

Core TO College Evaluation

IMPLEMENTING THE COMMON
CORE STATE STANDARDS:
ARTICULATING COURSE
SEQUENCES ACROSS K–12 AND
HIGHER EDUCATION SYSTEMS

Neal D. Finkelstein
Becca Klarin
Marie Olson
Kim Austin
Mina Dadgar
Susan Mundry
Daniel Bugler

August 26, 2013

Table of Contents

WestEd’s Evaluation of the Core to College Initiative	i
Executive Summary	ii
Introduction	1
Survey Methodology	2
Literature Review: Course Sequencing	4
Early Assessment and Transition Courses Designed to Avoid Remediation	4
Earning College Credit During High School	5
College Preparatory Courses with Testing for College Credit	6
Implementing Course Sequencing Strategies	7
Survey Findings	10
Strategic Planning and the Priority of Course Sequencing Discussions	11
Primary Stakeholders in Course Sequencing Efforts	17
Data Systems to Manage Course Sequencing Information	23
Governance for Implementing Course Sequencing Policies	25
Conclusion	29
References	31
Appendix A: May 2013 Core to College Survey on Course Sequences	34

Suggested Citation: Finkelstein, N. D., Klarin, B., Olson, M., Austin, K., Dadgar, M., Mundry, S., & Bugler, D. (2013). *Core to College evaluation: Implementing the Common Core State Standards: Articulating course sequences across K–12 and higher education systems*. San Francisco, CA: WestEd.

WestEd's Evaluation of the Core to College Initiative

Core to College: Preparing Students for College Readiness and Success is a three-year initiative funded by the Lumina Foundation, the William and Flora Hewlett Foundation, the Bill & Melinda Gates Foundation, and the Carnegie Corporation of New York. Rockefeller Philanthropy Associates serves as the fiscal agent.

Core to College's mission is "to facilitate greater coordination between K–12 and postsecondary education systems around implementation of the Common Core State Standards (CCSS) and aligned assessments." The initiative aims to foster shared ownership of college readiness by the K–12 and postsecondary sectors, including use of the CCSS-aligned assessments to determine a student's readiness for credit-bearing postsecondary courses. Core to College grants have been awarded to teams in Colorado, Florida, Hawaii, Indiana, Kentucky, Louisiana, Maine, Massachusetts, North Carolina, Oregon, Tennessee, and Washington.

Each of these state teams has designated an Alignment Director (AD) who is tasked with leading the Core to College work in the state. Through the consulting company Education First, Core to College offers one-on-one and cross-state technical assistance to these ADs. Together, the ADs make up the grant's Learning Network, which provides facilitated peer-to-peer support, information sharing, and multi-state technical assistance to grantee states.

WestEd is providing evaluation services over the course of the initiative. The evaluation plan is designed to synthesize the progress of the initiative and its participating states over the next few years, with a focus on the initiative's primary goals: creating statewide definitions of college and career readiness, using the PARCC and Smarter Balanced assessments to inform decisions about student placement into credit-bearing college courses, and aligning K–12 and postsecondary policies to the CCSS.

As part of its evaluation effort, WestEd has proposed to evaluate the initiative based on five action areas involved in changing policy and practices around the implementation of the CCSS and aligned assessments for improving college readiness. These action areas attempt to encompass the policy, practices, and people dimensions of the Core to College effort; they center around how the policy and practices involved in implementing the CCSS and the alignment of state assessment practices can improve students' readiness for college change over time. The five action areas are strategic planning, infrastructure, stakeholder engagement, policy and governance, and data and analysis.

Cross-state, multi-method, qualitative reports are at the center of the evaluation, which will systematically chronicle the progress of the initiative. Reports will focus on topics of interest to the funders; the Learning Network; and Education First, the initiative's technical assistance provider. These studies are intended both to illuminate promising strategies and to document challenges.

The WestEd evaluation team understands that each state is approaching the implementation of the CCSS with its own set of parameters and context: differing stakeholders, funding concerns, size and scope, timelines, and internal priorities. The evaluation activities are intended to recognize that variation and highlight how Core to College can learn from it.

Executive Summary

The frequent lack of alignment between high school and college course content and rigor—and the lack of a clear structure and sequence of prerequisites—has contributed to many students being placed into non-credit-bearing remedial courses, limiting their chances of success at the postsecondary level. Recent research suggests that only 20 percent of students referred to developmental mathematics courses and 37 percent of students referred to developmental reading courses go on to pass the relevant entry-level or “gatekeeper” college course, and that many students fail to re-enroll in the next level of the remedial course and thus never complete the remedial sequence (Bailey, Jeong, & Cho, 2008).

To address these serious challenges and to support students’ successful transition to postsecondary education, the Core to College Initiative aims to improve the alignment between K–12 and postsecondary education systems in the initiative’s twelve participating states. The implementation of the Common Core State Standards (CCSS) provides a timely and unique opportunity to improve alignment, largely because the CCSS are so deliberately organized around college and career readiness. The primary metric of successful alignment is the efficiency with which students move from their K–12 experience to a postsecondary institution, having mastered course content and not needing remediation in core areas of the curriculum.

To increase the efficiency and success of transitions to postsecondary education, and to reduce the number of students placed into remedial courses, the Alignment Directors (ADs) in each of the twelve Core to College states are working within and across their education systems to discuss and plan how courses—particularly courses involved in the transition from high school exit to college entrance—are sequenced.

The research literature indicates that, overall, states and localities typically use three main course sequencing strategies to improve the efficiency with which high school students progress through their courses to successfully transition into higher education:

- **Transition courses**, particularly for high school seniors, that provide remedial support in English and mathematics. By strengthening basic skills, students increase their chances of enrolling in credit-bearing courses when they enter college.
- Agreements and policies between high schools and colleges, including placement agreements, programs of study, and dual-enrollment options, that allow students to earn **college credit during high school**, with the goal of reducing time to degree and increasing exposure to curricular rigor.

- **College-level high school courses** with testing for credit, such as Advanced Placement and International Baccalaureate course sequences, that can yield benefits for improving postsecondary transitions.

While transition courses, placement agreements and dual enrollment have emerged as the most common course sequencing strategies in the United States, states also use many other strategies to address course sequencing and improve the success of students' transition from high school to postsecondary education.

In order to examine, in detail, the course sequencing strategies that the Core to College states are following—and to observe the variation in strategies within and across those states—a survey was developed and given to the ADs of the Core to College states. The survey aimed to gather information about the existing work that states have completed in developing clear and effective course sequences. In addition, the survey collected information on the ways in which CCSS implementation catalyzed innovative solutions for improving course sequencing to support successful student postsecondary transitions.

As a reference point for the ADs, the survey provided the following general definition, and specific example, of course sequencing:

Course sequences, as used in this survey, are the patterns by which students move from one course to the next on an efficient trajectory, building deeper content and fluency as they progress from grade to grade. In the context of the Core to College alignment work, these sequences bridge high school and postsecondary institutions. One example is how CCSS math content in high school is sequenced and designed to lead to enrollment in credit-bearing math courses at the community college level. Very specifically, it could be the sequencing of a 12th grade Algebra II course with a Pre-Calculus course offered in the first year of postsecondary math instruction.

Notably, the survey did not solicit information regarding existing long-term, institutionalized course sequencing programs. Instead, it focused on more recent efforts that fall within the scope of the Core to College Initiative, and are guided by the CCSS and upcoming CCSS-aligned assessments.

Through surveying the ADs, we have gained a greater understanding of their, and their states', current and future course sequencing work. The survey responses provided valuable information on the types of planning and course sequencing discussions taking place, the primary stakeholders involved in these discussions, the types of data systems that states use to manage course sequencing information, and the states' governance structures for implementing course sequencing policies. The responses demonstrated that, where course sequencing work is ongoing, the ADs are able to play a role in developing this work. And, perhaps most importantly, the survey responses highlighted the innate challenges,

complicated timelines, and shifting priorities that states may be facing as they progress toward fully implementing the CCSS.

Several key themes emerged from the survey data:

Course sequencing is embedded in existing policy. As shown by the wide variety of stakeholders, their levels of involvement, and state and regional approaches to course sequencing, it is clear that course sequencing is a complicated issue. States have varying histories of policy enactment, as well as complicated educational-system structures that require tailored approaches to developing and implementing new and revised institutional policies, including course sequencing.

Discussions about course sequencing are a lower priority for most ADs than other current CCSS alignment topics. ADs have varying degrees of involvement in their states' planning and discussions about course sequencing. A few ADs are heavily involved in course sequencing discussions, specifically in regard to high school and entry-level postsecondary coursework alignment, while most other ADs play a more ancillary role in relation to course sequencing work. While some ADs reported on course sequencing efforts through first-hand knowledge, based on meeting participation and conversations, several ADs reported that these efforts were either not a priority or were not part of the AD's job responsibilities. In some states, course sequencing efforts are not currently seen as a key strategy for addressing alignment issues.

The implementation of the CCSS does not appear to be catalyzing discussions about course sequencing between K–12 and higher education systems. Most states do not currently have thoroughly developed plans, at either the local level or the state level, for discussing course sequencing as it relates to K–12 and postsecondary alignment issues within the CCSS. Also, although instructional materials often drive course sequences, most ADs reported that their states have not yet moved toward the adoption of CCSS-aligned instructional materials. In short, the CCSS do not currently appear to figure prominently into states' current course sequencing discussions.

Key stakeholders, including higher education representatives and state officials, are involved in course sequencing efforts. Across the survey's questions about the multiple aspects of course sequencing, ADs reported that a wide variety of leaders and stakeholders are involved in course sequencing discussions, including representatives of both the K–12 and higher education systems as well as education system leadership at the local and state levels. Meetings, conversations, and decisions about course sequencing also involve teachers, faculty, and administrators. The survey responses more often referenced the involvement of higher education stakeholders than that of K–12 stakeholders, but this may be a result of where ADs are situated—within their states' higher education systems (Austin et al., 2012)—and may not fully represent statewide work as a whole. While each state's

course sequencing work varied in specifics and intensity, all states demonstrated at least some involvement from a wide variety of stakeholders.

Examples of strong regional partnerships or efforts related to course sequencing exist. ADs reported that course sequencing work at the regional level extends beyond one-off efforts by individual organizations or agencies. Universities, colleges, high schools, and other stakeholders regularly collaborate on strong regional partnerships that focus on improving students' transition from high school to entry-level, credit-bearing postsecondary coursework.

The importance of course sequencing is recognized. While ADs generally reported that state-level discussions on course sequencing were only somewhat active during 2012–13, they also indicated that these discussions should increase in the coming year. All but one of the ADs (Hawaii) responded that their states would be continuing or increasing course sequencing discussions in 2013–14, and no states reported that these discussions would cease. Most ADs seemed to anticipate that course sequencing discussions would play a more prominent and important role in their future work.

As the Core to College Initiative continues, the evaluation team will continue to gauge how course sequencing efforts differentiate the ADs' roles in both centralized and regional alignment efforts, as well as to examine how these efforts impact states' implementation of the CCSS.

Introduction

The frequent lack of alignment between high school and college course content and rigor—and the lack of a clear structure and sequence of prerequisites—has contributed to many students being placed into non-credit-bearing remedial courses, limiting their chances of success at the postsecondary level. Recent research suggests that only 20 percent of students referred to developmental mathematics courses and 37 percent of students referred to developmental reading courses go on to pass the relevant entry-level or “gatekeeper” college course, and that many students fail to re-enroll in the next level of the remedial course and thus never complete the remedial sequence (Bailey, Jeong, & Cho, 2008).

To address these serious challenges and to support students’ successful transition to postsecondary education, the Core to College Initiative aims to improve the alignment between K–12 and postsecondary education systems in the initiative’s twelve participating states. The implementation of the Common Core State Standards (CCSS) provides a timely and unique opportunity to improve alignment, largely because the CCSS are so deliberately organized around college and career readiness. The primary metric of successful alignment is the efficiency with which students move from their K–12 experience to a postsecondary institution, having mastered course content and not needing remediation in core areas of the curriculum.

To increase the efficiency and success of transitions to postsecondary education, and to reduce the number of students placed into remedial courses, the Alignment Directors (ADs) in each of the twelve Core to College states are working within and across their education systems to discuss and plan how courses—particularly courses involved in the transition from high school exit to college entrance—are sequenced.

The research literature (see Literature Review: Course Sequencing section) indicates that, overall, states and localities typically use three main course sequencing strategies to improve the efficiency with which high school students progress through their courses to successfully transition into higher education:

- **Transition courses**, particularly for high school seniors, that provide remedial support in English and mathematics. By strengthening basic skills, students increase their chances of enrolling in credit-bearing courses when they enter college.
- Agreements and policies between high schools and colleges, including placement agreements, programs of study, and dual-enrollment options, that allow students to earn

college credit during high school, with the goal of reducing time to degree and increasing exposure to curricular rigor.

