many support activities were identified by Participating Teachers for each type of CAS leader; this table will be referenced in the discussion below.

Table 9. CAS Support Activities Provided by Leaders as Reported by Participating Teachers

CAS SUPPORT ACTIVITIES	TEACHER LEADERS	SCHOOL ADMINISTRATORS	DISTRICT ADMINISTRATORS
Answered questions	●	○	◉
Arranged release time	○	◉	●
Assisting in submitting student work	◉	○	○
Communicated alignment	◉	○	●
Encouraged collaboration	●	◉	●
Facilitated district discussions	◉	○	●
Observed teachers	○	○	○
Provided initiative updates	◉	○	◉
Provided formal training	◉	○	◉
Provided materials and resources	●	○	◉
Recruited teachers	◉	◉	●
Working with teachers during instruction	◉	○	◉

(n=50)

○ 0-9 Participating Teachers reported that this CAS leader performed this CAS Support Activity

◉ 10-20 Participating Teachers reported that this CAS leader performed this CAS Support Activity

● 21+ Participating Teachers reported that this CAS leader performed this CAS Support Activity

Below we discuss in more detail how each type of leader—Teacher Leaders, School Leaders and District Leaders—participated in CAS in Year 2.

TEACHER LEADERS

CAS Participating Teachers reported that CAS teacher leaders were knowledgeable about CAS and provided support for unit implementation. Not surprisingly, Teacher Leaders are seen as the most familiar with the units and have provided their peers with the most help in implementing the units when compared with school and district administrators. Ninety-seven percent of Participating Teachers agreed that Teacher Leaders have a solid understanding of CAS and 85 percent agreed that Teacher Leaders helped them implement the CAS units (n=50). As seen in Table 9, Participating Teachers reported that Teacher leaders most commonly answered their questions about CAS, provided materials and resources for CAS units and encouraged collaboration, but were engaged in a number of other support activities as well.

In terms of the intensity of support, interview respondents reported that teacher leaders primarily acted as a resource "as needed." For example:

> *Any time I have a question I go to her [teacher leader]...without [her] in the school I would have been lost. It is nice to have an actual person to sit down with and we can talk in person. – Experienced CAS ELA teacher*
>
> *He's very, very helpful…if we need anything, have a question about [CAS unit implementation], we go to him. – New CAS ELA teacher*

The availability of Teacher Leaders was much higher in Year 2 districts as the role continues to evolve. Survey data suggests that there was considerable variation in the amount of Teacher Leader support available in Year 1 versus Year 2 districts. When Participating Teachers overall (n=50) were asked if they had a Teacher Leader in their content area in their district or BOCES, nearly a third (30 percent) responded that they did not have a Teacher Leader (12 percent) or that they did not know (18 percent). The survey data indicate that Participating Teachers from districts in their first year of CAS did not have the same proportion of Teacher Leaders available as districts in their second year of the initiative. Specifically, 28 percent of Participating Teachers in districts in their **first year** of CAS (n=11) reported that they knew they had a CAS Teacher Leader in the content area in their district/BOCES, while 82 percent of teachers in districts in their **second year** of the initiative (n=39) reported that they knew they had a Teacher Leader in their content area in their district/BOCES (see Table 10). *However, it is very important to recognize that overall there were more than twice as many CAS teachers from districts in their second year of CAS (72) compared to districts in their first year of CAS (27).*

Table 10: Participating Teachers with a Teacher Leader in their District/BOCES and Content Area

FIRST YEAR DISTRICT/ BOCES INVOLVED IN CAS	PERCENTAGE OF TEACHERS WITH A TEACHER LEADER REPORTED IN THEIR DISTRICT/ BOCES IN THEIR CONTENT AREA	NUMBER OF CAS TEACHERS OVERALL
2014-15	28%	27
2013-14	82%	72

It appears that district administrators were not necessarily aware of CAS teacher leaders' activities. Forty-four percent of district administrators believe that less than half of the Teacher Leaders in their district helped with CAS implementation; another 11 percent said they did not know whether the Teacher Leaders in their district were helpful (n=9).

