

# Technical Appendix: Student CBE Experiences (SCE) and Teacher CBE Practices (TCP) Surveys



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## Introduction

This technical appendix includes information about student and teacher surveys that were administered in spring 2015 as part of the study [\*Looking Under the Hood of Competency-Based Education: The Relationship Between Competency-Based Education Practices and Students' Learning Skills, Behaviors, and Dispositions\*](#), which was funded by the Nellie Mae Education Foundation.

### Study Purpose

One of the purposes of the study was to examine student experiences and teachers' reports of policies and practices in schools that use competency-based education (CBE) approaches and compare them with practices and student experiences in schools that were not labeled as CBE. The student and teacher surveys contained measures of the following domains of CBE:

1. Learning targets
2. Measurement of Learning
3. Instructional approaches and supports
4. Assessment strategies
5. Pacing and progression
6. When and where learning takes place

### Survey Development

The student and teacher surveys were developed during the 2014–15 school year. Initial development tasks included a review of the literature to identify key practices associated with a CBE approach and interviews with principals of schools identified as CBE. Next, six domains<sup>1</sup> of CBE practices were identified, and survey items were drafted. Multiple rounds of review were conducted with state points of contact and American Institutes for Research (AIR) researchers to refine survey items. Drafts of the teacher and student surveys were then administered to approximately 13 teachers and 15 students in three states to obtain feedback. A “Think Aloud” protocol was used to reveal how students and teachers were interpreting survey items and response options. Substantial refinements were made to survey items following these cognitive interviews.

### Sample

To identify which CBE schools to recruit for the study, we collaborated with members of the Innovation Lab Network within the Council of Chief State School Officers (CCSSO) to identify public high schools with the following characteristics: (1) were currently implementing CBE policies and practices schoolwide, (2) had implemented CBE for at least two years (i.e., since the 2011–12 academic year), (3) served students who entered Grade 9 after attending a feeder middle school that was not considered competency based, and (4) enrolled at least 200 Grade 9 students. In some instances, we had to relax these requirements (such as allowing for more

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<sup>1</sup> The term *domain* is referred to as “Feature Areas” in the *CBE Survey User Guide*.

recently implemented CBE programs or schools with smaller Grade 9 enrollment) in order to include a sufficient number of CBE schools in each state. The school sample included 10 CBE and eight comparison high schools across three states—New Hampshire, Wisconsin, and Kentucky—all of which participated in teacher and administrator surveys. For each CBE school we identified, a comparison school was identified in the same district or county that served a similar population of students, based on the percentage of students qualifying for free or reduced-price lunch and the percentage of students belonging to the largest racial or ethnic groups.<sup>2</sup> Many Kentucky high schools are the only high school within the county, so in that state a higher priority was placed on selecting comparison schools serving similar populations of students than on geographic proximity.

We administered the online teacher survey to all core content teachers (i.e., English, mathematics, science, and social studies) within the 10 CBE and eight comparison schools, a total of 381 teachers. A total of 261 teachers completed the teacher survey in spring 2015, for a response rate of 69%.

A subset of four CBE and four comparison schools also participated in a student survey component in spring 2015. In these eight schools, we administered the online student survey to all consented ninth-grade students within four CBE and four comparison schools, a total of 1,285 students. A total of 994 students completed the student survey in spring 2015, for a response rate of 77%.

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<sup>2</sup> Two of the CBE schools were in the same district and enrolled a relatively small number of Grade 9 students. For analysis purposes, these two schools were considered to be a single CBE school and were matched with a comparison high school within the same district. A comparison school was not identified for a third CBE school that targeted enrollment on recent immigrant and non-traditional students.

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# Student Survey Results

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## Analysis of Student Survey Responses

The original student survey included a total of 177 items designed to measure students' experiences in the six CBE domains. Student responses to these individual survey items provide useful feedback on students' perceptions of specific CBE-related practices. In addition, the items in the survey were designed to capture students' experiences related to broader constructs associated with each CBE domain (i.e., an underlying construct such as the clarity of learning targets). To that end, the student survey included sets of items that were intended to be combined into scales that measure these different aspects of CBE. To test whether individual survey items could be combined to capture these broader constructs,<sup>3</sup> we began analyses of the student survey data by performing exploratory factor analysis (EFA), a statistical technique that is used to uncover the underlying relationships between survey items. When each item has a factor loading that is at least 0.4 on a single factor, this indicates that, taken together, the items measured a single construct. We also calculated Cronbach's alpha for item sets to ensure that the items within a set had internal consistency (i.e., items were closely related). Cronbach's alpha is also commonly used as a measure of an item set's reliability. We used a Cronbach's alpha threshold of 0.7 to indicate that items within sets were sufficiently related to one another to be used as a scale. Because several of our item sets include only three items, and it is statistically more difficult to meet the Cronbach's alpha threshold of 0.7 with a smaller number of items, we include in this technical appendix item sets that loaded onto a single factor but for which Cronbach's alpha fell short of the 0.7 threshold. It is our hope that future data collection using these survey items will allow us to confirm whether these item sets can reliably measure the underlying constructs.

One of the advantages of grouping items into item sets is that the extent to which a broader aspect of CBE is being experienced by students can be reported by a single value on a combined scale or composite measure. Several strategies may be used to combine information across survey items. For item sets in which the response options follow an agreement scale, one could assign a numeric value to the response options (e.g., 1 for *strongly disagree* to 4 for *strongly agree*), and calculate the average response across items. For example, if a student's responses on the four items associated with flexible pacing and progression in English included 2 *agree* responses and 2 *strongly agree* responses, the average would be  $([3+3+4+4])/4=3.5$ , placing the student between *agree* and *disagree*.<sup>4</sup> For survey items in which the response options follow a frequency scale (e.g., *never* to *almost every day*), one could calculate the number or percentage of survey items in which students report the practice occurring at least once per week. A similar strategy may be used for survey items in which the response options relate to who makes decisions in the classroom (the *student*, the *teacher*, or the *student and teacher together*). Although these summary measures may allow practitioners to get a general sense of "where they are at" on these broader CBE constructs, for formative assessment purposes, practitioners may

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<sup>3</sup> The term *domain* is referred to as "Feature Areas" in the *CBE Survey User Guide*.

<sup>4</sup> Other statistical methods, including a variety of item response theory (IRT) models, also exist to evaluate survey items and combine information across survey items. Although these models have several beneficial properties for research purposes, the resulting scale values may prove to be less useful for practitioners because exact values cannot be directly linked back to the original response options.

also want to examine students' responses to the individual items to determine where improvements in specific practices can be made.

## Survey Item Revisions

After analyzing the student survey data, we revised the student survey to remove redundant survey items, create consistent response options for items within item sets, and generally shorten the survey to reduce administration time while still collecting the necessary information. These changes were made by examining the results of EFAs and Cronbach's alpha values, ensuring that the removal of redundant survey items (i.e., survey items that had wording that was very similar to other survey items) did not worsen the reliability of survey measures. In addition, for survey items in which one of the response options offered was only selected by a very small percentage of students (e.g., fewer than five students *strongly disagreed* with the statement), we revised the options to improve the likelihood of a more equal distribution of responses across the range of answer choice categories.