- **College-level high school courses** with testing for credit, such as Advanced Placement and International Baccalaureate course sequences, that can yield benefits for improving postsecondary transitions.

While placement agreements, dual enrollment, and transition courses have emerged as the most common course sequencing strategies in the United States, states also use many other strategies to address course sequencing and improve the success of students' transition from high school to postsecondary education.

In order to examine, in detail, the course sequencing strategies that the Core to College states are following—and to observe the variation in strategies within and across those states—a survey was developed and given to the ADs of Core to College states. (The survey is included in Appendix A.) The survey aimed to gather information about the existing work that states have completed in developing clear and effective course sequences. In addition, the survey collected information on the ways in which CCSS implementation catalyzed innovative solutions for improving course sequencing to support successful student postsecondary transitions.

Survey Methodology

The survey was sent to the ADs of each of the Core to College states in the spring of 2013. It included 36 questions about the course sequencing efforts of the ADs and their respective states. The survey consisted of closed-ended questions (both multiple-choice questions and questions asking respondents to rank their responses on a five-point Likert scale) and open-ended questions that invited written responses. As a reference point for the ADs, the first page of the survey provided the following general definition, and specific example, of course sequencing:

Course sequences, as used in this survey, are the patterns by which students move from one course to the next on an efficient trajectory, building deeper content and fluency as they progress from grade to grade. In the context of the Core to College alignment work, these sequences bridge high school and postsecondary institutions. One example is how CCSS math content in high school is sequenced and designed to lead to enrollment in credit-bearing math courses at the community college level. Very specifically, it could be the sequencing of a 12th grade Algebra II course with a Pre-Calculus course offered in the first year of postsecondary math instruction.

The survey questions focused on four key areas:

- **Strategic planning:** How are leaders in each of the states thinking about course sequencing from a strategic perspective? How much course sequencing work has occurred to date, how central has it been to the CCSS implementation work, and what are the plans moving forward?
- **Primary stakeholders:** Who is currently involved in policy and implementation discussions around course placement, and how are stakeholder groups interacting to move the work forward?
- **Data systems:** How are the states operationalizing information about course placement through systematic data capture and storage? Is systematic information about individual courses and their content available within and between the education systems in each state? How do students benefit from these data systems?
- **Policy and governance:** How is course sequencing policy developed and implemented (recognizing the variation in system organization, policy decision-making processes, and degrees of centralization across the states)?

Notably, the survey did not solicit information regarding existing long-term, institutionalized course sequencing programs. Instead, it focused on more recent efforts that fall within the scope of the Core to College Initiative, and are guided by the CCSS and upcoming CCSS-aligned assessments.

The survey results and analysis provide a useful glimpse into how course sequencing fits within the broader framework of CCSS implementation. This report is intended to be an “early look,” with the explicit goal that similar information could be collected in the future to assess changes in progress and shifts in policy. It is important to note that a survey with just eleven respondents¹ is impressionistic, at best, by design. The intent of the survey was to identify baseline information and basic patterns in the Core to College states’ approach to course sequencing, in order to support the ADs in learning from each other about the variations in states’ strategies and progress, and the underlying policy rationales within each state. The conclusion of this report contains observations of trends identified based on the survey responses.

¹ The Core to College Initiative recently expanded its reach from 10 states to 12 states, awarding additional grants to two new states: Maine and Tennessee. The course sequencing survey was completed by every current Core to College state except Maine, since the survey was conducted before Maine hired its AD.

Literature Review:

Course Sequencing

States and localities concerned with students' postsecondary success focus on a variety of ways to support smooth and successful transitions from high school to college. These efforts can include designing and implementing course sequencing aimed at improving students' success in entering, performing in, and completing college, and often involve collaboration between K–12 and higher education systems. This type of cross-system collaboration seeks to be comprehensive and scalable, and generally involves new organizational structures and policies designed to integrate different segments of the education system and to create K–16 aligned academic pathways that promote student success. In this process, “The adoption of a single set of college-and-career readiness standards that are jointly developed provides the foundation for this work” (Jobs for the Future, 2012, p. 8). As described in this section, research literature shows that efforts to address and improve course sequencing typically focus on a few primary approaches including a more recent approach of implementing early assessment and transition courses designed to help students avoid remediation, as well as providing the option for students to earn college credit during high school and offering college preparatory courses with testing for college credit.

Early Assessment and Transition Courses Designed to Avoid Remediation

As they look at course sequencing, schools have more recently been using an approach that is designed to help students avoid remediation and involves the implementation of *transition courses or curricula* in combination with *early assessment*. While a 2012 report noted that colleges were mostly using early testing for placement into dual-credit course options (Jobs for the Future, 2012), a more recent report indicates that “the strategy of an early assessment combined with transition curricula is widespread and seems to be growing” (Barnett, Fay, Hare Bork, & Weiss, 2013, p. 4). When implementing this approach, high schools use standardized state assessments or locally developed tests to assess students' college readiness no later than grade 11. Some states have indicated that they may also use the upcoming Partnership for Assessment of Readiness for College and Careers (PARCC) and Smarter Balanced Assessment Consortium assessments for early-assessment purposes (Barnett et al., 2013).

The goal of early assessment is to assess what additional skills students might need in order to be successful in entry-level, credit-bearing college coursework. Based on the test results, high schools then provide students with access to a variety of interventions, including summer bridge programs, college readiness programs, online modules and tutorials that students can access on their own initiative, one or more levels of remedial senior-year courses (developed in partnership with local higher education institutions), and developmental education (Jobs for the Future, 2012; Barnett et al., 2013).

Leadership of transition coursework efforts varies. Barnett et al. report that “transition curricula initiatives are more often led by K–12 state agencies than [by] postsecondary state agencies” (2013, p. 4). There is also evidence that, in many cases, statewide teams from the secondary and postsecondary levels assist with the development of the transition courses (Jobs for the Future, 2012). The combination of early assessment and transition courses is a recent approach that is still being developed and evaluated, but it has shown positive preliminary results in reducing remediation (Reid Kerrigan & Slater, 2010) and is seen as holding promise. “Taken together, early college readiness assessments and transition curricula have the potential to transform the senior year of high school and re-conceptualize the high school to college pathway” (Barnett et al., 2013, p. 1).

Earning College Credit During High School

Some students’ transitions to college are smoothed by course sequences that enable them to earn college credits while in high school. This approach not only exposes high school students to the rigor of college-level coursework, but also gives them a valuable head start on earning college credit.

The most common approach to earning college credit while in high school is *dual enrollment*. Dual-enrollment options require partnerships between secondary and postsecondary institutions and are more common with community colleges than with universities (Bragg, Kim, & Barnett, 2006). In 2010–11, 82 percent of public high schools offered dual-enrollment courses (Thomas, Marken, Gray, & Lewis, 2013) and 53 percent of postsecondary institutions reported enrolling high school students in college courses (Berger, 2013). Studies have shown that dual-credit programs are related to higher high school graduation rates, higher levels of college enrollment and degree attainment, and improved college readiness and college success (An, 2012; Karp, Calcagno, Hughes, Jeong, & Bailey, 2007; Kim & Bragg, 2008; Speroni, 2011). Dual enrollment can be popular with both political figures and the public, and dual-enrollment rates doubled in some states between 2002 and 2007 (KnowledgeWorks Foundation & Western Commission for Higher Education, 2007). However, even with this increase in popularity, “less than 10 percent of public high school students took advantage of [dual enrollment] in 2010–11” (Berger, 2013, p. 1).

Another approach that provides students with college credit during high school is *Early College High Schools*. “Since their launch in 2002, [Early College High Schools] have been a fast-growing pathway model” (Bragg et al., 2006, p. 14) and more than 240 of them have opened nationwide (Jobs for the Future, 2013). Early College High Schools involve partnerships between local education agencies, postsecondary institutions, and communities. They provide a dual-enrollment framework that embeds college-level courses in the standard high school experience; they also offer student supports such as tutoring, a strong college-going culture, and assistance with college applications (Berger, 2013). Overall, Berger (2013) reports that Early College High Schools have positive effects on student performance, including increased high school graduation rates, college enrollment rates, and college degree attainment rates.

A third approach that results in college credit is the *programs of study* approach, which has grown out of and includes technical preparation (tech-prep) programs. This approach, which focuses on the last two years of high school and the first two years of postsecondary education, provides pathways that prepare students for specific careers through “a structured sequence of academic and [career/technical education] courses aligned from secondary to postsecondary that leads a student to earning a postsecondary-level credential” (National Association of State Directors of Career Technical Education Consortium [NASDCTEC], 2010, p. 1). When asked about their levels of implementation, 43 states self-reported that they were implementing programs of study at a middle to expert/advanced level (NASDCTEC, 2011). While programs of study are still in the process of being evaluated, the effectiveness of tech-prep programs has been found to be varied. Bragg (2002, 2006) estimates that 80 percent of tech-prep students matriculated to college, but Ray (2011) did not find a significant link between tech-prep participation and postsecondary academic performance. Programs of study and tech-prep programs are supported by the Carl D. Perkins Act and require partnerships between local education agencies and postsecondary institutions.

College Preparatory Courses with Testing for College Credit

Many high schools offer advanced-level college preparatory courses that culminate in an end-of-course assessment, the results of which can be submitted to colleges for credit. This approach provides students with the chance to prepare for college-level academics, with the possibility of also earning college credits before they set foot on campus.

One of these options involves *Advanced Placement* (AP) courses, which are the most rigorous non-credit-bearing courses that high schools can offer (The College Board, n.d.). Through the AP system, a student takes an end-of-year examination that is organized and implemented by the College Board. Typically, a score of 3, 4, or 5 will qualify a student for college credit in that subject and placement into a higher-level course. Kim and Bragg report that “[s]tate-level support for the AP program is widespread [. . .] a great majority of states currently or have previously provided support for AP through federal and state legislation and funding, or by establishing direct partnerships with the College Board” (2008, p. 8). The College Board’s website reports that more than 90 percent of colleges and universities across the country offer college credit, advanced placement, or both for qualifying AP examination scores (The College Board, n.d.). Kim and Bragg (2008) report a positive relationship between students’ AP course taking and their college readiness, and Speroni (2011) finds that AP students have higher rates of college access and degree attainment.

International Baccalaureate (IB) programs are similar in strategy to AP courses and offer “an academically challenging and balanced program of education with final examinations that prepare students, aged 16 to 19, for success at university and life beyond” (The International Baccalaureate, n.d.). The International Baccalaureate also offers an end-of-year assessment for students in the IB program, which can qualify them for college credit.

Implementing Course Sequencing Strategies

Each of the approaches described in the preceding sections—implementing early assessment and transition courses designed to help students avoid remediation, providing the option for students to earn college credit during high school and offering college preparatory courses with testing for college credit—use different methods to provide a course sequence that creates a smooth and successful transition for students from secondary to postsecondary education. As institutions and states look at sequencing strategies to support and increase student success, there are several important issues to consider, including the level of collaboration required for implementation and how to measure the success of the various course sequencing strategies.

Coordinating Implementation

In general, course sequencing efforts require high levels of coordination, planning, and joint decision-making (the AP program is a slight exception because this nationally recognized program has already been created and validated and schools do not need a formal agreement with postsecondary institutions to access it). This intensive coordination takes significant time and effort. For instance, relationships must be developed at multiple levels, including between secondary and postsecondary institution leadership as well as between state and local education leaders. Without these relationships, there may be local resistance to state mandates (Jobs for the Future, 2012).

In particular, the creation of early assessment and transition course strategies often involves high levels of collaboration between high schools and postsecondary institutions. This collaboration is instrumental; equal partnership in the creation of coursework that is linked with college-ready expectations paves the way for successful transition courses, and “a shared understanding of and vision for college-ready expectations between secondary and postsecondary systems lay the groundwork for implementing statewide strategies to strengthen student transitions from high school to college” (Jobs for the Future, 2012).

Similarly, states implementing programs-of-study models reported that it is important to have “a team-led effort that include[s] a combination of leadership, secondary and postsecondary alignment, state and local representation, bringing in industry and developing a shared language and compatible process” (NASDCTEc, 2010, p. 2). These partnerships must make decisions such as setting benchmark scores and deciding on credit levels and graduation requirements (Jobs for the Future, 2012). Because of this high level of coordination, programs-of-study states recommend using national models, obtaining upper-level buy-in, and considering the leverage and authority that stakeholders may have (NASDCTEc, 2010). Despite the complications of building collaborative relationships, Early College High School representatives feel that their schools’ success lies in their relationships between high school, postsecondary institutions, and the community and their vision for educating young adults (Berger, 2013).