Indeed, the role of Teacher Leader is still a work in progress, according to comments by some CAS initiative partners, who stated that:

> *I think that [developing teacher leaders] requires some more structure or just a clearer plan about how that's going to happen…I hope that the states are actually doing this more systematically….you ask teachers, "Who wants to be a leader?" And then they say, "I want to be a leader." And then you say, "Okay, here's this project. Now you lead." I'm highly skeptical…I don't know that we have actually, as a project, thought about how to help them do that. – CAS Partner*

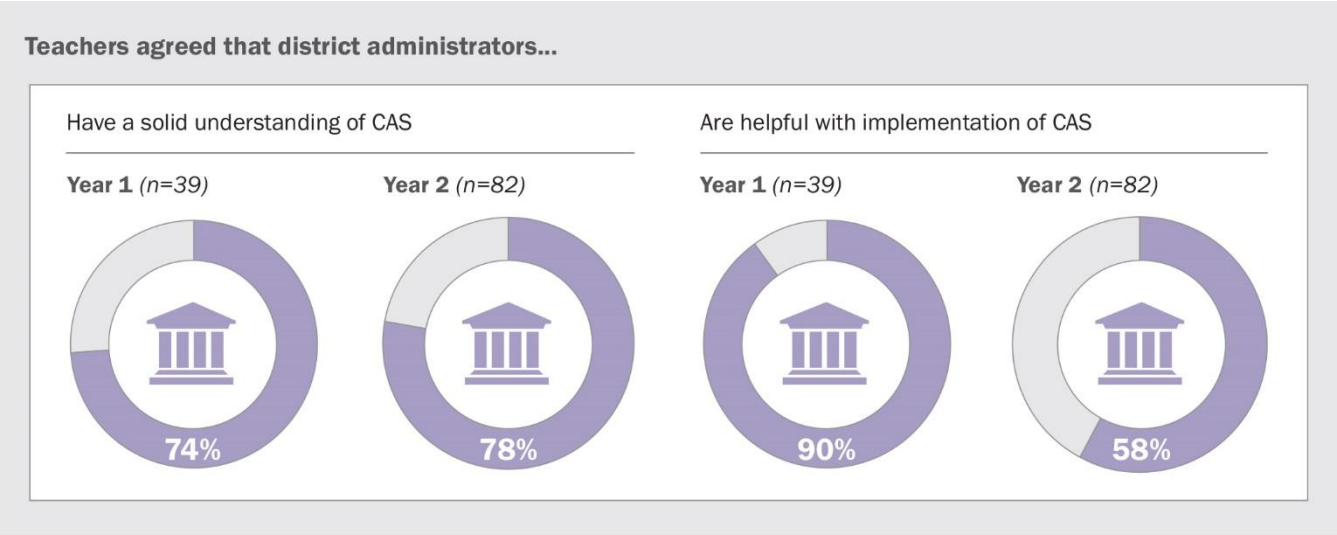
> *We know that we want teacher leaders to take on more responsibilities, but we never did establish a precise plan for what that might look like. And I think that that became, at some point, an intentional choice. They've been asking the teacher leaders to log the sorts of activities that they do, and from that there may emerge a clear picture of what the group needs from teacher leaders. It has been a bit experimental this year. – CAS Partner*

DISTRICT ADMINISTRATORS

District administrators continue to provide help to CAS teachers in Year 2 of the initiative, but not as consistently across sites as in Year 1. As can be seen in Figure 16, during the 2013-14 school year (Year 1), 74 percent of teachers said that their district administrator had a solid understanding of CAS and 90 percent of teachers said district administrators were helpful in supporting the CAS work. For 2014-15 (Year 2), 78 percent of teachers agreed that district administrators have a solid understanding of CAS, but

only 58 percent of teachers agreed that district administrators helped with CAS implementation. Indeed, as seen in Table 9 above, while district administrators provided support for CAS in many ways, the most common activities that district administrators performed did not directly involve unit implementation, but instead administrative support for the initiative (e.g., arranged release time, recruited teachers, facilitated district discussions), while teacher leaders more often answered questions about teaching CAS units.

Figure 16. District Administrator Leadership Indicators Based on Surveys of Teacher Perceptions



As the CAS initiative expanded to more districts in Year 2, the level of district administrator support for CAS implementation varied more widely than in Year 1, when 90 percent of teachers overall said that district administrators were helpful in supporting CAS work. In contrast, the percentage of teachers in Year 2 agreeing that their district administrator(s) helped with CAS implementation ranged from 13 percent (n=8) to 80 percent (n=5) in individual CAS districts. These variations may have to do, at least in part, with a number of different factors, including the following:

- Staff capacity: The number of district administrators involved in supporting CAS varied by district. (Several districts had two or three district administrators involved, while others had one);
- Teacher involvement: Having a larger number of teachers involved with the CAS initiative encouraged greater attention of district administrators; and
- Competing priorities: In some districts, CAS is competing for attention with other initiatives.