In the following section, we provide descriptive statistics for all of the items in the student survey. Survey items are organized by construct within each of the six CBE domains. In addition to the percentage of students within each item's response option categories, the frequency tables include Cronbach's alpha values for item sets that, in combination, can measure a single underlying construct. These descriptive findings should be interpreted as preliminary evidence of the internal consistency of item sets with the CBE domains.

## Student CBE Experiences Survey: Response Frequencies and Item Set Reliabilities

The following tables present the distribution of student responses for each item in the student survey. Although each item may be examined individually, several items are organized into item sets that can collectively be used to measure a single construct related to CBE. Cronbach’s alpha is provided for each set of items as an indication of the internal consistency of the items when combined and used to measure a specific construct. A threshold of 0.7 is commonly used as an indication of strong internal consistency or reliability.

### Learning Targets

			Strongly Disagree	Disagree	Agree	Strongly Agree	Missing	Cronbach’s alpha
Clarity of Learning Targets (Math) (course-specific)	17. How much do you agree with these statements about your math course?	In my math course...						0.85
		a) I understand exactly what I need to learn to pass and get credit.	2.4%	8.7%	54.2%	34.5%	N/A	
		b) I know exactly what I am trying to learn when I work on a math assignment.	3.7%	13.8%	54.3%	28.1%	N/A	
		c) I know ahead of time what knowledge and skills I will need to demonstrate on a math test or assignment.	3.8%	18.5%	51.8%	25.5%	0.5%	

*Note.* Percentages are based on a sample of 927 student respondents who reported that they were currently taking a math course. Students who reported that they were not currently taking a math course did not respond to survey items related to math courses (n=185, 18.6% of survey respondents). In the revised survey, we changed the response options for these survey items to *don’t agree*, *agree a little*, *mostly agree*, and *agree a lot*. Results are not shown for categories that have fewer than five students.



Clarity of Learning Targets (English) (course-specific)	23. How much do you agree with these statements about your English course?	In my English course...	Strongly Disagree	Disagree	Agree	Strongly Agree	Missing	Cronbach's alpha
		a) I understand exactly what I need to learn to pass and get credit.	3.2%	9.3%	50.6%	36.8%	N/A	0.90
		b) I know exactly what I am trying to learn when I work on an English assignment.	3.9%	13.6%	51.8%	30.7%	N/A	
		c) I know ahead of time what knowledge and skills I will need to demonstrate on an English test or assignment.	5.2%	14.1%	52.0%	28.7%	N/A	

*Note.* Percentages are based on a sample of 871 student respondents who reported that they were currently taking an English course. Students who reported that they were not currently taking an English language arts (ELA) course did not respond to survey items related to ELA courses (n=241, 24.2% of survey respondents). In the revised survey, we changed the response options for these survey items to *don't agree*, *agree a little*, *mostly agree*, and *agree a lot*. Results are not shown for categories that have fewer than five students.

**Measurement of Learning**

Measurement of Learning: Traditional Approaches (Math) (course-specific)	18. How much do you agree with these statements about your math course?		Strongly Disagree	Disagree	Agree	Strongly Agree	Missing	Cronbach's alpha
		b) Every math assignment or quiz I take counts toward my grade.	2.8%	12.0%	47.5%	37.3%	N/A	0.53*
c) My teacher will lower my grade if I finish a math assignment late.	8.2%	32.7%	43.5%	15.0%	0.7%			
d) My teacher will lower my grade if I don't fully participate in class (for example, answer questions or share my ideas).	16.4%	45.7%	28.5%	8.9%	0.5%			

*Note.* Percentages are based on a sample of 927 student respondents who reported that they were currently taking a math course. Students who reported that they were not currently taking a math course did not respond to survey items related to math courses (n=185, 18.6% of survey respondents). In the revised survey, we changed the response options for these survey items to *don't agree*, *agree a little*, *mostly agree*, and *agree a lot*.

\*Although a Cronbach's alpha threshold of 0.7 is commonly used as an indication of items' strong internal consistency, because it is statistically more difficult to achieve this 0.7 cutoff with a smaller number of survey items, we include information for item sets that fell short of this threshold.

Measurement of Learning: Traditional Approaches (English) (course-specific)	24. How much do you agree with these statements about your English course?		Strongly Disagree	Disagree	Agree	Strongly Agree	Missing	Cronbach's alpha	
		b) Every English assignment or quiz I take counts toward my grade.	4.1%	15.6%	46.3%	33.4%	0.6%		0.64*
		c) My teacher will lower my grade if I finish an English assignment late.	7.7%	27.0%	46.2%	18.7%	N/A		
		d) My teacher will lower my grade if I don't fully participate in class (for example, answer questions or share my ideas).	13.2%	36.7%	36.5%	12.9%	0.7%		

*Note.* Percentages are based on a sample of 871 student respondents who reported that they were currently taking an English course. Students who reported that they were not currently taking an English language arts (ELA) course did not respond to survey items related to ELA courses (n=241, 24.2% of survey respondents). In the revised survey, we changed the response options for these survey items to *don't agree, agree a little, mostly agree, and agree a lot.*

\*Although a Cronbach's alpha threshold of 0.7 is commonly used as an indication of items' strong internal consistency, because it is statistically more difficult to achieve this 0.7 cutoff with a smaller number of survey items, we include information for item sets that fell short of this threshold.

Measurement of Learning: Competency-Based Education Approaches (Math) (course-specific)	18. How much do you agree with these statements about your math course?		Strongly Disagree	Disagree	Agree	Strongly Agree	Missing
		a) I need to show that I have met every learning target, standard, or competency to pass my math course.	2.6%	15.6%	53.8%	27.4%	0.5%

*Note.* Percentages are based on a sample of 927 student respondents who reported that they were currently taking a math course. Students who reported that they were not currently taking a math course did not respond to survey items related to math courses (n=185, 18.6% of survey respondents). In the revised survey, we changed the response options for these survey items to *don't agree, agree a little, mostly agree, and agree a lot.*

Measurement of Learning: Competency-Based Education Approaches (English) (course-specific)	24. How much do you agree with these statements about your English course?		Strongly Disagree	Disagree	Agree	Strongly Agree	Missing
		a) I need to show that I have met every learning target, standard, or competency to pass my English course.	3.0%	14.4%	55.1%	27.0%	0.6%

*Note.* Percentages are based on a sample of 871 student respondents who reported that they were currently taking an English course. Students who reported that they were not currently taking an English language arts (ELA) course did not respond to survey items related to ELA courses (n=241, 24.2% of survey respondents). In the revised survey, we changed the response options for these survey items to *don't agree, agree a little, mostly agree, and agree a lot.*

### Instructional Approaches and Supports

Opportunities for Collaboration (course specific)	16/22. How do you spend your time during math/English class? <sup>5</sup>	When I am in math/English class...	Never	Less than once per month	At least once per month	At least once per week	Every day	Missing	Cronbach's alpha
		a) I meet with another student to help each other with schoolwork.	18.2%	12.3%	19.2%	33.4%	16.6%	N/A	0.83
		b) I review and talk about another student's work.	21.4%	13.0%	22.6%	28.6%	14.0%	N/A	
		c) I present my work to other students and adults/teachers.	7.4%	15.5%	36.1%	28.1%	12.5%	N/A	
		d) I work with a group of students on a project or assignment.	3.4%	12.1%	34.7%	36.1%	13.3%	N/A	

<sup>5</sup> This item set was originally designed to capture student reports of classroom activities for all courses. However, since study findings suggest distinct differences between classrooms, these items will be moved to the course-specific section of the student survey.