Measuring Implementation Success

In general, all of the aforementioned approaches have shown some level of success in improving high school graduation rates and college readiness and enrollment. Multiple studies have shown that intentional approaches to course sequencing positively affect student success (Barnett et al., 2013; Bragg et al., 2006; Berger, 2013; Jobs for the Future, 2012; Speroni, 2011). However, there is variation in how this success can be measured. For example, Speroni (2011) reports that students in dual-enrollment programs have higher college enrollment levels than students in AP courses, but that students in AP courses enroll in four-year colleges at a higher percentage. In addition, AP programs are more costly per student but require less coordination on the part of the school.

Certain approaches to course sequencing can also support less tangible forms of success. For example, principals implementing transition courses have reported increased rigor of senior-year course taking and growth in college-going mindsets (Jobs for the Future, 2012). Success can also be affected by the model of program delivery. For instance, one study found that dual-enrollment programs produced positive results for students who participated in dual-enrollment classes on college campuses but not for students on high school campuses (Speroni, 2011).

It is also important to remember that students who access specific sequencing programs (besides transition courses, which are designed to help students in danger of needing remediation) are often those who are already academically successful and on a college track. States and institutions should consider the particular strengths of each approach in relation to the anticipated college success needs of their students (Kim & Bragg, 2008; Speroni, 2011; KnowledgeWorks Foundation & Western Commission for Higher Education, 2007).

Survey Findings

The survey data show that all of the Core to College states are continuing to develop their policies and practices around comprehensive course sequencing in relation to the Common Core State Standards (CCSS). For the majority of Core to College states, their initial course sequencing efforts are part of ongoing and increasing work in progress. High-profile state leaders are contributing to efforts across the eleven surveyed Core to College states, and regional efforts (sometimes catalyzed by the Alignment Directors) are supporting and facilitating discussions between the leadership of the K–12 and higher education systems.

The survey responses indicate that the majority of the Alignment Directors (ADs) are involved in course sequencing discussions in their states, with some having more prominent roles than others. In some states, the AD is the catalyst behind course sequencing efforts, while, in other states, the AD has a more behind-the-scenes role. ADs who have lower levels of involvement in course sequencing discussions report that this is either because these sort of discussions are not currently taking place or because course sequencing discussions are not perceived to be central to the AD's role.

Notably, while the ongoing implementation of the CCSS is the driving force behind the Core to College Initiative, the CCSS do not appear prominently in the survey responses in specific relation to states' course sequencing policies. For example, 40 percent of survey respondents said that there was no plan in place to discuss course sequencing at the local or state levels as it relates to alignment with the CCSS. This illustrates, at least in part, that the challenges of developing clearly articulated course sequence structures are ongoing and are not specifically associated with the implementation of the CCSS. It also suggests that course sequencing, as a broad and long-standing policy area that predates the CCSS, includes a range of strategies across a broad range of policy systems.

The following sections explore states' current course sequencing efforts by examining the survey data in four key areas: strategic planning and the priority of course sequencing discussions, primary stakeholders in course sequencing efforts, data systems to manage course sequencing information, and governance for implementing course sequencing policies.

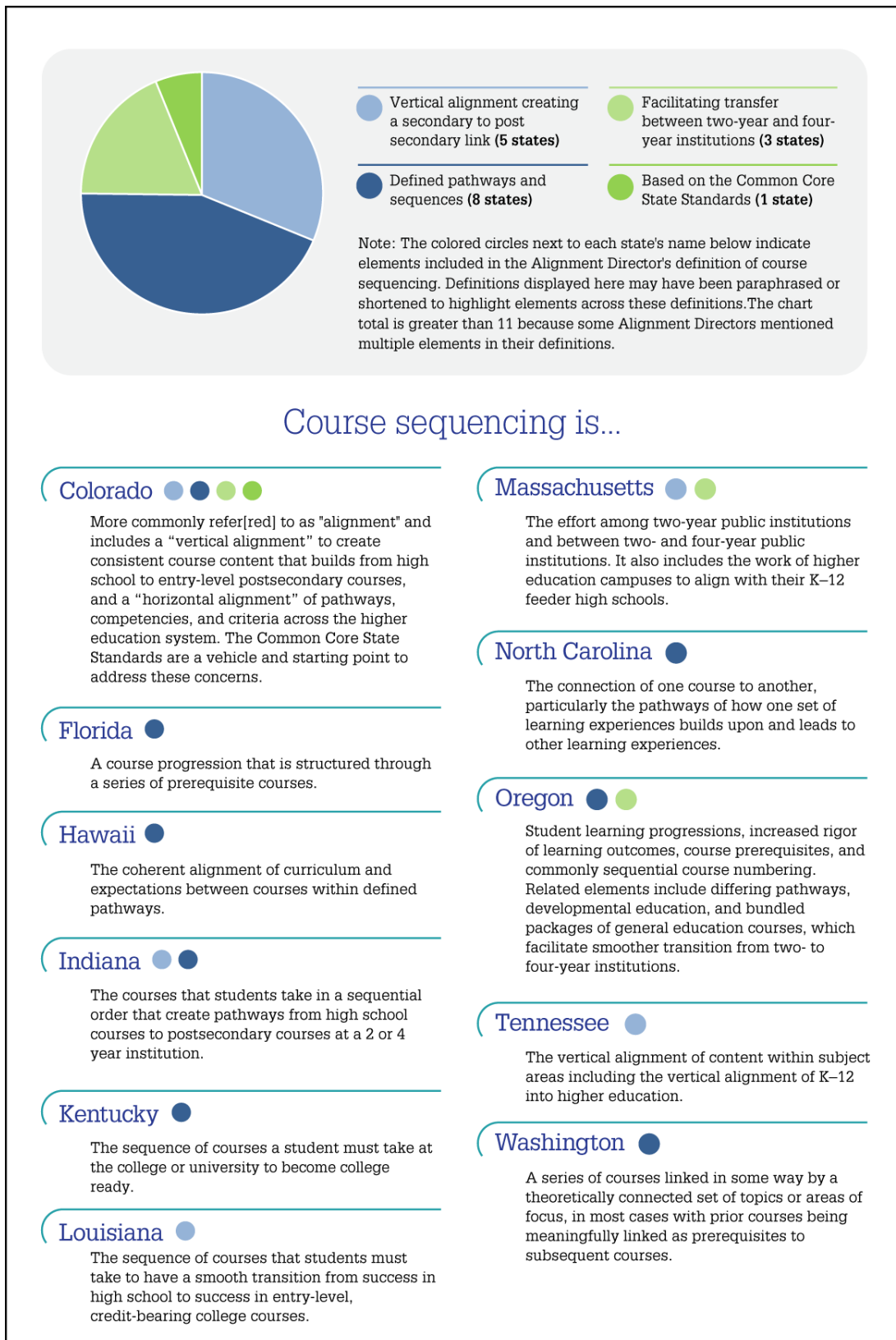
Strategic Planning and the Priority of Course Sequencing Discussions

The first question on the survey was an open-response question asking ADs to share their definitions of course sequencing. Based on their answers (shown in Figure 1), it is clear that definitions matter. The different ways that ADs defined course sequencing reflected the variability of course sequencing efforts, both within and across states. The course sequencing definitions followed a continuum from theoretical, big-picture approaches to very specific alignment strategies.

In their definitions of course sequencing, a number of ADs mentioned the broad connections and vertical alignments—between courses, curriculum, and expectations—that build on one another. The definitions given by the majority of states (Colorado, Florida, Indiana, Louisiana, Massachusetts, Oregon, and Tennessee) included information about sequential high school courses that prepare for and feed into entry-level, credit-bearing college courses by creating a smooth pathway between the two systems. In addition to the connection between high school and college courses, two ADs (Massachusetts and Oregon) mentioned connections among two-year institutions and between two- and four-year institutions as part of their definitions of course sequencing. Two ADs (Oregon and Tennessee) provided detailed definitions that mentioned specific elements that comprise course sequencing, such as dual-enrollment programs, career/technical education pathways, stackable credentials,² and specific class sequence structures. Figure 1 includes a visual display of common elements of the ADs' course sequencing definitions, some of which include more than one element.

² A credential is “considered stackable when it is part of a sequence of credentials that can be accumulated over time to build up an individual’s qualifications and help them to move along a career pathway or up a career ladder to different and potentially higher-paying jobs. For example, one can stack a high school diploma, an associate’s degree, and then typically obtain two more years of appropriate postsecondary education to obtain a bachelor’s degree. An individual can also stack an interim career/work readiness or pre-apprenticeship certificate, then complete an apprenticeship, and later earn a degree or advanced certification” (U.S. Department of Labor, Employment and Training Administration, 2010).

Figure 1. Main elements in Alignment Directors' definitions of course sequencing

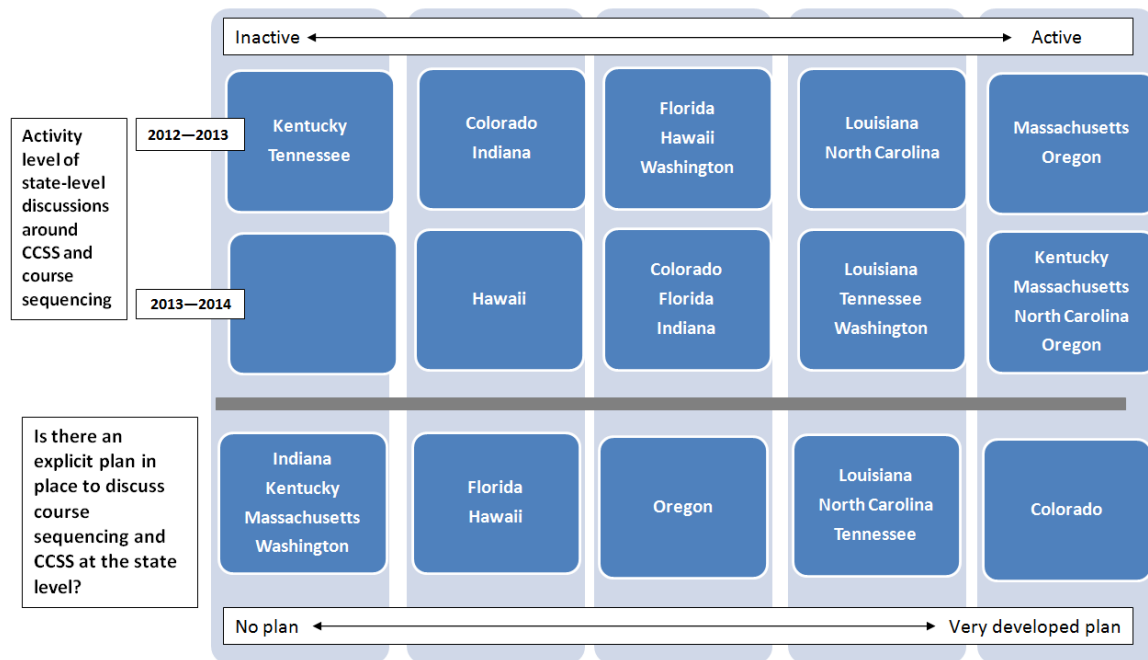


The survey also asked ADs about the existence of current state-level plans to discuss course sequencing as it relates to issues of alignment with the CCSS, and about the projected level of policy discussions about improving course sequencing across K–12 and higher education systems in the upcoming year. As shown in Figure 2, no clear pattern emerges when looking across, or between, these topics. The AD of one state (Colorado) that has a well-developed plan to discuss course sequencing related to CCSS alignment issues projected a medium level of discussion activity in 2013–14, while others (Louisiana and Tennessee) projected high levels of discussion activity in 2013–14. For states with either no current plan or a slightly developed plan, projected policy discussion activity levels range from medium (Florida and Indiana) to fairly active (Washington) or active (Kentucky).

The survey data indicate that, independent of the existence of current explicit plans to discuss course sequencing as it relates to CCSS alignment issues, the Core to College ADs anticipate at least modest levels of planning in 2013–14 at the state level. For instance, as shown in Figure 2, the ADs for Kentucky, Massachusetts, and Washington indicated having no current state-level plans in place to discuss course sequencing as it relates to the CCSS, but they each foresee active state-level policy discussions in the coming year (2013–14) around the issue of improving course sequences across K–12 and higher education systems. The ADs in Louisiana and Tennessee both reported that they already have explicit state-level plans in place to discuss course sequencing and the CCSS and projected that active state-level policy discussions are also likely in 2013–14. Colorado's AD reported that her state already has a very developed explicit state-level plan to discuss course sequencing as it relates to the CCSS, but she estimated that state-level policy discussions in the coming year around the issue of improving course sequences across K–12 and higher education systems will only be modestly active.