Overall, district administrators were commonly described during interviews as supportive and accessible to teachers whenever needed. For example, teachers reported that:

> *Our [district CAS administrator] is a great support and helps in any way that she can… if we asked for something, she would definitely be there. – Experienced CAS science teacher*

> *Having someone at the district level…available for questions is helpful. She came and sat with me the first time we entered scores and was supportive. – New CAS science teacher*

District administrators were also mentioned as helpful in providing materials and supplies to support unit implementation. For instance:

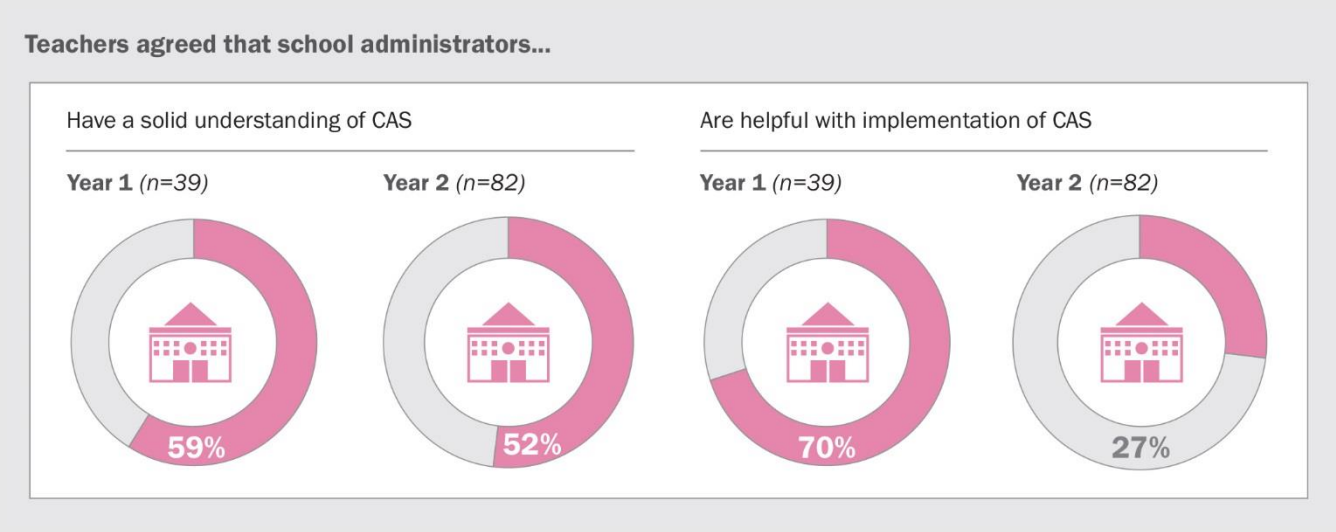
Anything you need, anything you want, and he's on it before I'm on it. He offers before I even ask… he makes sure we have the materials we need. If I don't have it, I'll shoot him an email; he gets it here right away. – New CAS social studies teacher

If we need any type of materials…[she] took care of ordering them for us and bringing them in to me. – New CAS science teacher

SCHOOL ADMINISTRATORS

School administrators have played a more limited role in CAS across both school years compared to other leaders. As can be seen in Figure 17, during the 2013-14 school year (Year 1), 59 percent of teachers agreed that their school administrator had a solid understanding of CAS, while 70 percent of teachers agreed that school administrators were helpful in supporting the CAS work. In Year 2 a similar percentage of teachers reported that school administrators understood CAS, but the percent of teachers who agreed that school administrators helped with CAS implementation dropped to 27 percent.

Figure 17. School Administrator Leadership Indicators Based on Surveys of Teacher Perceptions



Indeed, teachers reported that their principals were not "intricately involved" or "micromanaging" CAS, allowing the district administrator and those in the new role of teacher leader to take on primary leadership. This may at least partly explain change in the survey responses. One respondent explained that, "by having the teacher leaders…that has taken the stress off of the principals because the teacher leaders…volunteered to do this and they now feel empowered to really take the lead." School administrators most commonly arranged release time, recruited teachers and encouraged collaboration (see Table 9 15 at the top of the section).