Technology Use (all courses)	7. If yes, how do you use technology when you are at school?	When I am at school,:	Does not apply*	Never	Less than once per month	At least once per month	At least once per week	Every day	Missing	Cronbach's alpha
		a) I use technology to learn about new topics or skill areas (for example, watch an educational video on-line).	5.7%	4.1%	4.6%	15.1%	32.2%	37.2%	1.0%	0.84
		b) I use technology to let me move ahead to the next unit, topic, or skill area in a course, even if it is before other students.	5.7%	15.6%	10.5%	15.8%	23.9%	27.5%	1.0%	
		c) I use technology to help me catch up on a unit, topic, or skill area that I haven't finished yet.	5.7%	9.3%	9.5%	18.6%	27.8%	28.1%	1.1%	

\*Does not apply indicates that students who did not report that they used technology as part of their learning during the school day skipped survey items related to uses of technology.

Advisory (all courses)	14. How often do you talk about the following things with an adult at your school?	I talk with an adult about	Never	Less than once per month	At least once per month	At least once per week	Every day	Missing	Cronbach's alpha
		a) My academic goals (for example, the subjects I'd like to get better at).	17.5%	28.5%	27.4%	19.6%	5.6%	1.4%	0.91
		b) How I am doing in my courses.	9.6%	21.2%	29.4%	27.6%	10.9%	1.4%	
		c) Things I am interested in or good at in school (my strengths).	19.7%	22.5%	24.7%	21.7%	10.0%	1.4%	
		d) My learning preferences (for example, whether I work better in a quiet room).	27.2%	24.0%	20.8%	18.7%	8.0%	1.4%	

Advisory (all courses)	12. How many times have you met one-on-one with an adult this school year?	Does not apply	Once	Twice	Three times	Four or more times	Missing
		47.9%	10.3%	11.7%	9.6%	20.5%	N/A

*Note.* Students who did not report that they ever met one-on-one with an adult from their school to talk about their learning skipped survey items related to the number times they met one-on-one with an adult from their school. Results are not shown for categories that have fewer than five students.

Advisory (all courses)	13. When you are at school, who do you meet with to talk about your learning? (Check all that apply.)	Does not apply	A guidance counselor	An advisor	One of your classroom teachers	Other adult in your school
		47.9%	22.8%	12.9%	37.5%	3.7%

*Note.* Students who did not report that they ever met one-on-one with an adult from their school to talk about their learning skipped survey items related to who they met with at school.

Personalized Learning Plan (all courses)	15. Have you put any of this information about your learning into a written plan? (Some schools call these plans an individualized learning plan [ILP] or personalized learning plan [PLP].)	Yes	No	Missing
		25.8%	73.0%	1.2%

Supportive Student-Teacher Relationships (Math) (course-specific)	21. Think about your math teacher. How much do you agree with these statements?	My math teacher...	Strongly Disagree	Disagree	Agree	Strongly Agree	Missing	Cronbach's alpha
		a) Understands what is easy for me in this math course.	9.6%	18.5%	49.8%	20.4%	1.7%	0.90
		b) Understands what is more difficult for me in this math course.	8.9%	19.7%	48.5%	21.1%	1.7%	
		c) Gives me the kind of math help and support I need.	9.1%	19.1%	48.0%	22.1%	1.7%	

*Note.* Percentages are based on a sample of 927 student respondents who reported that they were currently taking a math course. Students who reported that they were not currently taking a math course did not respond to survey items related to math courses (n=185, 18.6% of survey respondents). In the revised survey, we changed the response options for these survey items to *don't agree*, *agree a little*, *mostly agree*, and *agree a lot*.

Supportive Student-Teacher Relationships (English) (courses-specific)	27. Think about your English teacher. How much do you agree with these statements?	My English teacher...	Strongly Disagree	Disagree	Agree	Strongly Agree	Missing	Cronbach's alpha
		a) Understands what is easy for me in this English course.	8.6%	17.0%	53.9%	18.6%	2.0%	0.92
		b) Understands what is more difficult for me in this English course.	8.6%	18.9%	53.3%	17.2%	2.0%	
		c) Gives me the kind of English help and support I need.	9.9%	18.0%	50.6%	19.5%	2.0%	

*Note.* Percentages are based on a sample of 871 student respondents who reported that they were currently taking an English course. Students who reported that they were not currently taking an English language arts (ELA) course did not respond to survey items related to ELA courses (n=241, 24.2% of survey respondents). In the revised survey, we changed the response options for these survey items to *don't agree*, *agree a little*, *mostly agree*, and *agree a lot*.

High Expectations for Learning (Math) (course-specific)	21. Think about your math teacher. How much do you agree with these statements?	My math teacher...	Strongly Disagree	Disagree	Agree	Strongly Agree	Missing	Cronbach's alpha
		d) Expects me to do well in this course.	2.8%	6.2%	54.1%	35.3%	1.7%	0.78
		e) Expects me to work harder than I thought I could.	4.8%	13.7%	53.1%	26.7%	1.8%	
		f) Doesn't let me give up when the work is hard.*	6.3%	14.5%	50.9%	26.5%	1.8%	

*Note.* Percentages are based on a sample of 927 student respondents who reported that they were currently taking a math course. Students who reported that they were not currently taking a math course did not respond to survey items related to math courses (n=185, 18.6% of survey respondents). In the revised survey, we changed the response options for these survey items to *don't agree*, *agree a little*, *mostly agree*, and *agree a lot*.

\*Question 44f was adapted from the following source: University of Chicago Consortium on Chicago School Research. (2014). *My voice, my school student survey codebook*. Chicago, IL: Author. Retrieved from <http://consortium.uchicago.edu/sites/default/files/uploads/survey/2014%20Student%20Survey%20codebook.pdf>

High Expectations for Learning (English) (course-specific)	27. Think about your English teacher. How much do you agree with these statements?	My English teacher...	Strongly Disagree	Disagree	Agree	Strongly Agree	Missing	Cronbach's alpha
		d) Expects me to do well in this course.	3.8%	6.4%	58.7%	29.2%	2.0%	0.85
		e) Expects me to work harder than I thought I could.	5.7%	14.4%	54.8%	23.2%	2.0%	
		f) Doesn't let me give up when the work is hard.	7.0%	13.3%	54.1%	24.2%	2.1%	

*Note.* Percentages are based on a sample of 871 student respondents who reported that they were currently taking an English course. Students who reported that they were not currently taking an English language arts (ELA) course did not respond to survey items related to ELA courses (n=241, 24.2% of survey respondents). In the revised survey, we changed the response options for these survey items to *don't agree*, *agree a little*, *mostly agree*, and *agree a lot*.