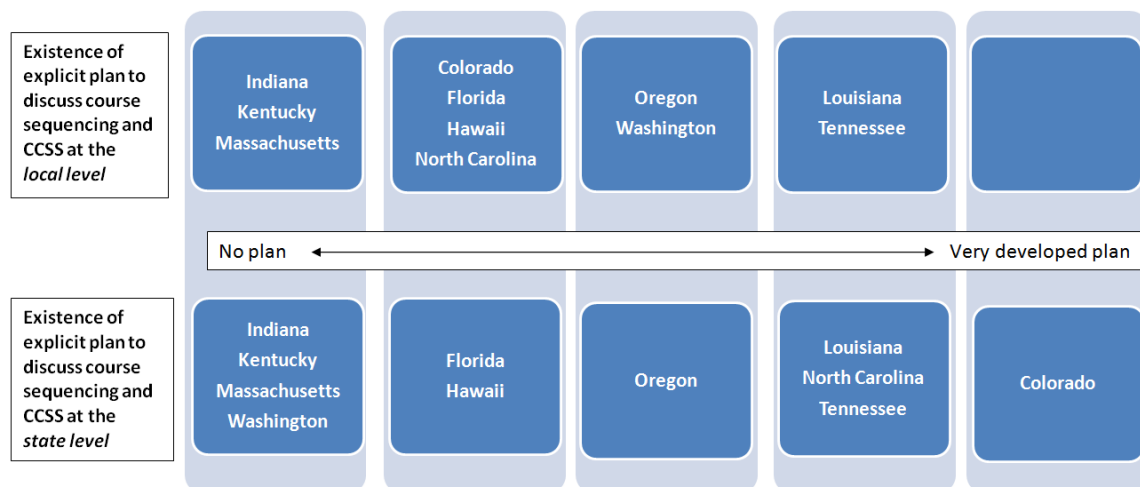
Overall, these results seem to indicate that projected state-level discussions around course sequencing are not dependent on having a developed plan for discussion already in place, although the projected discussions may include work on developing a plan. As states begin to create plans to discuss course sequencing, or continue to use plans already in place, how these plans align with the CCSS will provide examples that others can learn from.

Figure 2. State-level discussion activity levels and explicit plans regarding course sequencing and the CCSS



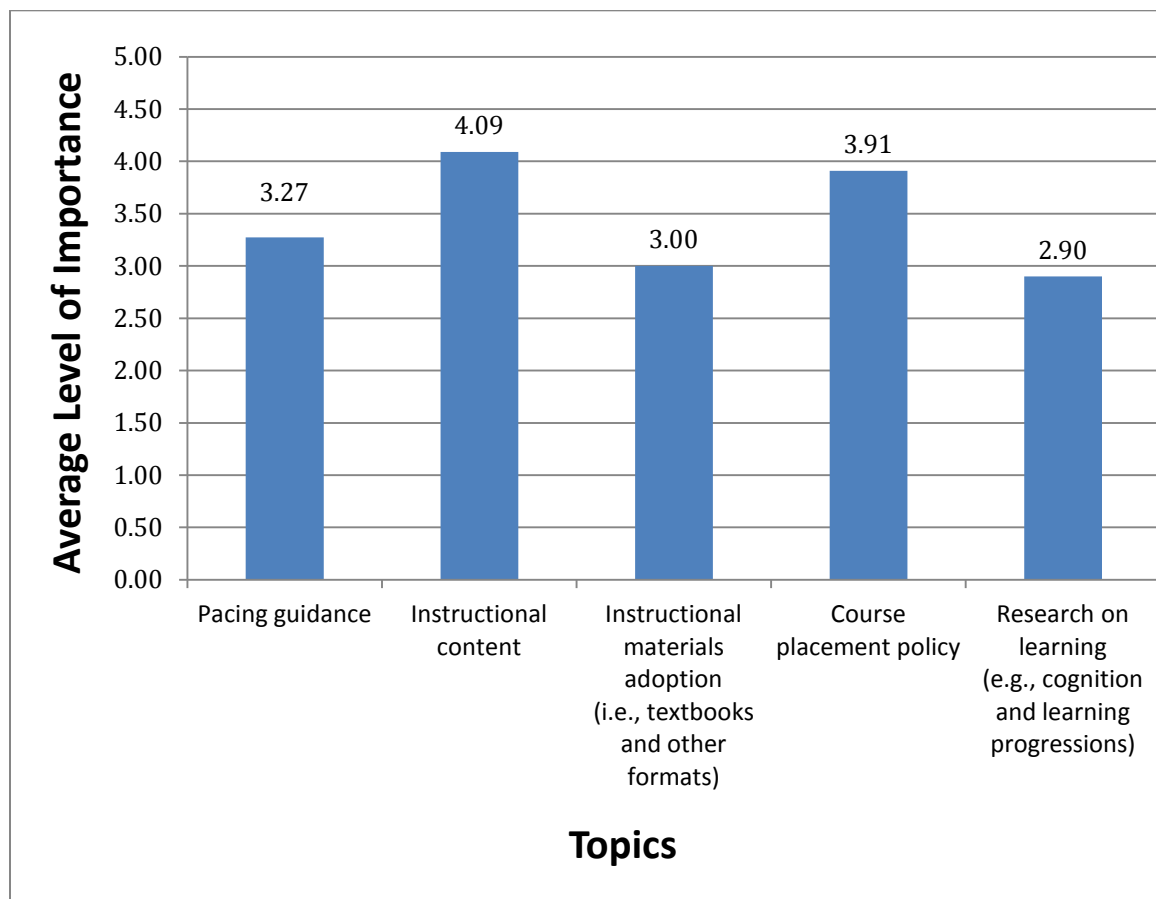
Course sequencing work happens at both the state and local levels and can include coordinated or individual efforts at each level. As shown in Figure 3, most ADs reported that explicit plans to discuss course sequencing and the CCSS were at the same level of development at both the local and state levels; however, two ADs (Colorado and North Carolina) reported that these plans were more developed at the state level than at the local level.

Figure 3. Local- and state-level plans to discuss course sequencing and the CCSS



What do states' course sequencing discussions typically focus on? To answer this question, ADs used a five-point Likert scale (in which 1 = not important and 5 = very important) to rank the extent to which pacing guidance, instructional content, instructional materials adoption (i.e., textbooks and other formats), course placement policy, and research on learning (e.g., cognition and learning progressions) have been important to their respective course sequencing discussions. Overall, as shown in Figure 4, the ADs reported that the most important topic related to course sequencing discussions has been instructional content, followed by course placement policy. Five states ranked instructional content at the highest level of importance, with all states rating it at least 3 or higher. The ADs ranked instructional materials adoption and research on learning as the two least important items, with only three states giving them a 4 or 5 on the scale of importance. Three ADs (Colorado, Kentucky, and Massachusetts) rated all of the topics at high importance (4 or 5) while four ADs (Florida, Hawaii, Indiana, and North Carolina) rated all topics at medium to low importance (3 or lower).

Figure 4. Extent to which topics have been important to discussions of course sequencing



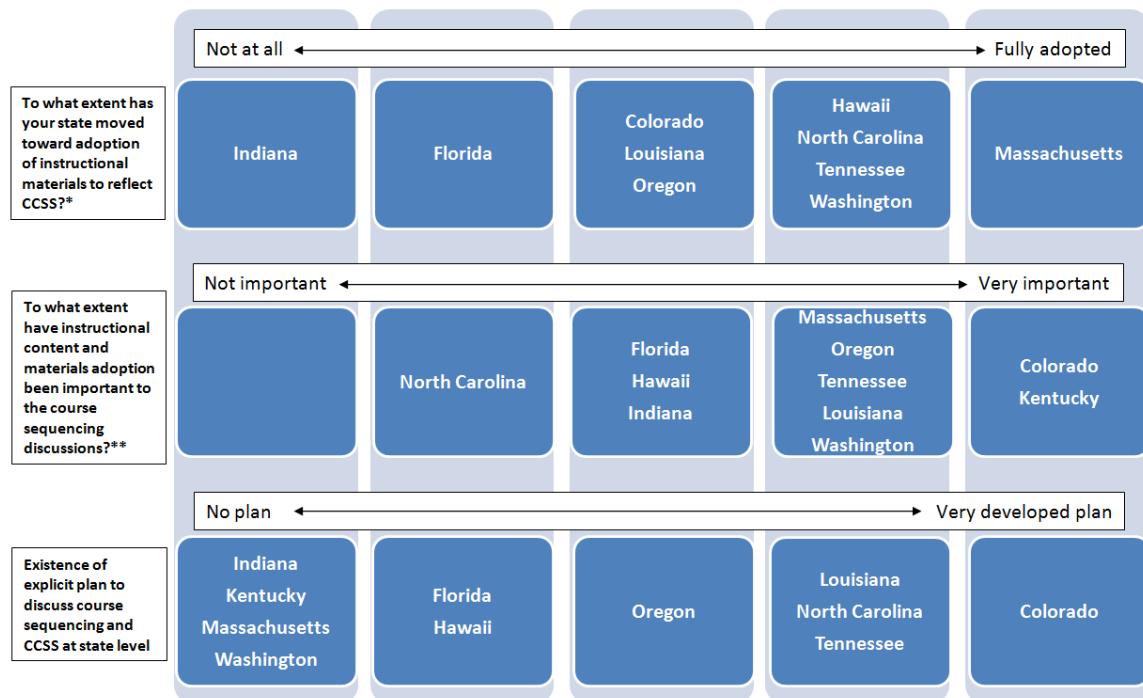
Note: Topics were rated on a five-point Likert scale, in which 1 = not important and 5 = very important.

In addition to asking ADs whether instructional materials adoption was an important element of discussions about course sequencing, the survey also asked ADs to what extent their states had moved toward adopting instructional materials to reflect the CCSS. As shown in Figure 5, some ADs (Indiana, Florida, Oregon, North Carolina, and Tennessee) reported that their states' adoption of CCSS-related instructional materials and their states' plans to discuss course sequencing as it relates to the CCSS are at a similar stage on the five-point Likert scale. For example, North Carolina reported having almost fully adopted CCSS-related instructional materials and having a developed state plan to discuss course sequencing; by contrast, Indiana reported that the adoption of CCSS-aligned instructional materials is currently "on hold," due to legislative action and that the state does not currently have a plan in place to discuss course sequencing.

As states move toward full implementation of the CCSS, we anticipate that they will make continuous efforts to align classroom practices—particularly instructional materials and instructional content—with the new standards. States that have explicit course sequencing plans in place may be better positioned to evaluate and refine their CCSS-aligned instructional content and materials. Accordingly, Figure 5 presents survey data on (1) the extent to which states have moved toward adopting instructional materials to reflect the CCSS, (2) the extent to which both instructional content and instructional materials adoption have been important to course sequencing discussions, and (3) the existence of explicit state-level plans to discuss course sequencing and the CCSS (also represented in Figure 3).

The survey responses showed that the relationships among these topics vary across states. For example, Colorado's AD reported that Colorado has a very developed plan to discuss course sequencing and CCSS at the state level; noted that the state has moved somewhat toward adoption of instructional materials to reflect the CCSS; and indicated that both instructional content and instructional materials adoption have been very important topics in course sequencing discussions. By contrast, the Massachusetts AD reported that the state has no explicit plan to discuss course sequencing and the CCSS at the state level, but has fully adopted instructional materials that reflect the CCSS, and that both instructional content and instructional materials adoption have been important topics in course sequencing discussions.