E. CAS as a Measure of Teacher Effectiveness

In both Colorado and Kentucky, the state has developed systems of measuring teacher effectiveness that include measures of student learning.[9] Evaluation systems include observations of instruction as a

[9] Colorado Department of Education: Measures of Student Learning at https://www.cde.state.co.us/educatoreffectiveness/measuresofstudentlearningguidanceteacher; and Kentucky Department of Education: Outlined Requirements for Student Growth Goals at http://www.kasc.net/2010/7.A.%20Outlined%20Requirements%20for%20Student%20Growth%20Goals.pdf

component, and each system in the two study states also includes a measure of student growth that is locally or individually determined. One goal of CAS is to explore whether observations of CAS instruction or reviews of student work from CAS units would be appropriate measures of teacher effectiveness.

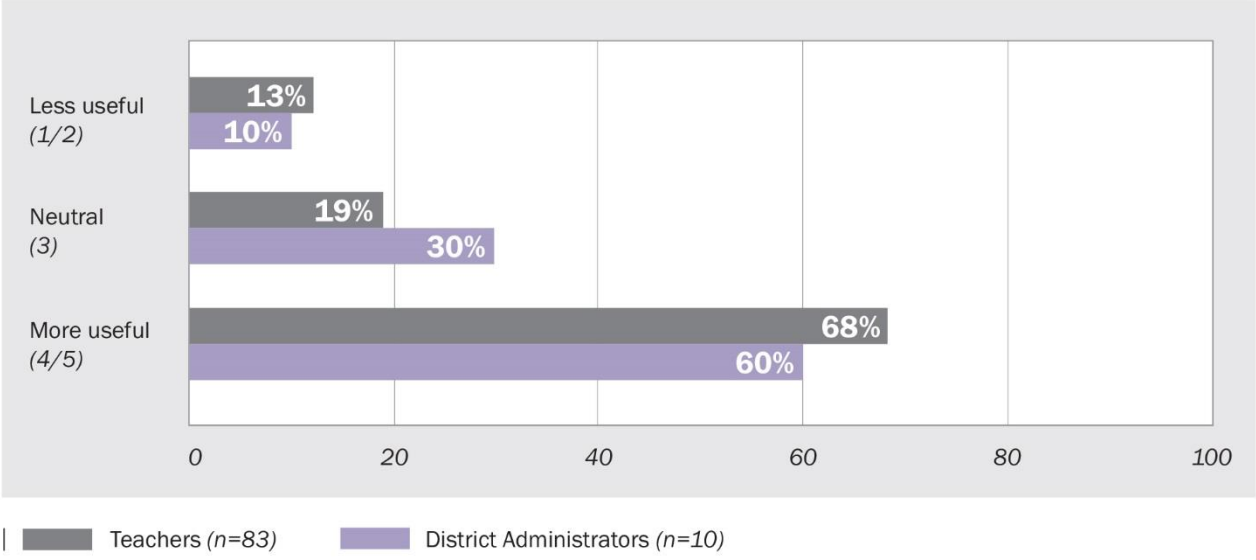
Teachers report that CAS shows promise in providing measures of student learning and teacher effectiveness. Ninety-four percent (n=79) of teachers responded that CAS student work is a good measure of student learning. Similarly, the vast majority of teachers addressing this issue during interviews agreed that CAS student work or observations of CAS unit instruction could be used as a measure of teacher effectiveness. Teachers saw this type of instruction as well aligned to the goals of their state and local evaluation systems. For example, teachers stated that:

> *I know my students' growth goals were all about writing, so I think student products would show teacher effectiveness. – New CAS English/language arts teacher*
>
> *In terms of our state evaluation system, one of the things is related to the writing pieces and how they can incorporate evidence from primary and secondary sources and so…I would want that [CAS student work] as a measure of my performance. – Experienced CAS social studies teacher*

In fact, a number of teachers reported that they had already used CAS student work as evidence of student growth in their individual evaluations. A number of respondents commented, however, that observations of a CAS unit would *not* be appropriate as a measure of teacher effectiveness the first time that a teacher implemented the unit or if the teacher had not been trained in CAS.

As can be seen in Figure 18, when both teachers and district administrators were asked to rate how useful they think CAS is in creating new ways to measure teacher effectiveness, 60 percent of district administrators and 68 percent of teachers rated CAS useful. However, a substantial minority did not agree--one third of teachers and four out of ten administrators. These results may reflect teacher and administrator concerns about teacher effectiveness measurement generally, as well as the fact that LDC has been used in a number of these districts already.