\*Question 50f was adapted from the following source: University of Chicago Consortium on Chicago School Research. (2014). *My voice, my school student survey codebook*. Chicago, IL: Author. Retrieved from <http://consortium.uchicago.edu/sites/default/files/uploads/survey/2014%20Student%20Survey%20codebook.pdf>



Student Autonomy and Decision Making (Math) (course- specific)	20. In your math course, who decides...		My teacher decides	My teacher and I decide together	I decide	Missing	Cronbach's alpha
		a) Which topics you will learn each day in class?	89.8%	5.6%	3.0%	1.6%	0.83
		b) Which activities or coursework you do during class?	85.3%	8.9%	4.2%	1.6%	
		c) What kinds of help/support you need in your math course?	40.1%	39.9%	18.3%	1.6%	
		d) The due date for your coursework?	85.9%	9.1%	3.5%	1.6%	
		e) <u>How</u> you will show what you learned (for example, whether you will take a test or do a project)?	78.2%	12.9%	7.1%	1.7%	
		f) <u>When</u> you will take a final exam or assessment to show what you have learned in the course?	83.1%	10.0%	5.3%	1.6%	

*Note.* Percentages are based on a sample of 927 student respondents who reported that they were currently taking a math course. Students who reported that they were not currently taking a math course did not respond to survey items related to math courses (n=185, 18.6% of survey respondents).

Student Autonomy and Decision Making (English) (course- specific)	26. In your English course, who makes the following decisions?		My teacher decides	My teacher and I decide together	I decide	Missing	Cronbach's alpha
		a) Which topics you will learn each day in class?	86.6%	8.6%	3.0%	1.8%	0.83
b) Which activities or coursework you do during class?	80.1%	13.1%	4.9%	1.8%			
c) What kinds of help/support you need in your English course?	47.4%	36.9%	13.8%	2.0%			
d) The due date for your coursework?	81.4%	13.3%	3.3%	2.0%			
e) <u>How</u> you will show what you learned (for example, whether you will take a test or do a project)?	72.7%	18.4%	7.0%	2.0%			
f) <u>When</u> you will take a final exam or assessment to show what you have learned in the course?	83.2%	10.6%	4.3%	2.0%			

*Note.* Percentages are based on a sample of 871 student respondents who reported that they were currently taking an English course. Students who reported that they were not currently taking an English language arts (ELA) course did not respond to survey items related to ELA courses (n=241, 24.2% of survey respondents).

**Assessment Strategies**

			Never	Less than once per month	At least once per month	At least once per week	Every day	Missing	Cronbach's alpha
<b>Formative Assessment (Math) (course-specific)</b>	19. How do you and your teacher track your progress in your math course?	a) I show what I have learned by completing projects.	15.8%	22.8%	26.7%	25.1%	8.4%	1.3%	0.76
		b) I present what I have learned to other students and adults/teachers.	27.3%	18.3%	23.7%	21.3%	8.0%	1.4%	
		c) I am expected to review my own coursework and performance on assessments to see where I need to improve.	7.1%	9.5%	22.8%	38.5%	20.7%	1.4%	
		d) I work with other students to evaluate each other's work.	18.5%	12.3%	19.9%	32.2%	17.0%	1.2%	
		e) I take a practice quiz or test to see if I am ready to take a final exam or assessment.	20.7%	11.5%	25.2%	31.8%	9.3%	1.4%	

*Note.* Percentages are based on a sample of 927 student respondents who reported that they were currently taking a math course. Students who reported that they were not currently taking a math course did not respond to survey items related to math courses (n=185, 18.6% of survey respondents). Items 42f, 42g, and 42h may also be used to measure a construct of students' self- and peer assessment, although Cronbach's alpha of these items fell short of the 0.7 threshold (alpha = 0.62).

Formative Assessment (English) (course-specific)	25. How do you and your teacher track your progress in your English course?		Never	Less than once per month	At least once per month	At least once per week	Every day	Missing	Cronbach's alpha
		a) I show what I have learned by completing projects.	3.9%	15.8%	42.4%	29.9%	6.8%	1.3%	0.80
		b) I present what I have learned to other students and adults/teachers.	8.2%	20.9%	39.6%	25.0%	5.3%	1.0%	
		c) I am expected to review my own coursework and performance on assessments to see where I need to improve.	7.1%	10.1%	30.3%	35.5%	16.0%	1.0%	
		d) I work with other students to evaluate each other's work.	12.6%	15.0%	28.2%	33.4%	9.5%	1.2%	
		e) I take a practice quiz or test to see if I am ready to take a final exam or assessment.	28.7%	16.1%	25.5%	22.2%	6.5%	1.0%	

*Note.* Percentages are based on a sample of 871 student respondents who reported that they were currently taking an English course. Students who reported that they were not currently taking an English language arts (ELA) course did not respond to survey items related to ELA courses (n=241, 24.2% of survey respondents). Items 48f, 48g, and 48h may also be used to measure a construct of students' self- and peer assessment, although Cronbach's alpha of these items fell short of the 0.7 threshold (alpha = 0.68).

Assessment of Learning (Math) (course-specific)	17. How much do you agree with these statements about your math course?		Strongly Disagree	Disagree	Agree	Strongly Agree	Missing
		h) I am allowed to re-take final math exams and assessments or redo final projects to see if I can do better.	8.5%	18.2%	48.7%	24.2%	N/A

*Note.* Percentages are based on a sample of 927 student respondents who reported that they were currently taking a math course. Students who reported that they were not currently taking a math course did not respond to survey items related to math courses (n=185, 18.6% of survey respondents). In the revised survey, we changed the response options for these survey items to *don't agree*, *agree a little*, *mostly agree*, and *agree a lot*.

Assessment of Learning (English) (course-specific)	23. How much do you agree with these statements about your English course?		Strongly Disagree	Disagree	Agree	Strongly Agree	Missing
		h) I am allowed to retake final English exams and assessments or redo final projects to see if I can do better.	8.6%	26.0%	47.0%	18.0%	N/A

*Note.* Percentages are based on a sample of 871 student respondents who reported that they were currently taking an English course. Students who reported that they were not currently taking an English language arts (ELA) course did not respond to survey items related to ELA courses (n=241, 24.2% of survey respondents). In the revised survey, we changed the response options for these survey items to *don't agree, agree a little, mostly agree, and agree a lot.*

**Pacing and Progression**

		In my math course...	Strongly Disagree	Disagree	Agree	Strongly Agree	Missing	Cronbach's alpha
<b>Flexible Pacing and Progression (Math) (course-specific)</b>	17. How much do you agree with these statements about your math course?	d) Students [do not] all work on different topics and skills at the same time.	2.5%	11.8%	55.2%	30.2%	N/A	0.54*
		e) I am allowed to start the next topic or unit when I am ready, even if it is before other students.	23.1%	43.7%	24.5%	8.4%	N/A	
		f) I can take extra time to finish a topic or unit if I need to, even if other students have already moved ahead.	15.9%	31.0%	39.6%	13.2%	N/A	
		g) I get to decide how fast or slow I move through the course material.	N/A	N/A	N/A	N/A	N/A	

*Note.* Percentages are based on a sample of 927 student respondents who reported that they were currently taking a math course. Students who reported that they were not currently taking a math course did not respond to survey items related to math courses (n=185, 18.6% of survey respondents). Questions 39d and 43e were reworded. 39. d) in the original survey was worded negatively. We suggest removing the “do not” from the question to have consistent directionality throughout the item set (i.e., questions are all worded positively). Response frequencies for 43. e) are not available because the item had different response options in the original survey. The original survey can be made available upon request. In the revised survey, we changed the response options for these survey items to *don't agree*, *agree a little*, *mostly agree*, and *agree a lot*. Results are not shown for categories that have fewer than five students.