Figure 5. Relationship between CCSS instructional materials and content and explicit plans regarding course sequencing and the CCSS



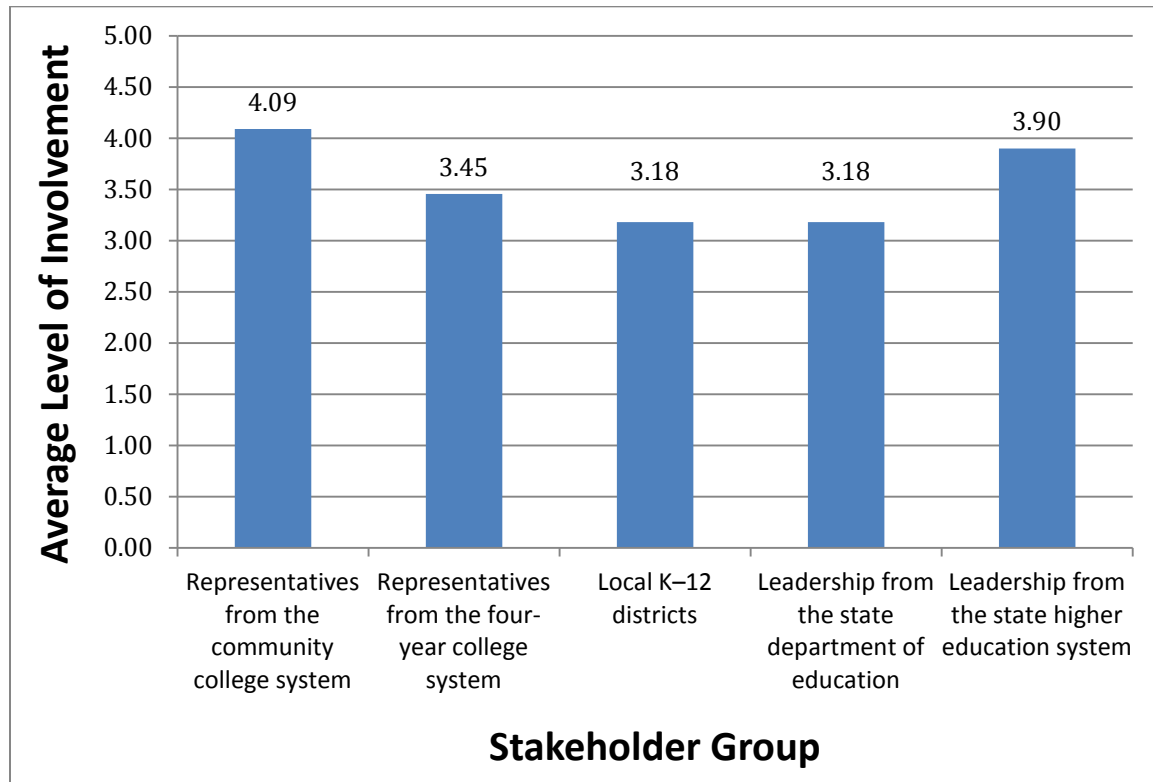
*No data from Kentucky.

**Average of ratings for importance of instructional content and instructional materials adoption, with state put in the higher category if ratings were discrepant.

Primary Stakeholders in Course Sequencing Efforts

Course sequencing efforts involve stakeholders from all levels and systems. To get a snapshot of various stakeholders' levels of involvement, the survey asked ADs to rate the extent to which various stakeholders have been involved in efforts to get greater clarity around sequencing high school and college courses. Overall, as shown in Figure 6, the ADs ranked higher education stakeholders as more active in discussions and engagement on course sequencing efforts than their K–12 counterparts. This is not surprising considering that the ADs are located within their states' higher education systems (Austin et al., 2012). ADs also reported that representatives from departments of higher education and state higher education systems, while engaged in course sequencing discussions, are less involved than the more localized community college representatives.

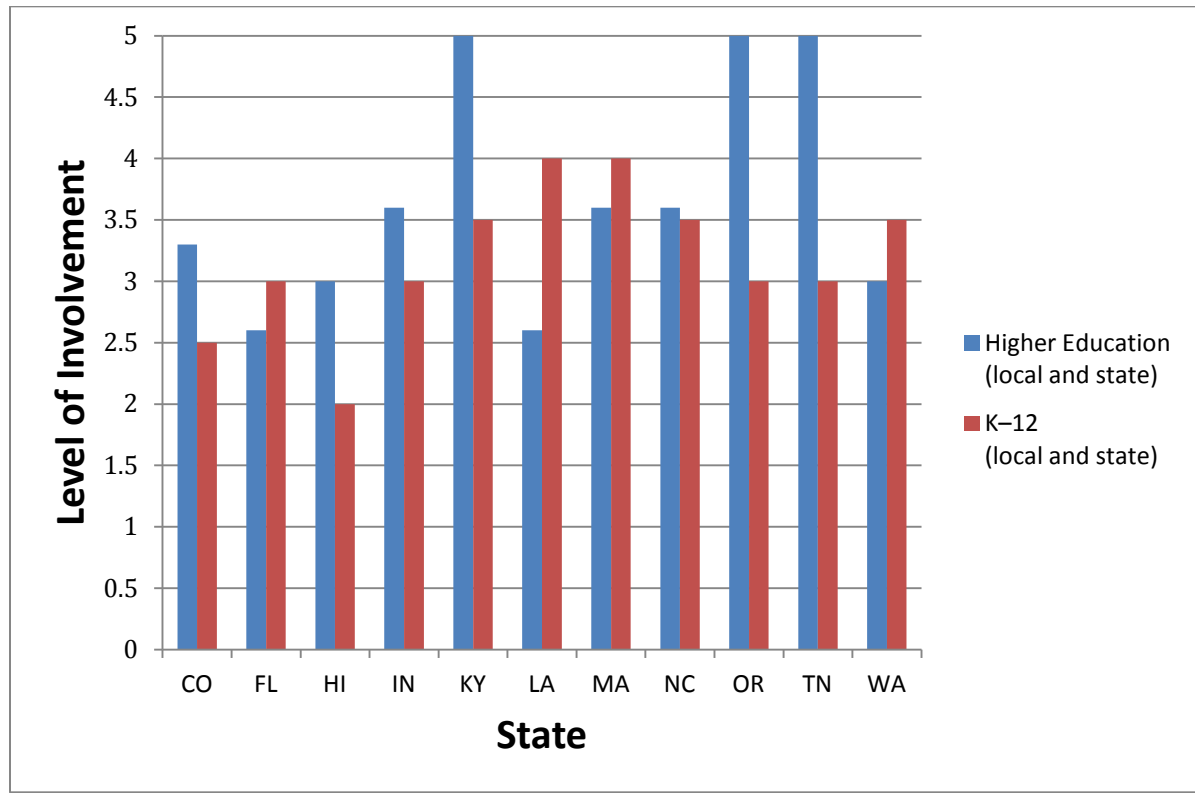
Figure 6. Levels of stakeholder-group involvement in efforts to get greater clarity around sequencing high school and college courses



Note: Level of stakeholder-group involvement was rated on a five-point Likert scale, in which 1 = not involved and 5 = actively involved.

While it may seem that the K-12 sector typically has the most focus on course alignment and sequencing, the survey data indicated that representatives from higher education (four-year universities, community college systems, and state higher education leadership) are actually more involved in their states' efforts to gain greater clarity in course sequencing. The respective levels of involvement of K-12 and higher education stakeholders in each Core to College state, as reported by the ADs, are shown in Figure 7.

Figure 7. Levels of involvement of higher education and K–12 stakeholders in efforts to get greater clarity around sequencing high school and college courses



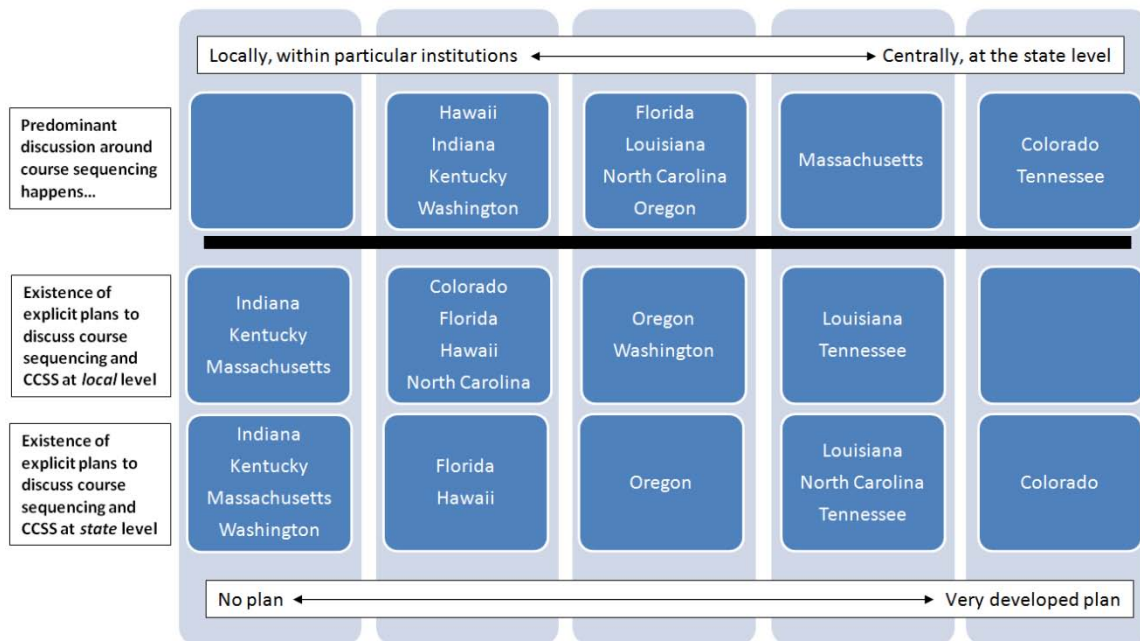
Note: Level of stakeholder-group involvement was rated on a five-point Likert scale, in which 1 = not involved and 5 = actively involved.

The survey also included open-response questions asking ADs to discuss stakeholders' activities related to course sequencing. Overall, ADs' rankings of the involvement of stakeholder groups were inconsistent with which groups they mentioned when providing specific examples of leadership and stakeholders: four-year institutions were mentioned slightly more often than community colleges in ADs' specific examples of course sequencing activities.

Due to the fact that course sequencing discussions involve many stakeholders at various levels and in various locations, states reported differing degrees of planning and discussion at the state and local levels. Figure 8 illustrates the relative extents to which planning and discussion about course sequencing are happening at the local level versus at the state level. As shown in Figure 8, some states, such as Colorado and Tennessee, have been focusing their discussions more at the state level. Across the states that are having course sequencing discussions equally at the state and local levels (Florida, Louisiana, North Carolina, and Oregon), the extent of development of an explicit plan to discuss course sequencing at each of those levels varies. In general, states that are having discussions mainly at the local level have less developed plans, at both the state and local levels, to

discuss course sequencing as it relates to alignment issues with the CCSS. The ADs from Colorado and North Carolina are the only ones who reported a greater extent of plan development at the state level; all other ADs reported the same extents of plan development at the local and state levels. As several ADs mentioned in their open-response survey answers, course sequencing discussions are happening at both levels regardless of the extent of plan development at each level.

Figure 8. Locations of course sequencing planning and discussion



Core to College ADs are spearheading, or are actively engaged with, collaborations to address course sequencing that span both the K–12 and postsecondary sectors. The vehicles for such collaborative efforts include convenings, task forces, regional partnerships, district–community college partnerships, and the involvement of intermediaries. To get a better sense of what these collaborations look like, ADs were asked, in an open-response survey item, to provide specific examples of local- and state-level discussions and work on course sequencing. As shown in Figure 9, the types of work they described can be grouped into three primary topic areas: stakeholder engagement focused on defining college readiness, pathways, and placement; discussions related to high school courses and college credit, and collaborative efforts to align K–12 and higher education course sequencing and curriculum.

Figure 9. Examples of course sequencing discussions at the local and state levels

Defining college readiness, pathways, and placement

Colorado



The Pikes Peak Regional Symposium is an annual meeting at Pikes Peak Community College that convenes faculty and local high school teachers and principals to discuss student success through the academic preparation and transition from high school to two- and four-year institutions.

Florida



A few colleges within the Florida college system have worked with their local school districts to discuss how the Common Core will help students meet course objectives for entry-level courses.

Indiana



Three regional partnerships have had two meetings locally in which high school teachers and postsecondary faculty are discussing exit courses in high school and entry-level courses in college, and how to better align the ending of the high school course and beginning of the college course so that students are prepared for college courses. Meetings will continue each academic year.

North Carolina



The chancellor at Western Carolina University convened a stakeholder group of local community college math faculty, University of North Carolina (UNC) math faculty, and math leaders from the 12 local school districts near the university. They've also included business leaders in this discussion, and their goal is to create a "regional" focused approach to the skills and competencies covered in high school math courses and course pathways for the community college system and two nearby UNC campuses.

Washington



[We have] six local Core to College projects that are in varying stages of course sequencing discussions and, to varying degrees, mostly in the context of work on transcript-based placement processes.

Figure 9. Examples of course sequencing work at the local and state levels (continued)

High school courses

Kentucky



Dual credit has recently become a topic of conversation surrounding both course sequencing and college readiness.

Louisiana



A conference call was held with the contact persons, high school teachers, university partners, community college partners, and state agency partners to discuss the Southern Regional Education Board Transitional Course Pilot for 2013–14. The focus of the discussion, and planned follow-up meetings, was on implementing new transitional courses in high schools to prepare high school students who need additional support for success in college.