Figure 18. Educator Ratings of CAS Units as a Way to Create New Ways to Measure Teacher Effectiveness



In addition, it is worth noting that about a half-dozen teachers expressed concern during interviews that CAS products are not good measures of student learning, due either to the amount of instructional scaffolding involved in the units or the limited amount of content material and sources required to complete it. Below we provide two specific examples of this sentiment:

> *This is very structured so I don't know if it is necessarily showing student learning or more [that] they did what they are asked. Then the next piece, if I don't structure it so much, can you do the process we just did? That's where I feel like it will better show the learning. – Experienced CAS social studies teacher*

> *The final product to me was focused on what we covered as the last [reading] text, which was not the strongest. The text that students used tended to be the ones that they were most recently given out. They used the most recent text with facts instead of primary sources. They cited that more and that was the least robust text that they were given. So the final product was not comprehensive to everything they had learned in the unit. – New CAS social studies teacher*

III. Scale Up and Sustainability

While CAS has shown promise based on teacher and administrator feedback, it is essential to consider strategies to further scale and sustain the use of the units and the collaboration that supports their creation, implementation and revision. Scale-up for the purposes of this discussion is defined as both breadth and depth of CAS adoption and implementation:

- **Breadth:** an increase in the number of teachers, classrooms, schools, and/or districts implementing a particular model; and
- **Depth:** the degree to which a reform is embedded within educational practices.

CAS has scaled up in terms of both breadth and depth in Year 2. As explored in the introductory section of this report, CAS has seen an increase in the number of teachers and districts involved between Years 1 and 2. However, teachers have also reported that CAS has influenced their practice *beyond* unit instruction and many CAS teachers are sharing units with non-CAS colleagues at their schools. Specifically, 73 percent of teachers reported that they are using CAS unit structures and ideas to design non-CAS units. Further, 84 percent reported that they are using strategies they learned through CAS in the rest of their teaching and 76 percent of teachers reported sharing CAS units with their non-CAS colleagues (n=79 across questions).

Teachers and district administrators want to see unit instruction continue and grow in Year 3. Ninety-two percent of teachers (n=79) and 90 percent of district administrators (n=10) agreed that CAS is worth the time and effort involved. Further, 89 percent of teachers (n=79) are looking forward to teaching CAS units next year, and 90 percent of district administrators would like to see more teachers in their district teach CAS next year (n=10). In addition, all but one of the teachers interviewed stated that they would like to continue to use the units, and in some cases see them expand to other faculty:

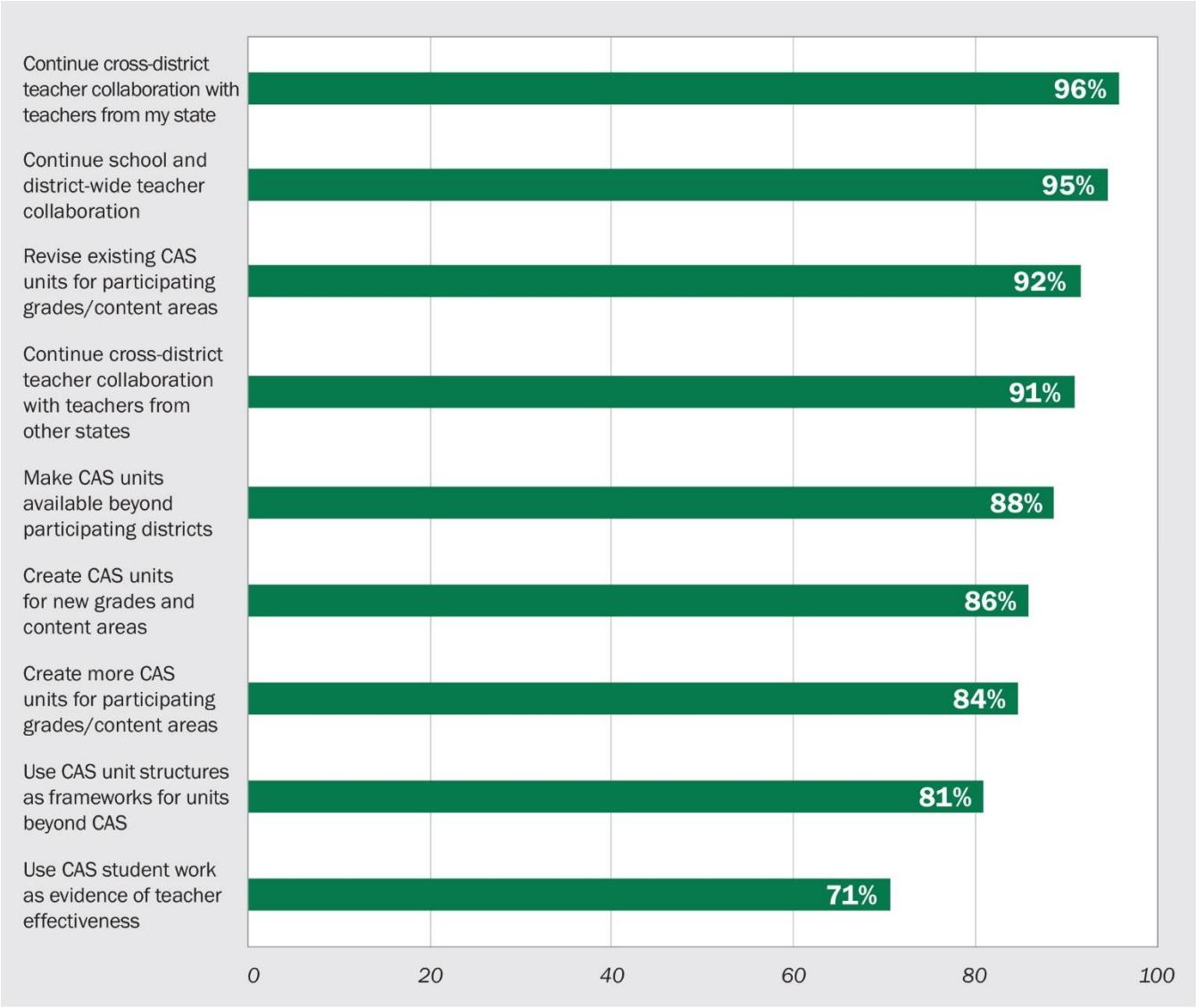
> *I would like to keep teaching and refining it. There are areas that need some improvement. But overall, I would definitely want to go through this unit even if it was by myself. – Experienced social studies teacher*

I would like to do that [continue teaching CAS units] and get the rest of my department involved. In my professional learning community meetings, I talk about CAS and the unit I have taught and offer them the unit. – New ELA teacher

CAS participants indicated that collaboration is necessary for CAS to scale successfully. Figure 19 presents the results of an array of survey questions focused on scale up strategies for CAS. When asked to identify the strategies needed to successfully scale the use of CAS units, over 90 percent of teachers agreed that collaboration was necessary. Specifically, teachers reported that the CAS initiative needs to continue cross-district collaboration within states (96.2 percent) and across states (91 percent) as well as within districts and schools (94.9 percent). All (100 percent, n=10) of the district administrators responding to the survey also agreed that collaboration is needed to scale the initiative.

Over 90 percent of teachers also agreed that continued revision of the existing CAS units for participating grades and content areas is needed. Strong majorities (between 80 and 89 percent) agreed that including making CAS units available beyond participating districts, creating additional units and using the CAS frameworks for units outside of CAS were also worthwhile. While still a majority, only 70.5 percent of teachers agreed that using CAS student work as evidence of teacher effectiveness was needed for CAS scale-up.

Figure 19. Strategies to Successfully Scale use of the CAS Units



n=79

Participants agreed that professional development and ongoing support will be needed for teachers new to CAS. Eighty-one percent of teachers (n=79) agreed that training in CAS is needed to successfully teach a CAS unit. Among district administrators, there was universal agreement that training needs to be provided to teachers new to CAS in order to scale the initiative. In interviews, teachers explained why it may not work well to simply hand teachers CAS units to implement; instead, support and mentoring are needed. For example, one teacher explained that, "it [a CAS unit] is really overwhelming unless you have somebody sit down and take a look at it with you and explain what worked well…that face to face really matters." In order for this to take place, interview respondents also stressed the importance of having district level coordination and support.