\*Although a Cronbach's alpha threshold of 0.7 is commonly used as an indication of items' strong internal consistency, because it is statistically more difficult to achieve this 0.7 cutoff with a smaller number of survey items, we include information for item sets that fell short of this threshold.

Flexible Pacing and Progression (English) (course-specific)	23. How much do you agree with these statements about your English course?	In my English course...	Strongly Disagree	Disagree	Agree	Strongly Agree	Missing	Cronbach's alpha
		d) Students [do not] all work on different topics and skills at the same time.	3.3%	10.1%	54.9%	31.2%	N/A	0.61*
e) I am allowed to start the next topic or unit when I am ready, even if it is before other students.	19.6%	37.5%	28.4%	13.9%	0.6%			
f) I can take extra time to finish a topic or unit if I need to, even if other students have already moved ahead.	14.1%	27.4%	41.9%	16.1%	N/A			
g) I get to decide how fast or slow I move through the course material.	N/A	N/A	N/A	N/A	N/A			

*Note.* Percentages are based on a sample of 871 student respondents who reported that they were currently taking an English course. Students who reported that they were not currently taking an English language arts (ELA) course did not respond to survey items related to ELA courses (n=241, 24.2% of survey respondents). Questions 45d and 49e were reworded. 45. d) in the original survey was worded negatively. We suggest removing the “do not” from the question to have consistent directionality throughout the item set (i.e., questions are all worded positively). Response frequencies for 49. e) are not available because the item had different response options in the original survey. The original survey can be made available upon request. In the revised survey, we changed the response options for these survey items to *don't agree*, *agree a little*, *mostly agree*, and *agree a lot*. Results are not shown for categories that have fewer than five students.

\*Although a Cronbach's alpha threshold of 0.7 is commonly used as an indication of items' strong internal consistency, because it is statistically more difficult to achieve this 0.7 cutoff with a smaller number of survey items, we include information for item sets that fell short of this threshold.

**When and Where Learning Takes Place**

When and Where Learning Takes Place (all courses)		Yes	No	Missing
	8. Have you taken any of your courses completely online this year (in other words, instead of taking an in-person class)?		12.8%	86.4%

When and Where Learning Takes Place (all courses)		Did not take any classes completely online	One	Two	Three or more	Missing
	9. How many online courses have you taken this past year?		87.2%	10.2%	1.6%	0.9%

*Note.* Results are not shown for categories that have fewer than five students.

When and Where Learning Takes Place (all courses)	6. How do you spend your time during the school day?		Never	Less than once per month	At least once per month	At least once per week	Every day	Missing
		During the school day, I...	a) Work on an independent project.	3.1%	8.8%	31.5%	34.1%	22.1%

When and Where Learning Takes Place (all courses)	6. How do you spend your time during the school day?		Never	Less than once per month	At least once per month	At least once per week	Every day	Missing
		During the school day, I...	b) Work, volunteer, or do an internship outside of the school building during the school day.	40.6%	14.0%	13.2%	16.4%	15.3%



## Student CBE Experiences Survey: Summary of Item Set Reliability

Table 1 includes summary information related to the internal consistency (i.e., reliability) of the item sets intended to measure underlying constructs within five of the six CBE domains.<sup>6</sup> Cronbach's alpha, which is commonly used as a measure of an item set's reliability, indicates the general strength of the relationship between survey items within a set. These reliabilities were calculated based on the original wording of items in the student survey. In cases in which survey items or response options have been modified, these changes are noted.

**Table 1. Reliability of SCE Item Sets Within Five Domains of Competency-Based Education**

Construct	No. of Respondents	No. of Items	Cronbach's Alpha
<b>Learning Targets</b>			
Clarity of Learning Targets (Math)	925	3	0.85
Clarity of Learning Targets (English)	867	3	0.90
<b>Measurement of Learning</b>			
Measurement of Learning: Traditional Approaches (Math)*	923	3	0.53
Measurement of Learning: Traditional Approaches (English)*	867	3	0.64
<b>Instructional Approaches and Supports</b>			
Opportunities for Collaboration	991	4	0.83
Technology Use	927	3	0.84
Advisory	980	4	0.91
Supportive Student-Teacher Relationships (Math)	911	3	0.90
Supportive Student-Teacher Relationships (English)	854	3	0.92
High Expectations for Learning (Math)	911	3	0.78
High Expectations for Learning (English)	854	3	0.85

<sup>6</sup> For the CBE domain "When and Where Learning Takes Place," the student survey does not contain items that can be combined into an item set that measures the underlying construct.

Construct	No. of Respondents	No. of Items	Cronbach's Alpha
Student Autonomy and Decision Making (Math)	912	7	0.83
Student Autonomy and Decision Making (English)	855	7	0.83
<b>Assessment Strategies</b>			
Formative Assessment (Math)	916	5	0.76
Formative Assessment (English)	862	5	0.80
<b>Pacing and Progression</b>			
Flexible Pacing and Progression (Math)*	924	4	0.54
Flexible Pacing and Progression (English)*	867	4	0.61

\*Although a Cronbach's alpha threshold of 0.7 is commonly used as an indication of items' strong internal consistency, because it is statistically more difficult to achieve this 0.7 cutoff with a smaller number of survey items, we also include information for item sets that just fell short of this threshold.

Table 2 includes summary information related to the internal consistency (i.e., reliability) of the item sets intended to measure underlying constructs within five of the six CBE domains by various student subgroups: White students, Non-White students, males, females, students' eligible for/not eligible for free and reduced-price lunch, and students who do not have free and reduced-price lunch. The results of these analyses showed that the reliabilities of the sets of items were relatively stable across all student subgroups, indicating that the scales would perform equally well regardless of student characteristics.