K–12 and higher education course sequencing and curriculum alignment

Hawaii



We are currently supporting a Math Faculty Expectations work group looking at how Math 100 content reflects the CCSS. The CSU Expository Reading and Writing Curriculum is currently used in our high schools, which is closely linked with expectations in English 100 courses at our institutions of higher education.

Massachusetts



The Massachusetts AD works in concert with the Department of Higher Education colleagues managing the statewide higher education alignment/course sequencing work group. Massachusetts is decentralized at both P–12 and higher education levels with regard to course sequence. Therefore, Massachusetts has a statewide focus on course sequencing among the 15 public two-year colleges and between the two-year and four-year colleges. In addition, regionally, higher education institutions are working with their feeder high schools to align high school and college curriculum, with a particular focus on English language arts and math.

Oregon



One of our optional activity teams is working with the Educational Policy Improvement Center (EPIC) to develop a crosswalk of the alignment to CCSS-M in math 95 (postsecondary) and high school Algebra II. To broaden the effort, we are actively seeking participation of several high schools and postsecondary institutions across the state as well.

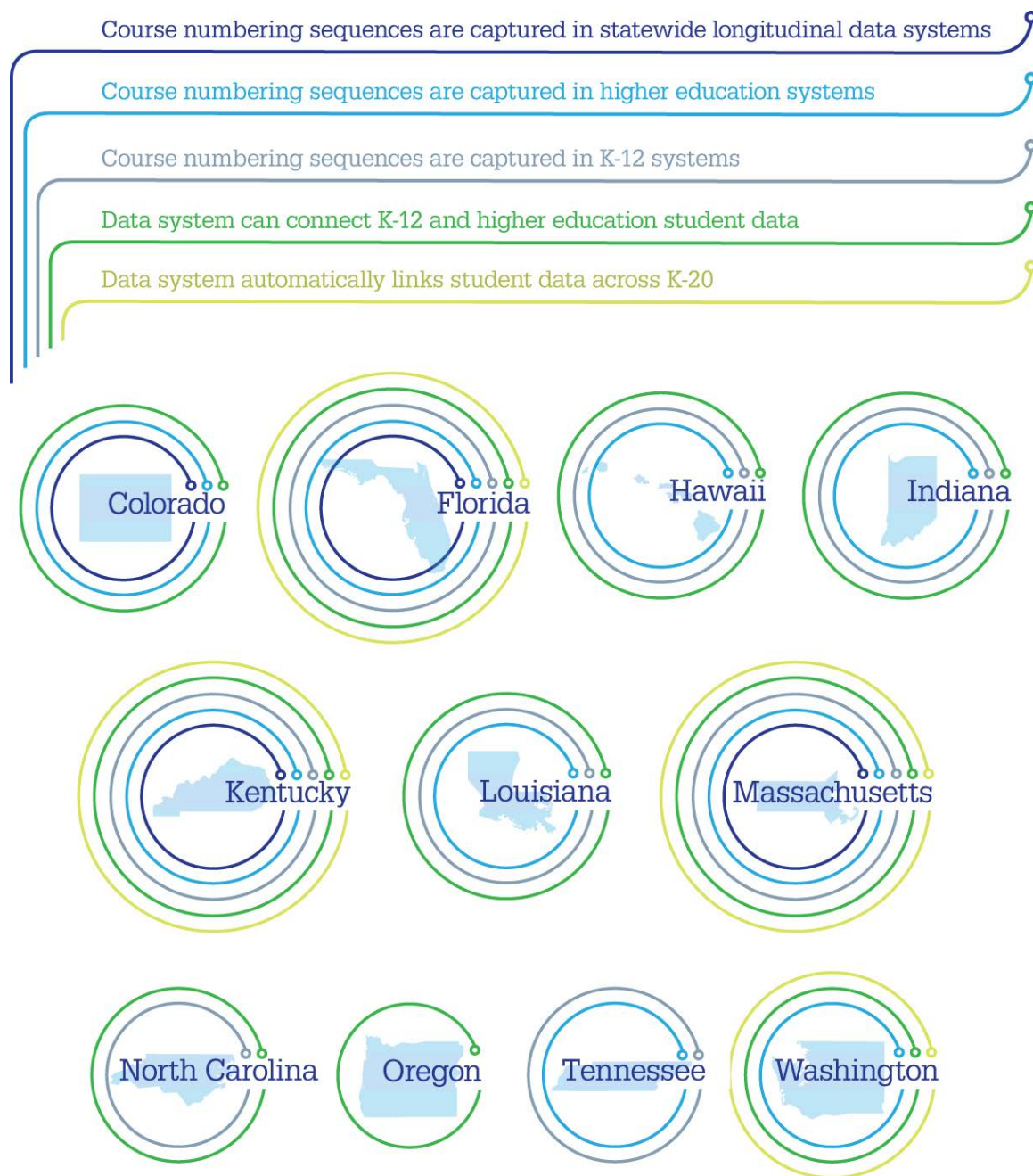
Data Systems to Manage Course Sequencing Information

Data and the development of student longitudinal data systems play central roles in monitoring and assessing course sequencing efforts, and data that moves fluidly between systems can make those systems more powerful and precise.

ADs were asked to report on the capacity of their respective state data systems, including whether their state's system could link data between the K–12 and higher education systems. As shown in Figure 10, the majority of states (10 states) reported having data systems that could connect K–12 and higher education student data; Tennessee's AD reported that the state is in the process of developing this capability through its Race to the Top grant.

As data systems increase their capacity and complexity, states are able to capture course numbering sequences. As shown in Figure 10, eight of the Core to College states reported that they are able to capture course numbering sequences at the K–12 level, and eight states are able to capture this data at the higher education level. Hawaii, Indiana, and Louisiana are able to link data and capture course numbering sequences in both their K–12 and higher education systems, but these data are not automatically linked statewide. Some states (Florida, Kentucky, and Massachusetts) have created a more complex statewide system that automatically links data at all levels and captures course numbering sequences in the data. In contrast, Washington automatically links student data from the K–12 system to the higher education system, but does not capture course numbering sequences as part of the data.

Figure 10. State data system elements and capabilities



Two Examples of States Capturing Postsecondary Course Sequencing Information

In their survey responses, two ADs highlighted ways in which their states support postsecondary course sequencing data capturing efforts through supplementary data supports.

Indiana's *Core Transfer Library* (CTL) (TransferIN.net, 2013) captures lists of courses that are transferable among all Indiana public college and university campuses. Colleges and universities choose which general CTL options their courses match with, while still retaining their unique courses. Campuses are not required to have all of their courses match with the CTL, but campuses agree to accept certain general courses. In this way, Indiana has chosen a hybrid of standardized courses and campus discretion.

Louisiana's *Board of Regents Master Course Articulation Matrix* (Louisiana Board of Regents, 2013) is a similar system, providing common course numbers that institutions can equate with courses at their individual campuses.

The variance in capabilities of state data systems is likely due to the level of centralization of each state's education system, as well as to the level of funding that each state has received to create these systems. In addition, as discussed earlier, states place varying degrees of importance on course sequencing as a central strategy to improving alignment between high school and higher education. Thus, states' level of focus on course sequencing may affect their strategies in implementing extensively linked data systems and whether course numbering sequences are included in the data collected.

Governance for Implementing Course Sequencing Policies

Policy and governance structures inform and drive how state leadership focuses its efforts across multiple state systems. As previously described, when course sequencing discussions occur, they happen both within and outside of overarching CCSS policy and governance discussions, including state discussions about moving toward a common definition of college readiness. This presents real-time challenges: how do states go about revising policy and processes that have been central to a state's education system for many years to reflect upcoming CCSS expectations?

When asked how central their states' respective definitions of college readiness have been to course sequencing discussions, ADs reported that, in general, there has not been a strong connection between these two topics. As shown in Figure 11, on a scale of 1 (not central) to 5 (central), eight states rated the centrality of a definition of college readiness to course sequencing discussions as a 3 or lower (average: 2.9). This result may depend on how

central the development of a definition of college and career readiness is to each state's Core to College work overall. While most states indicated a fairly weak connection, the ADs from Kentucky and Massachusetts both ranked their states' definitions of college readiness as central to the course sequencing discussions taking place.

When comparing how central the definitions of college and career readiness are in course sequencing discussions to the actual level of development and adoption of these definitions of college readiness, the survey results indicated that states that have adopted a definition tended to rate it as central to the course sequencing discussions. For example, Colorado, Kentucky, Massachusetts, and Louisiana have all officially adopted a definition of college and career readiness, and they reported that it had a somewhat central (Colorado), fairly central (Louisiana), or central (Kentucky and Massachusetts) role in course sequencing discussions. States that reported that the definition had a less central (Florida, North Carolina, and Oregon) or not central (Indiana, Tennessee, and Washington) role in course sequencing discussions tended to not have a definition or to have a definition that was still in development, with the exception of Florida.

Figure 11. Centrality of college readiness definitions to course sequencing discussions



ADs were also asked about course numbering, which can be dictated by a variety of entities and policies. In order to better understand how course sequencing is related to state policies, ADs were asked both about the consistency of course numbering within and across various education entities (e.g., high schools, community colleges) and about whether course numbering is determined by state policy or other state governing boards. Figure 12 shows that states with consistent course numbering (indicated by the presence of a check mark) often also have state or governing-board policies that determine the numbering (indicated by blue shading).

The Florida AD reported that state policy or a governing board determines course numbering across the high school, community college, and four-year college segments, as well as across the entire higher education system. Meanwhile, North Carolina policy dictates course numbering only across public high schools and community colleges. Only two states (Kentucky and Hawaii) have course numbering that is determined by something other than state policy or governing board.

Figure 12. Consistent course numbering

	FL	IN	LA	TN	CO	NC	HI	KY	WA	MA	OR
High schools	✓	✓		✓	✓	✓	✓	✓			
Community colleges	✓		✓	✓	✓	✓	✓		✓		
Four-year institutions	✓		✓								
Across both community colleges and four-year institutions	✓	✓	✓								

Note: A check mark indicates that a state has consistent course numbering across the state for each particular education entity. Blue shading indicates where course numbering is determined by state policy or by a governing board.

Along with consistent course numbering, consistent course content is another important aspect of course sequencing that is often dictated by state policy. As Figure 13 shows, in Tennessee, state policy or a governing board determines course content across public high schools, community colleges, and four-year institutions. In Indiana, Louisiana, and Tennessee, state policy or a governing board also determines course content across the entire higher education system. Several states with consistent course numbering policies, such as Colorado and North Carolina, do not have consistent course content policies. There are also several states in which course content is determined by state policy or by a governing board, but that policy does not dictate that course content be consistent.

Figure 13. Consistent course content

	FL	IN	LA	TN	CO	NC	HI	KY	WA	MA	OR
High schools	✓	✓		✓						✓	
Community colleges	✓		✓	✓							
Four-year institutions	✓		✓	✓							
Across both community colleges and four-year institutions	✓	✓	✓	✓							

Note: A check mark indicates that a state has consistent course content across the state for each particular education entity. Blue shading indicates where course content is determined by state policy or by a governing board.

As shown in Figures 12 and 13, most states that have consistent course numbering also have consistent course content, but, across the states, consistent course numbering is more prevalent than consistent course content.

Conclusion

Through surveying the Core to College Alignment Directors (ADs), we have gained a greater understanding of their, and their states', current and future course sequencing work. The survey responses provided valuable information on the types of planning and course sequencing discussions taking place, the primary stakeholders involved in these discussions, the types of data systems that states use to manage course sequencing information, and the states' governance structures for implementing course sequencing policies. The responses demonstrated that, where course sequencing work is ongoing, the ADs are able to play a role in developing this work. And, perhaps most importantly, the survey responses highlighted the innate challenges, complicated timelines, and shifting priorities that states may be facing as they progress toward fully implementing the Common Core State Standards (CCSS).

Several key themes emerged from the survey data:

Course sequencing is embedded in existing policy. As shown by the wide variety of stakeholders, their level of involvement, and state and regional approaches to course sequencing, it is clear that course sequencing is a complicated issue. States have various histories of policy enactment, as well as complicated educational system structures that require tailored approaches to developing and implementing new and revised institutional policies, including course sequencing.

Discussions about course sequencing are a lower priority for most ADs than other current CCSS alignment topics. ADs have varying degrees of involvement in their states' planning and discussions about course sequencing. A few ADs are heavily involved in course sequencing discussions, specifically in regard to high school and entry-level coursework alignment, while most other ADs play a more ancillary role in relation to course sequencing work. While some ADs reported on course sequencing efforts through first-hand knowledge, based on meeting participation and conversations, several ADs reported that these efforts were either not a priority or were not part of the AD's job responsibilities. In some states, course sequencing efforts are not currently seen as a key strategy for addressing alignment issues.