Some participating districts, especially those in their second year of the initiative, had already developed plans for CAS in Year 3. Seven out of ten district administrators strongly or somewhat agreed that there is a plan in their district for CAS implementation in 2015-16. Just over 60 percent of teachers

(n=79) reported that they believe that their district is committed to sustaining the implementation of CAS. During spring interviews in the two Kentucky districts in their second year of CAS, both teachers and administrators discussed how the expansion of CAS was moving forward. For example, educators said that:

> *We recently met as a district, the 9th and 10th grade teachers to talk about…our accelerated/honors classes. We have inserted both units into the accelerated and honors sophomore classes, mapping how we might teach them differently. Next year…[CAS] units will be used in more classes. - Experienced ELA teacher*

> *We want to involve more teachers in the work…the next step is sharing with other teachers and other grade levels […][which is] a goal for next year and having the teachers that have participated in the CAS study, leading that. Increasing teacher leadership - we're doing a little bit this year but not on a full scale. - Principal*

In some sites in Kentucky, expansion of the CAS units beyond the cohort of teachers formally involved has already taken place. For example, in Kenton County School District, middle school ELA and science CAS units were being used by all seventh grade teachers. At least one teacher from the district had also shared information about CAS with representatives from other districts at leadership networking events in the state. In Fayette County Schools, a teacher reported that all of the tenth grade ELA teachers at one of the district's high schools had adopted the CAS units as part of their instruction as well. In both cases, this expansion took place as a result of teacher enthusiasm and buy-in. A Kenton instructional coach shared that CAS spread from Year 1 schools to Year 2 participants "who insisted on being part of it. It was that grassroots effort of the teachers seeing the work that actually made them say, "Hey, can we be part of it?"…The expansion…was all teacher-driven." Then, as a Kenton district administrator reported, the units spread to all ELA teachers in the districts. "It was [two 7th grade ELA teachers] and [district ELA coach] who were determined to share [units] because they already had a structure of collaboration by grade level."

IV. Areas for Improvement and Further Research

CAS has continued to evolve in Year 2 and more change is ahead in Year 3 as the initiative continues to spread within existing districts and into new districts. Data from the first two years of implementation suggest that CAS has been able to support increased teacher ownership of new approaches to instruction, while also providing initial glimpses, based on educators' own reports, of improvements in teacher practice and student learning.

In addition, it is notable that teachers' reports of CAS impact on their practice and student learning were equally or more positive in Year 2 as they were in Year 1. This level of consistent enthusiasm in the context of doubling the number of participants and expanding into more districts is promising. Below we provide recommendations for improving and strengthening CAS, as well as suggestions for further research.

A. Unit Implementation and Alignment

- **Help teachers address the time pressures that can undermine implementation.** Districts and states need to pay attention to CAS's relationship to curricula and assessments and the related time pressures that teachers face. While teachers overall valued the units highly and reported that using instructional time for CAS was beneficial for teachers and students, a majority still found it difficult to find enough time for implementation. If districts and states value this instruction, they can take several steps: (1) Communicate how CAS instruction fits larger overall district goals, including preparing for standardized assessments. (2) Help teachers with the nuts and bolts of adjusting

pacing schedules. This kind of work is especially needed for science and social studies teachers and teachers who teach tested grades and subjects. (3) Support teachers in making sure that CAS units and writing prompts cover areas that are central to the curriculum. Topics need to be large enough to justify the time involved and student work products need to explore the central questions of the unit, instead of just a portion of the content.

- **Provide support for new CAS teachers without LDC experience.** Data shows that teachers without LDC experience struggled more with implementation. Districts could address this challenge in a variety of ways, including providing strong orientation about and professional development on LDC or staging implementation so that such teachers first receive LDC training and implement a module before teaching a CAS unit.

- **Engage experienced CAS teachers in providing support for teachers implementing the units for the first time.** In the CAS survey, experienced CAS teachers reported fewer challenges with unit implementation than did new CAS teachers. In interviews, new CAS teachers reported how helpful it was to turn to experienced CAS teachers with questions about the unit. Finding creative ways for experienced CAS teachers to work with new CAS teachers in the same school, district or state could help strengthen teachers' initial CAS instruction.

B. Collaboration

- **Continue to strengthen collaboration opportunities at every level.** As in Year 1, data indicate that collaboration has been central to the successes of this initiative and to teachers' growth as professionals and leaders in Year 2 as well. Aim to implement units so that as many teachers as possible have a school partner teaching the unit. In addition, provide structured opportunities for teachers to collaborate across "boundaries," e.g., for teachers at the same school to collaborate across content areas and for teachers to collaborate within their district or state with others who teach the same content area. District administrators can identify which kinds of collaboration are priorities each year.