**Table 2. Reliability of SCE Item Sets Within Five Domains of Competency-Based Education by Student Subgroup**

Construct	Sample Size (N) and Alpha ( $\alpha$ )						
	Overall	White Students	Non-White Students	Males	Females	Non-Free and Reduced-Price Lunch	Free and Reduced-Price Lunch
<b>Learning Targets</b>							
Clarity of Learning Targets (Math)	N=925 $\alpha=0.85$	N=774 $\alpha=0.84$	N=105 $\alpha=0.89$	N=434 $\alpha=0.85$	N=445 $\alpha=0.85$	N=738 $\alpha=0.85$	N=147 $\alpha=0.86$
Clarity of Learning Targets (English)	N=867 $\alpha=0.90$	N=727 $\alpha=0.90$	N=96 $\alpha=0.91$	N=405 $\alpha=0.90$	N=418 $\alpha=0.90$	N=694 $\alpha=0.90$	N=135 $\alpha=0.92$
<b>Measurement of Learning</b>							
Traditional Measurement of Learning (Math)*	N=923 $\alpha=0.53$	N=772 $\alpha=0.53$	N=105 $\alpha=0.51$	N=433 $\alpha=0.57$	N=444 $\alpha=0.49$	N=736 $\alpha=0.52$	N=147 $\alpha=0.56$
Traditional Measurement of Learning (English)*	N=867 $\alpha=0.64$	N=727 $\alpha=0.63$	N=96 $\alpha=0.70$	N=406 $\alpha=0.67$	N=417 $\alpha=0.61$	N=694 $\alpha=0.63$	N=135 $\alpha=0.64$
<b>Instructional Approaches and Support</b>							
Opportunities for Collaboration	N=991 $\alpha=0.83$	N=832 $\alpha=0.83$	N=113 $\alpha=0.85$	N=480 $\alpha=0.87$	N=465 $\alpha=0.77$	N=786 $\alpha=0.83$	N=165 $\alpha=0.84$
Technology Use	N=927 $\alpha=0.84$	N=776 $\alpha=0.84$	N=105 $\alpha=0.82$	N=440 $\alpha=0.87$	N=441 $\alpha=0.81$	N=741 $\alpha=0.83$	N=146 $\alpha=0.89$
Advisory	N=980 $\alpha=0.91$	N=821 $\alpha=0.91$	N=113 $\alpha=0.90$	N=471 $\alpha=0.91$	N=463 $\alpha=0.90$	N=781 $\alpha=0.91$	N=159 $\alpha=0.91$

Construct	Sample Size (N) and Alpha ( $\alpha$ )						
	Overall	White Students	Non-White Students	Males	Females	Non-Free and Reduced-Price Lunch	Free and Reduced-Price Lunch
Supportive Student-Teacher Relationships (Math)	N=911 $\alpha=0.90$	N=760 $\alpha=0.89$	N=105 $\alpha=0.90$	N=428 $\alpha=0.89$	N=437 $\alpha=0.90$	N=727 $\alpha=0.89$	N=144 $\alpha=0.90$
Supportive Student-Teacher Relationships (English)	N=854 $\alpha=0.92$	N=717 $\alpha=0.92$	N=94 $\alpha=0.94$	N=400 $\alpha=0.92$	N=411 $\alpha=0.93$	N=685 $\alpha=0.92$	N=132 $\alpha=0.93$
High Expectations for Learning (Math)	N=911 $\alpha=0.78$	N=760 $\alpha=0.78$	N=105 $\alpha=0.81$	N=428 $\alpha=0.79$	N=437 $\alpha=0.77$	N=727 $\alpha=0.79$	N=144 $\alpha=0.75$
High Expectations for Learning (English)	N=854 $\alpha=0.85$	N=717 $\alpha=0.85$	N=94 $\alpha=0.85$	N=400 $\alpha=0.84$	N=411 $\alpha=0.86$	N=685 $\alpha=0.85$	N=132 $\alpha=0.88$
Student Autonomy and Decision Making (Math)	N=912 $\alpha=0.83$	N=761 $\alpha=0.84$	N=105 $\alpha=0.82$	N=428 $\alpha=0.87$	N=438 $\alpha=0.75$	N=727 $\alpha=0.82$	N=145 $\alpha=0.88$
Student Autonomy and Decision Making (English)	N=855 $\alpha=0.83$	N=718 $\alpha=0.85$	N=94 $\alpha=0.80$	N=401 $\alpha=0.87$	N=411 $\alpha=0.80$	N=686 $\alpha=0.82$	N=132 $\alpha=0.89$
<b>Assessment Strategies</b>							
Formative Assessment (Math)	N=916 $\alpha=0.76$	N=764 $\alpha=0.76$	N=106 $\alpha=0.79$	N=429 $\alpha=0.80$	N=441 $\alpha=0.73$	N=731 $\alpha=0.76$	N=145 $\alpha=0.80$
Formative Assessment (English)	N=862 $\alpha=0.80$	N=722 $\alpha=0.80$	N=96 $\alpha=0.77$	N=403 $\alpha=0.84$	N=415 $\alpha=0.76$	N=689 $\alpha=0.80$	N=135 $\alpha=0.78$
<b>Pathways and Progression</b>							
Flexible Pacing and Progression (Math)*	N=924 $\alpha=0.54$	N=773 $\alpha=0.55$	N=105 $\alpha=0.52$	N=434 $\alpha=0.53$	N=444 $\alpha=0.55$	N=737 $\alpha=0.53$	N=147 $\alpha=0.62$
Flexible Pacing and Progression (English)*	N=867 $\alpha=0.61$	N=727 $\alpha=0.61$	N=96 $\alpha=0.61$	N=405 $\alpha=0.60$	N=418 $\alpha=0.62$	N=694 $\alpha=0.61$	N=135 $\alpha=0.63$

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# Teacher Survey Results

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## Analysis of Teacher CBE Practices Survey Responses

The original teacher survey included a total of 130 items designed to measure school policies and teacher classroom practices in the six domains<sup>7</sup> listed previously. Teacher responses to individual survey items provide useful feedback on teachers' perceptions of specific CBE-related policies and practices. For each survey item, we examined the number and percentage of teachers within each response option category as well as the number and percentage of teachers who did not respond to the survey item. This analysis allowed us to observe whether survey items were able to accurately measure variations in teacher practices.

In addition, several of the items in the survey were designed to capture teachers' perceptions related to broader constructs (e.g., student autonomy and decision making) associated with a CBE domain (i.e., instructional approaches and supports). The teacher survey included sets of items that were intended to be combined into scales that measure these different constructs within the six CBE domains, referred to as "feature areas" within the CBE 360 Survey Toolkit. To test whether individual survey items could be combined to capture these constructs, we began analyses of the teacher survey data by performing exploratory factor analysis (EFA), a statistical technique that is used to uncover the underlying relationships between survey items. EFAs were performed on item subsets. When each item has a factor loading that is at least 0.4 on a single factor, this indicates that, taken together, the items measure a single construct.

Next, we calculated Cronbach's alpha for item sets to ensure that the items within a set had internal consistency (i.e., items were closely related). Cronbach's alpha is also commonly used as a measure of an item set's reliability. We used a Cronbach's alpha threshold of 0.7 to indicate that items within sets were sufficiently related to one another to be used as a scale. Typically, item sets with larger numbers of items have higher alpha values. Some of our item sets fell short of the 0.7 threshold. Each of these item sets included between three and six survey items that loaded on a single factor in the EFA analyses. It is our hope that future data collection using these survey items will allow us to confirm whether these item sets can reliably measure the underlying constructs. In addition, future analyses will reveal whether our revisions to survey items and response option categories have improved the reliability of these item sets.