The implementation of the CCSS does not appear to be catalyzing discussions about course sequencing between K–12 and higher education systems. Most states do not currently have thoroughly developed plans, at either the local level or the state level, for discussing course sequencing as it relates to K–12 and postsecondary alignment issues within the CCSS. Also,

although instructional materials often drive course sequences, most ADs reported that their states have not yet moved toward the adoption of CCSS-aligned instructional materials. In short, the CCSS do not appear to figure prominently into states' current course sequencing discussions.

Key stakeholders, including higher education representatives and state officials, are involved in course sequencing efforts. Across the survey's questions about the multiple aspects of course sequencing, ADs reported that a wide variety of leaders and stakeholders are involved in course sequencing discussions, including representatives of both the K–12 and higher education systems, as well as leadership at the local and state levels. Meetings, conversations, and decisions about course sequencing also involve teachers, faculty, and administrators. The survey responses more often referenced the involvement of higher education stakeholders than that of K–12 stakeholders, but this may be a result of where ADs are situated—within their states' higher education systems (Austin et al., 2012)—and may not fully represent statewide work as a whole. Although the specifics and intensity of states' course sequencing work varied, all states demonstrated at least some involvement from a wide variety of stakeholders.

Examples of strong regional partnerships or efforts related to course sequencing exist. ADs reported that course sequencing work at the regional level extends beyond one-off efforts by individual organizations or agencies. Universities, colleges, high schools, and other stakeholders regularly collaborate on strong regional partnerships that focus on improving students' transition from high school to entry-level, credit-bearing postsecondary coursework.

The importance of course sequencing is recognized. While ADs generally reported that state-level discussions on course sequencing were only somewhat active during 2012–13, they indicated that these discussions should increase in the coming year. All but one of the ADs (Hawaii) responded that their states would be continuing or increasing course sequencing discussions in 2013–14, and no states reported that these discussions would cease. Most ADs seemed to anticipate that course sequencing discussions would play a more prominent and important role in future work.

As the Core to College Initiative continues, the evaluation team will continue to gauge how course sequencing efforts differentiate the ADs' roles in both centralized and regional alignment efforts, as well as to examine how these efforts impact states' implementation of the CCSS.

References

- An, B. (2012). The impact of dual enrollment on college degree attainment: Do low-SES students benefit? *Educational Evaluation and Policy Analysis*, (35)1, 57-75.
- Austin, K., Bugler, D., Finkelstein, N., Klarin, B., Mundry, S., Olson, M., et al. (2012). *Core to college evaluation: Building bridges through stakeholder outreach and engagement*. San Francisco: WestEd.
- Bailey, T., Jeong, D. & Cho, S. (2010). *Student progression through developmental sequences in community colleges* (CCCR Brief 45). New York, NY: Columbia University, Teachers College, Community College Research Center.
- Barnett, E. A., Fay, M. P., Hare Bork, R., & Weiss, M. J. (2013). *Reshaping the college transition: States that offer early college readiness assessments and transition curricula*. New York, NY: Community College Research Center.
- Berger, A. (2013). *Early college, early success: Early college high school initiative impact study*. Washington, DC: American Institutes for Research.
- Bragg, D. D., Kim, E., & Barnett, E. A. (2006). *Creating access and success: Academic pathways reaching underserved students*. New Directions for Community Colleges, 135, 5-19. Doi:10.1002/cc.243.
- Bragg, D. D., Loeb, J. W., Gong, Y., Deng, C., Yoo, J., and Hill, J. (2002). *Transition from high school to college and work for tech prep participants in eight selected consortia*. St. Paul: National Research Center for Career and Technical Education, University of Minnesota.
- Jobs for the Future. (2013). *Early college high schools get results*. Boston, MA: Jobs for the Future.
- Jobs for the Future. (2012). *Study of early assessment and early intervention models authorized by House Bill 3468, 82nd Texas Legislature, 2011*. Jobs for the Future.
- Karp, M., Calcagno, J., Hughes, K., Jeong, D., & Bailey, T. (2007). *The postsecondary achievement of participants in dual enrollment: An analysis of student outcomes in two states*. St. Paul, MN: National Research Center for Career and Technical Education, University of Minnesota.

- Kim, J., & Bragg, D. D. (2008). The impact of dual and articulated credit on college readiness and retention in four community colleges. *Career and Technical Education Research*, 33(2), 133-158.
- KnowledgeWorks Foundation and the Western Commission for Higher Education. (2007). *The promise of dual enrollment: Assessing Ohio's early college access policy*. Cincinnati, OH: Knowledge Works Foundation.
- Louisiana Board of Regents. (2013). *Master course articulation matrix*. Retrieved from http://regents.louisiana.gov/wp-content/uploads/2013/07/MASTER_COURSE_ARTIC_MATRIX_2013-14_-July_9_-2013-Lge-Print.pdf
- National Association of Career Technical Education Consortium. (2010). *Developing a statewide model program of study: Five states share insights*. Retrieved from <http://www.careertech.org/career-clusters/glance/programs-study.html>
- National Association of State Directors of Career Technical Education Consortium (NASDCTEc). (2011). *Career clusters and programs of study: State of the states*. Retrieved from <http://www.careertech.org/career-clusters/glance/programs-study.html>
- Ray, L. A. (2011). *The effect of studying tech prep in high school and college academic performance*. Ann Arbor, MI: ProQuest LLC.
- Reid Kerrigan, M., & Slater, D. (2010). *Collaborating to create change: How El Paso Community College improved the readiness of its incoming students through achieving the dream*. Retrieved from http://www.achievingthedream.org/sites/default/files/resources/Collaborating_Create_Change_EIPaso.pdf
- The College Board. (n.d.). *AP student—AP courses and exams for students*. Retrieved from <https://apstudent.collegeboard.org/home>
- The International Baccalaureate. (n.d.). *International education—The international baccalaureate*. Retrieved from <http://www.ibo.org/>
- Thomas, N., Marken, S., Gray, L., & Lewis, L. (2013). *Dual credit and exam-based courses in U.S. public high schools: 2010-11 (NCES 2013-001)*. Washington, DC: National Center for Education Statistics: U.S. Department of Education.
- TransferIN.net. (2013). *Core transfer library*. Retrieved from <http://www.transferin.net/CTL.aspx>

U.S. Department of Labor, Employment and Training Administration. (2010). *Training and employment guidance letter no. 15-10*. Retrieved from <http://wdr.doleta.gov/directives/attach/TEGL15-10.pdf>

Appendix A:

May 2013 Core to College Survey on Course Sequences

Core to College Evaluation: Survey on Course Sequences

Survey Introduction

Your work over the past year has involved the *alignment* between the K-12 and higher education segments. One component of that work may have included discussions and policy development around *course sequences*.

Course sequences, as used in this survey, are the patterns by which students move from one course to the next on an efficient trajectory, building deeper content and fluency as they progress from grade to grade. In the context of the Core to College alignment work, the sequences bridge high school and postsecondary institutions. One example is how CCSS math content in high school is sequenced and designed to lead to enrollment in credit-bearing math courses at the community college level. Very specifically, it could be the sequencing of a 12th grade Algebra II course with a pre-Calculus course offered in the first year of postsecondary math instruction.

With this example in mind, we're interested in the extent to which discussions around course sequencing—as it relates to the CCSS—has been prominent in your state over the past year, and the role that you may have played in fostering improved alignment between the K-12 and higher education systems in your state.

This survey covers a few questions in ten topics regarding course sequencing:

1. Defining Course Sequencing
2. General Course Sequencing Discussions and Policy
3. CCSS-Specific Course Sequencing Discussions and Policy
4. Leadership and Stakeholder Involvement in Course Sequencing Discussions
5. Course Sequencing Planning
6. Other Topics Related to Course Sequencing Discussions
7. Course Numbering and Course Content Processes
8. Course Sequences and Data Structures
9. Resources and Instructional Materials
10. Alignment Director and Learning Network Reflection

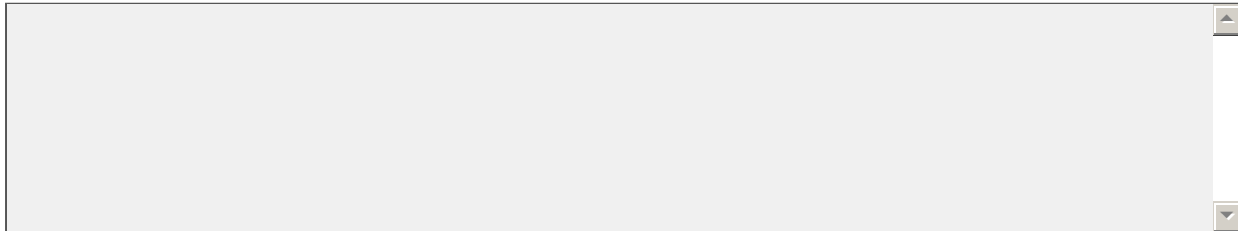
This survey should take approximately 45 minutes to finish. For the open-ended questions, we would be grateful if you would write a few sentences to explain your response. Your survey invitation link is unique to you and should not be shared. You may exit and re-enter the survey via your SurveyMonkey link.

Please complete this survey by Friday, May 17. For technical issues with this survey, contact Marie Olson at molson2@wested.org or 415-615-3371. For other questions about this survey, contact Neal Finkelstein at nfinkel@wested.org.

Core to College Evaluation: Survey on Course Sequences

Defining Course Sequence

1. We understand that people may talk about course sequencing in different ways. How do you define course sequencing?



Core to College Evaluation: Survey on Course Sequences

General Course Sequencing Discussions and Policy

2. We understand that within your work, state teams are working on many areas of alignment. Given that, how prominent in the discussions is the specific issue of aligning courses between K-12 and higher education?

1 - Not prominent

2

3

4

5 - Prominent

☐☐☐☐☐

3. In your state, where is the predominant discussion around course sequencing happening?

1 - Locally, within particular institutions

2

3

4

5 - Centrally, at the state level

☐☐☐☐☐

4. Is your state a Race to the Top award winner?

☐ Yes

☐ No

5. To what extent are Race to the Top award requirements influencing discussions around course sequencing requirements?

1 - Not influencing

2

3

4

5 - Heavily influencing

N/A

☐☐☐☐☐☐

Core to College Evaluation: Survey on Course Sequences

CCSS-Specific Course Sequencing Discussions and Policy

6. During the past year, to what extent has the discussion of course sequences between K-12 and higher education *that are Common Core-aligned* been a prominent part of the conversation in your state?

1 - Not prominent

2

3

4

5 - Prominent

☐☐☐☐☐

7. In relation to the CCSS, over the past year, how active have state level policy discussions been around improving course sequences across K-12 and Higher Ed systems?

1 - Inactive

2

3

4

5 - Active

☐☐☐☐☐

8. In relation to the CCSS, how active do you think the state level policy discussions will be in 2013-2014 around the issue of improving course sequences across K-12 and higher education systems?

1 - Inactive

2

3

4

5 - Active

☐☐☐☐☐

9. At the local (institutional or regional) level, how prominent are discussions around course sequencing relative to the CCSS?

1 - Not very prominent

2

3

4

5 - Very prominent

N/A

☐☐☐☐☐☐

10. When you're involved in conversations around course sequences under the CCSS, are proposals to revise policy driven *mostly* by: [Select one]

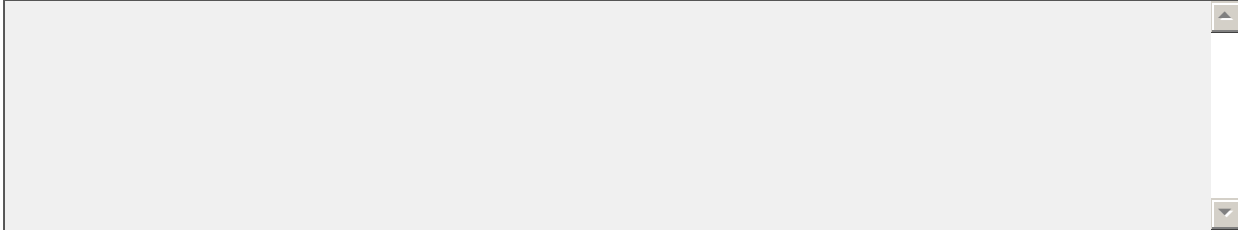
- ☐ Questions of instruction/instructional quality
- ☐ Accountability concerns
- ☐ Political landscape
- ☐ Race to the Top priorities
- ☐ Other (Please describe below)

Other (please specify)

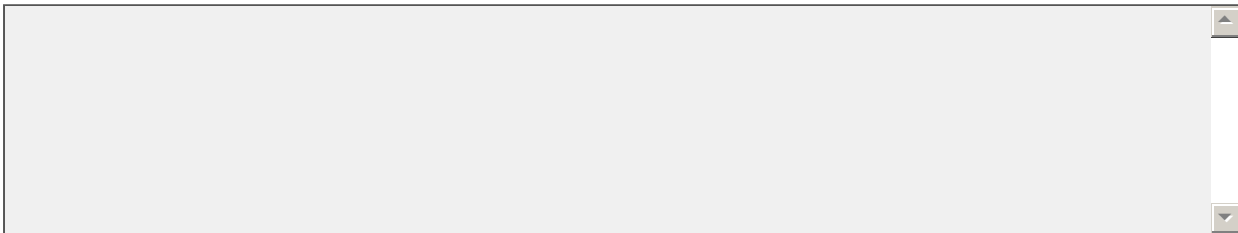
Core to College Evaluation: Survey on Course Sequences

Leadership and Stakeholder Involvement in Course Sequencing Discussions

11. Where has the *leadership* come from to move the discussions of course sequencing forward?

A large, empty rectangular text input area with a light gray background and a vertical scrollbar on the right side.