- **Offer convenings across districts to allow teachers to share best practices on unit implementation.** Teachers reported that meeting face-to-face with educators from other districts and states was one of the most powerful aspects of CAS. Where possible, continue to create opportunities for teachers to meet and collaborate with teachers from other districts.

C. Leadership

- **Cultivate CAS teacher leadership across districts equitably.** While teachers who reported having the support of a CAS teacher leader in their content area and district found them to be helpful resources for unit implementation, many other teachers, particularly in districts new to the initiative during 2014-15, did not have that level of support. When possible, CAS teacher leaders in each content area should be available to teachers in each district to facilitate collaboration and ongoing technical assistance. If new districts do not yet have CAS team leaders, states can experiment with different ways to connect these new teachers to more experienced CAS teachers in other districts, either in person or virtually.

- **Involve school administrators in understanding and sustaining CAS.** In both Years 1 and 2 of the research, principals have been found to be the least knowledgeable and involved in the CAS initiative. As the instructional leaders for their schools, principals need to understand and help to

implement the units in a more intensive way for them to take hold and continue to be used in the long term. To facilitate this shift, the role of school administrators in the CAS initiative needs to be clearly defined and supported.

D. Sustainability

- **Package units in a straight-forward way so that they are accessible to educators new to the initiative.** Confusion around organizing, storing and accessing CAS units, even among teachers who helped create the units, underlines the importance of organizing the materials and lesson plans in a coherent, accessible way, especially as teachers new to CAS or who may not receive extensive training gain access to the units.

- **Plan how to embed collaboration in the ongoing CAS work in existing and new districts.** Research on CAS has emphasized the centrality of collaboration to the successes of this work. The shape of and formats for collaboration will likely continue to grow and change as the initiative evolves. Collaboration should still connect participants with colleagues in meaningful ways, including across boundaries. Even if it is not feasible for cross-state collaboration to continue, the data indicate that cross-school and cross-district collaboration are also powerful. Clear communication from district or state leaders with current teachers, both about how collaboration is changing and how it will continue to be central to CAS, will be important.

- **Plan for the varied types of professional development and support needed by new and continuing CAS participants.** Teachers new to CAS in existing districts, teachers new to CAS in new districts and experienced CAS teachers will need different types of professional development opportunities to support their ongoing involvement in the work. In addition, school and district administrators can provide stronger support for CAS if they are involved in CAS training and collaboration, either with teachers or with similarly positioned administrators from within their district or other districts.

- **Provide professional development resources for districts and states.** As the use of the CAS units scales, experienced CAS educators may not be accessible to teachers in all districts for training and support. For this reason, resources will be needed to provide educators with an orientation to the units, the process of development and revision, the central nature of collaboration, and the use of the rubrics to score student work and provide feedback.

- **Collect evidence that empirically tests the effect of CAS on student achievement.** For CAS to successfully scale up and meet the needs of teachers and students, district and state decision-makers will look for evidence that CAS is having an impact on student achievement. For this reason, it will be critical to mount a study that explores this issue, as well as whether and how CAS collaboration and units continue to influence teacher practice and support teacher effectiveness systems.

E. Further Research

As the initiative expands to new districts and additional teachers in existing districts, it will be critical to track how the work is proceeding amidst the ongoing evolution of CAS. These data will help state and district leaders assess the influence of CAS and determine where and how to make course corrections to support implementation and scale-up. Fruitful areas to track include:

- Perceptions of how CAS is influencing teacher practice, student learning and engagement;
- Whether the pattern of experienced CAS teachers reporting fewer challenges in CAS implementation holds true as CAS expands and grows. This is important to track because the experienced teachers in this report were all part of a first, small, highly motivated cohort. As the number of teacher recruits broaden and the approach to collaboration and support changes, will experienced teachers still have such high buy-in and report such successful results?
- The role of school and district administrators and teacher leaders in existing and new districts.
- New teachers experiences with CAS implementation.
- The differing experiences and needs for support of teachers from different content areas.
- Uses of CAS to document and assess student learning and to measure teacher effectiveness.

In addition, in-depth case studies of districts in each of the founding CAS states could provide promising practices and important lessons learned that can be shared with new districts and states as they take their initial steps in CAS implementation in the years to come.