One of the advantages of grouping items into item sets is that the extent to which a broader CBE construct is being reported by teachers (or students) can be summarized by a single value on a combined scale. There are several strategies that may be used to combine information across survey items within an item set. For item sets in which the response options follow an agreement scale, one could assign a numeric value to the response options (e.g., 1 for *strongly disagree* to 4 for *strongly agree*), and calculate the average response across items. For example, if a teacher's responses on the four items associated with supportive student-teacher relationships included 2 *mostly agree* responses and 2 *agree a lot* responses, the average would be  $([3+3+4+4]/4)=3.5$ , placing the teacher between *mostly agree* and *agree a lot*.<sup>8</sup> For survey items in which the response options follow a frequency scale (e.g., *never to every day*), one could calculate the number or percentage of survey items in which teachers report the practice occurring at least once per week. A similar strategy may be used for survey items in which the

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<sup>7</sup> The term *domain* is referred to as "Feature Areas" in the *CBE Survey User Guide*.

<sup>8</sup> Other statistical methods, including a variety of item response theory (IRT) models, also exist to evaluate survey items and combine information across survey items. While these models have several beneficial properties for research purposes, the resulting scale values may prove to be less useful for practitioners because exact values cannot be directly linked back to the original response options.

response options relate to who makes decisions in the classroom (the *teacher*, the *teacher with some student input*, the *student and teacher decide together*, the *student with some teacher input*, or the *student decides on his/her own*). While these summary measures may allow practitioners to get a general sense of “where they are at” on these broader CBE constructs, for formative evaluation purposes, practitioners may also want to examine teachers’ responses to the individual items to determine where changes in specific practices can be made.

## Survey Item Revisions

After analyzing the teacher survey data, we revised the teacher survey to remove redundant survey items, create consistent response options for items within item sets, and generally shorten the survey to reduce the burden on teachers while still collecting the necessary information. These changes were made by examining the results of EFAs and Cronbach’s alpha values, ensuring that the removal of redundant survey items (i.e., survey items that had wording that was very similar to other survey items) did not worsen the reliability of survey measures. In addition, for survey items in which one of the response options offered was selected by only a very small percentage of teachers (e.g., fewer than five teachers *strongly disagreed* with the statement, “For each student, I really understand which things in this course are more difficult for them to understand and do”), we revised the options to improve the likelihood of a more equal distribution of responses across the range of answer choice categories.

In the following section, we provide descriptive statistics for all of the items included in the current, revised version of the Teacher CBE Practices Survey. To note changes in survey items from the original, we have inserted notations to indicate changes in item wording or response options that occurred during the revision process. Teacher survey items are organized by each of the six CBE domains. These descriptive findings provided in this technical appendix should be interpreted as preliminary evidence of the internal consistency of item sets with the CBE domains.

## Teacher CBE Practices Survey: Response Frequencies and Item Set Reliabilities

The following tables present the distribution of teacher responses for each item in the Teacher CBE Practices Survey. There are three types of teacher survey items. In the first section of the teacher survey, teachers are asked about their own practices across all of the courses they teach. In the second section, they are asked about schoolwide policies and practices. In the third section of the survey, teachers are asked about their practices within a specific course that they teach. Items are organized by the six CBE domains. Within each domain, items are labeled as schoolwide, all courses, and course-specific. Although each item may be examined individually, several items are organized into item sets that can collectively be used to measure a single underlying construct within a particular CBE domain. For each item set, Cronbach’s alpha (i.e., reliability) is provided as an indication of the internal consistency of the group of survey items. A Cronbach’s alpha threshold of 0.7 is generally used to indicate when items within sets are sufficiently related to one another to be used as a scale. We also include in this technical appendix item sets that fell short of the desired 0.7 threshold.

### Learning Targets

<b>Learning Targets (all courses)</b>	5. Most teachers use a variety of instructional approaches across the multiple courses they teach. To what extent is each of the following statements true for the courses you teach? (Note: If you teach multiple sections of a course, please answer based on the number of individual sections or classes you teach.)		<b>NOT true for any courses I teach</b>	<b>True for SOME courses I teach (fewer than half)</b>	<b>True for MANY courses I teach (half or more)</b>	<b>True for ALL the courses I teach</b>
	a) Students are given a set of specific learning targets, competencies, or proficiencies for the course.	N/A	N/A	N/A	N/A	

*Note.* This survey item was not in the original teacher survey in this format; frequencies are not available.

<b>Learning Targets (course-specific)</b>	19. For this course, do students need to demonstrate proficiency (or mastery) of a specific set of learning targets (i.e., specific skills, knowledge, or abilities) in order to pass and get credit?	<b>Yes</b>	<b>No</b>	<b>Missing</b>
		59.8%	37.6%	2.7%



Learning Targets (course-specific)	20. How do you communicate required learning targets to your students? (Check ALL that apply.)		Yes	No
		a) Students receive a list of learning targets, competencies, and/or proficiencies they must meet to pass and get credit.	73.1%	26.9%
b) Students receive a list of learning targets, competencies, and/or proficiencies for each assignment.	51.3%	48.7%		
c) All students have learning targets and/or requirements listed in an individual or personalized learning plan.	11.5%	88.5%		
d) I meet one-on-one with each of my students to discuss learning targets.	14.1%	85.9%		

*Note.* Percentages are based on a sample of 156 teachers who indicated in a previous survey question that, for the specified course, students need to demonstrate proficiency (or mastery) of a specified set of learning targets in order to pass and get credit.

**Measurement of Learning**

<b>Measurement of Learning: Competency-Based Education Approaches (all courses)</b>	5. To what extent is each of these statements true for the courses you teach?	b) Students must demonstrate that they have met ALL required course-specific learning targets to pass and get credit.	<b>NOT true for any courses I teach</b>	<b>True for SOME courses I teach (fewer than half)</b>	<b>True for MANY courses I teach (half or more)</b>	<b>True for ALL the courses I teach</b>	<b>Missing</b>
			47.9%	8.1%	11.9%	31.8%	N/A

*Note.* The category *NOT true for any courses I teach* includes 78 teachers who reported in a previous survey question that students are not required to demonstrate proficiency or mastery of a specific set of learning targets in order to pass and get credit for any of their courses. We have revised the survey so that all teachers would respond to this survey item. Results are not shown for categories that have fewer than five teachers.

<b>Measurement of Learning: Competency-Based Education Approaches (course-specific)</b>	21. As a teacher, when determining a student's grade or whether a student will pass and get credit for this specific course, how much do you count the following?	f) Mastery or proficiency in meeting course learning targets	<b>Doesn't count at all toward grade or credit</b>	<b>Counts a little toward grade or credit (less than 25%)</b>	<b>Counts some toward grade or credit (between 25-50%)</b>	<b>Counts substantially toward grade or credit (more than 50%)</b>	<b>Missing</b>
			11.1%	4.2%	13.0%	69.0%	2.7%

Measurement of Learning: Traditional Approaches (course-specific)	21. As a teacher, when determining a student's grade or whether a student will pass and get credit for this specific course, how much do you count the following?		Doesn't count at all toward grade or credit	Counts a little toward grade or credit (less than 25%)	Counts some toward grade or credit (between 25–50%)	Counts substantially toward grade or credit (more than 50%)	Missing	Cronbach's alpha
		a) Attendance	83.5%	11.1%	N/A	N/A	3.1%	0.67*
b) Participation in class	53.3%	37.9%	4.6%	N/A	2.7%			
c) Tasks and assignments completed outside of class (e.g., homework)	23.8%	44.8%	19.9%	8.4%	3.1%			
d) Completion of tasks or assignments within a specific period of time (e.g., hand in work by the due date)	25.7%	29.5%	19.2%	22.6%	3.1%			
e) Student performance on formative assessments	27.2%	44.4%	17.2%	7.7%	3.5%			

*Note.* In the original survey, survey item 37a had the following item stems: We'd like to know how much you count student performance on assessments toward the student's final grade or credit in your course. Results are not shown for categories that have fewer than five teachers.