12. Briefly, what has been your role as an Alignment Director in the discussions of course sequencing?

A large, empty rectangular text input area with a light gray background and a vertical scrollbar on the right side.

13. Did you talk about course sequencing in a meeting in the past month?

☐ Yes

☐ No

If yes, please provide a short summary of this conversation.

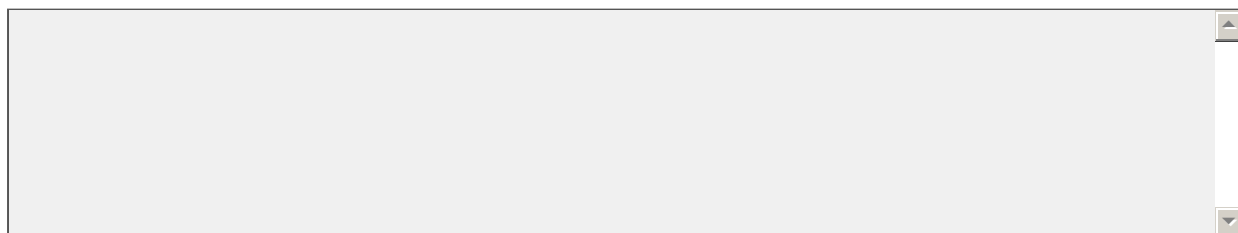
A large, empty rectangular text input area with a light gray background and a vertical scrollbar on the right side.

14. Can you think of three local groups or stakeholders that care about course sequencing?

☐ Yes

☐ No

If yes, please provide a short summary characterizing discussions you've had with these groups or stakeholders.

A large, empty rectangular text input area with a light gray background and a vertical scrollbar on the right side.

Core to College Evaluation: Survey on Course Sequences

Leadership and Stakeholder Involvement in Course Sequencing Discussions

15. To the extent that specific course sequencing conversations have been under way in your state, who has been involved in the efforts to get greater clarity around sequencing high school and college courses?

	1 - Not involved	2	3	4	5 - Actively involved
Representatives from the community college system	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Representatives from the four-year college system	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Local K-12 districts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Leadership from the state department of education	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Leadership from the state higher education system	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (Please specify below)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

16. Provide an example of recent locally focused discussion or policy around high school and/or higher education course sequencing. For example, high school English teachers at one school district have met to begin planning for systematic linkages of English coursework connecting the junior and senior years of high school. Or high school leadership and higher education faculty are creating a crosswalk that emphasizes for CCSS-aligned math sequencing that includes three local school districts and area community colleges.

17. Provide an example of recent state-level discussion or policy around high school and/or higher education course sequencing. For example, English department heads from across the state have met to discuss statewide policy for systematic linkages of English coursework connecting the junior and senior years of high school. Or at a recent P20 meeting, staff discussed convening high school leadership and higher education faculty to create a crosswalk that emphasizes CCSS-aligned math sequencing.

Core to College Evaluation: Survey on Course Sequences

Course Sequencing Planning

18. Is there an explicit plan in place to discuss course sequencing at the local level as it relates to alignment issues within CCSS?

1 - No plan

2

3

4

5 - Very developed plan

☐☐☐☐☐

Please share elements of this plan if applicable

19. Is there an explicit plan in place to discuss course sequencing at the state level as it relates to alignment issues within CCSS?

1 - No plan

2

3

4

5 - Very developed plan

☐☐☐☐☐

Please share elements of this plan if applicable

Core to College Evaluation: Survey on Course Sequences

Other Topics Related to Course Sequencing Discussions

20. To what extent have the following topics been important to the discussions of course sequencing:

	1 - Not important	2	3	4	5 - Very important
Pacing guidance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Instructional content	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Instructional materials adoption (i.e. textbooks and other formats)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Course placement policy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Research on learning (i.e. cognition and learning progressions)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

21. To what degree has the information/resources distributed to date from your assessment consortia (PARCC or SBAC) supported conversations around course sequencing in K-12 and higher education?

22. To what extent have assessment consortia discussions influenced work or discussions around K-12-higher education course sequencing?

23. Over the past year, you've been working on your state's definition of college readiness. How central has your state's definition of college readiness been to course sequencing discussions?

1 - Not central	2	3	4	5 - Central
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Provide an example if you choose.

Core to College Evaluation: Survey on Course Sequences

Course Numbering Processes

24. For each of the following educational entities, please identify whether *course numbering* is consistent across your state?

	Yes	No
Public high schools	<input type="radio"/>	<input type="radio"/>
Community college system	<input type="radio"/>	<input type="radio"/>
Four-year institution system	<input type="radio"/>	<input type="radio"/>
Across both the community college and four-year systems	<input type="radio"/>	<input type="radio"/>

25. Across the various education systems in your state, is *course numbering* determined by state policy or other state governing boards?

	Yes	No
Public high schools	<input type="radio"/>	<input type="radio"/>
Community college system (s)	<input type="radio"/>	<input type="radio"/>
Four-year institution system (s)	<input type="radio"/>	<input type="radio"/>
Across both the community college and four-year systems	<input type="radio"/>	<input type="radio"/>

Core to College Evaluation: Survey on Course Sequences

Course Content Processes

26. For each of the following educational entities, please identify whether *course content* is consistent across your state?

	Yes	No
Public high schools	<input type="radio"/>	<input type="radio"/>
Community college system	<input type="radio"/>	<input type="radio"/>
Four-year institution system	<input type="radio"/>	<input type="radio"/>
Across both the community college and four-year systems	<input type="radio"/>	<input type="radio"/>

Comments

27. Across the various education systems in your state, is *course content* determined by state policy or other state governing boards?

	Yes	No
Public high schools	<input type="radio"/>	<input type="radio"/>
Community college system (s)	<input type="radio"/>	<input type="radio"/>
Four-year institution system (s)	<input type="radio"/>	<input type="radio"/>
Across both the community college and four-year systems	<input type="radio"/>	<input type="radio"/>

Comments

Core to College Evaluation: Survey on Course Sequences

Course Sequences and Data Structures

28. Does your state have a data system that can connect K-12 and higher education student data?

- ☐ Yes
☐ No

29. Does this data system automatically link student data across K-20?

- ☐ Yes
☐ No

30. Are course numbering sequences being systematically captured in any of the following data structures?

	Yes	No
Statewide longitudinal data systems	<input type="radio"/>	<input type="radio"/>
Higher education systems	<input type="radio"/>	<input type="radio"/>
K-12 systems	<input type="radio"/>	<input type="radio"/>

31. Thinking towards the 2013-2014 school year, how prominent have the discussions been about the systematic collection of the following data?

	1 - Not prominent	2	3	4	5 - Very prominent
Data about courses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Summative test data	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Formative test data	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Matriculation patterns	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Remediation data	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Core to College Evaluation: Survey on Course Sequences

Resources and Instructional Materials

32. Review the list of the following segments. For each of the entities below, indicate whether staff have been formally assigned to work on questions of course sequencing aligned with the CCSS.

	1 - Not at all	2	3	4	5 - Formally assigned	I don't know
Representatives from the community college system	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Representatives from the four-year college system	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Local K-12 districts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Leadership from the state department of education	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Leadership from the state higher education system	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (Please specify below)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

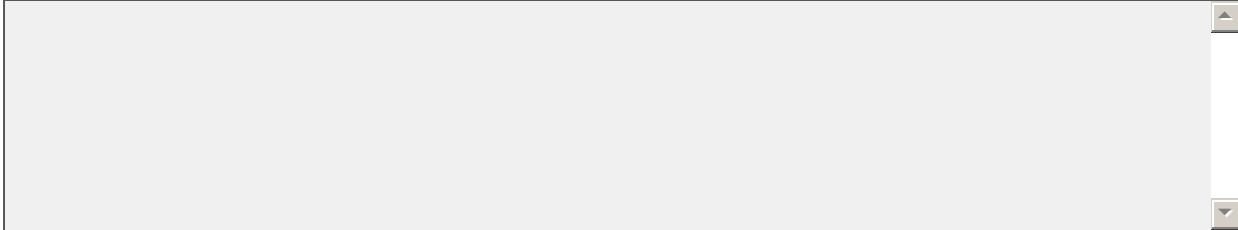
33. Instructional materials often drive course sequences. Over the past year, to what extent has your state moved toward the adoption of instructional materials to reflect CCSS?

1 - Not at all	2	3	4	5 - Fully adopted
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Core to College Evaluation: Survey on Course Sequences

Alignment Director and Learning Network Reflection

34. Briefly, describe what you have learned over the past year about course sequencing in your state.

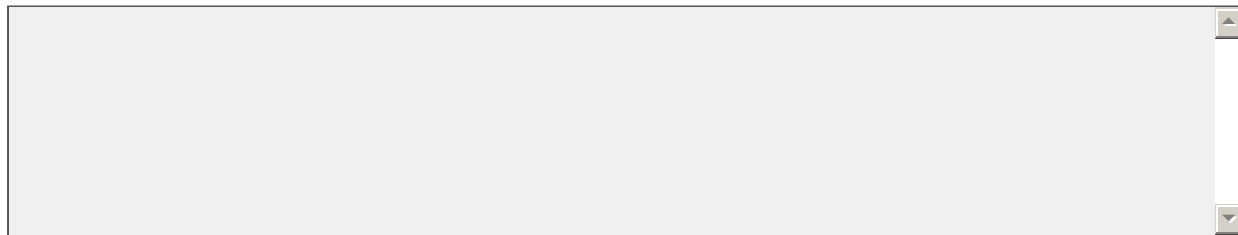
A large, empty rectangular text area with a light gray background and a thin black border. On the right side, there is a vertical scrollbar with a small upward-pointing arrow at the top and a downward-pointing arrow at the bottom.

35. Over the past year, have discussions with other Alignment Directors and/or your TA coach (the Learning Network) supported your work in course sequencing?

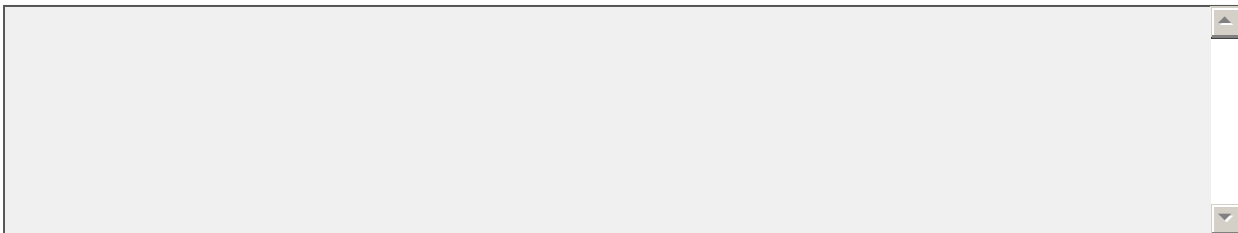
☐ Yes

☐ No

If yes, please describe.

A large, empty rectangular text area with a light gray background and a thin black border. On the right side, there is a vertical scrollbar with a small upward-pointing arrow at the top and a downward-pointing arrow at the bottom.

36. How could conversations across the Learning Network and/or with your TA coach help you in discussing course sequences in your state?

A large, empty rectangular text area with a light gray background and a thin black border. On the right side, there is a vertical scrollbar with a small upward-pointing arrow at the top and a downward-pointing arrow at the bottom.