\*Although a Cronbach's alpha threshold of 0.7 is commonly used as an indication of items' strong internal consistency, because it is statistically more difficult to achieve this 0.7 cutoff with a smaller number of survey items, we include information for item sets that fell short of this threshold.

**Instructional Approaches and Supports**

<b>Personalized Support/ Individualized Support for Progress (all courses)</b>	5. Most teachers use a variety of instructional approaches across the multiple courses they teach. To what extent is each of these statements true for the courses you teach? (Note: If you teach multiple sections of a course, please answer based on the number of individual sections or classes you teach.)	c) I meet individually with each student to discuss his or her work and progress.	<b>NOT true for any courses I teach</b>	<b>True for SOME courses I teach (fewer than half)</b>	<b>True for MANY courses I teach (half or more)</b>	<b>True for ALL the courses I teach</b>
			10.3%	23.0%	30.7%	36.0%

<b>Personalized Support/ Individualized Support for Progress (course-specific)</b>	25. Please tell us which of the following actions you take when students perform poorly or do not meet minimum performance levels on formative assessments in your course.	When a student takes a formative assessment and performs poorly how often do you...		<b>Some of the time</b>	<b>Most of the time</b>	<b>All of the time</b>	<b>Missing</b>	<b>Cronbach's alpha</b>
			<b>Never</b>					0.74
		a) Meet one-on-one with the student to discuss the assessment results?	6.1%	53.6%	27.6%	9.2%	3.5%	
		b) Have the student work with another student who understands the material well?	8.4%	54.8%	26.8%	6.9%	3.1%	
		c) Give the student more help/support?	N/A	18.8%	48.3%	29.5%	3.1%	
		d) Help the student learn the material in a different way?	N/A	31.8%	45.2%	18.8%	3.5%	
e) Adjust course pacing for that student (i.e., give the student more time to work on the topic/unit or competency area)?	13.4%	51.0%	22.6%	10.0%	3.1%			

*Note.* Results are not shown for categories that have fewer than five teachers.

Advisory (schoolwide)	7. When you have individual or small-group advising meetings with students, what kinds of things do you talk about?		Never	Some of the time	Most of the time	All of the time	Cronbach's alpha
		a) The student's academic goals.	N/A	36.2%	40.1%	22.0%	0.86
		b) How the student is doing in specific courses (e.g., grades, assessment results).	0%	31.1%	33.3%	35.6%	
		c) Changes the student would like to make to his or her own learning goals, courses, or assessment plans.	9.6%	42.4%	32.8%	15.3%	
		d) The student's interests and strengths.	N/A	41.8%	41.2%	15.3%	
		e) The student's learning preferences (e.g., whether the student works better in a quiet room).	9.6%	55.4%	24.3%	10.7%	
		f) What the student would like to do after high school.	N/A	48.6%	29.9%	19.2%	

*Note.* Percentages are based on a sample of 177 teachers who reported in a previous survey question that they have formal advising meetings with students individually or in small groups. Results are not shown for categories that have fewer than five teachers.

Advisory (schoolwide)	6. Do you have formal meetings with students (individually or in small groups) to discuss how they are doing in school, overall (i.e., not just how they are doing in your specific course)? Some schools call this an advising period or meeting. (Check ONE response.)	Yes, I have formal advising meetings with students regardless of how well they are doing in school	Yes, but I have advising meetings only with students who are struggling academically or having other difficulties in school	No, I do not have any formal advising meetings with students	Missing
		47.5%	20.3%	31.0%	N/A

*Note.* Results are not shown for categories that have fewer than five teachers.

<b>Personalized Learning Plan (schoolwide)</b>	9. Do the students in your school have written, individualized learning plans (sometimes called personalized learning plans [PLPs] or individual learning plans [ILPs])?	<b>Yes, all or most students in our school have learning plans</b>	<b>Yes, but only the students who need extra support have learning plans (e.g., struggling students and/or students with disabilities)</b>	<b>No, students in our school do not have learning plans</b>	<b>Other</b>	<b>Missing</b>
		19.2%	59.4%	17.2%	2.7%	N/A

Note. Results are not shown for categories that have fewer than five teachers.

<b>High Expectations (schoolwide)</b>	10. Think about other teachers in your school. To what extent do you agree with the following statements?	<i>Teachers in our school...</i>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Missing</b>	<b>Cronbach's alpha</b>
		a) Think it's important that all students do well in their classes.	N/A	2.3%	28.7%	64.8%	3.1%	0.87
b) Encourage all students to keep trying even when the work is challenging.	N/A	2.7%	31.8%	61.3%	3.1%			
c) Challenge all students to work harder than they thought they could.	N/A	7.7%	43.3%	44.8%	3.1%			

Note. In the revised survey, we changed the response options for these survey items to *don't agree*, *agree a little*, *mostly agree*, and *agree a lot*. Results are not shown for categories that have fewer than five teachers.

Supportive Student-Teacher Relationships (course-specific)	27. How well do you understand your students' individual learning needs? Please indicate the extent to which you agree with the following statements.		Strongly disagree	Disagree	Agree	Strongly Agree	Missing	Cronbach's alpha
		a) For each student, I really understand which things in this course are easy for them to understand and do.	N/A	2.7%	67.8%	26.1%	3.1%	0.80
		b) For each student, I really understand which things in this course are more difficult for them to understand and do.	N/A	N/A	62.5%	32.2%	3.1%	
		c) I know when to give each student more challenging material.	0%	9.2%	63.2%	24.1%	3.5%	
		d) Students feel comfortable talking to me about their learning when they have not been doing well in class.	N/A	8.4%	64.4%	23.4%	3.1%	

*Note.* In the revised survey, we changed the response options for these survey items to *don't agree*, *agree a little*, *mostly agree*, and *agree a lot*. Results are not shown for categories that have fewer than five teachers.

Student Autonomy and Decision Making (course- specific)	23. Teachers have many perspective s on student and adult roles in the classroom. We are interested in who makes decisions about student learning and participation in your course. Please read the following statements and tell us how decisions are typically made in this course.	In your course, who decides...	I (teacher) decide	I (teacher) decide with some student input	The student and I (teacher) decide together	The student decides with some teacher input	The student decides on his/her own	Missing	Cronbach's alpha
		a) Which topics each student learns in class every day?	52.1%	34.5%	5.0%	3.5%	N/A	3.8%	0.87
		b) Which activities or coursework each student does during class?	42.2%	42.2%	7.7%	3.5%	N/A	3.1%	
		c) What activities or coursework each student does outside of class or learning time (e.g., homework)?	41.4%	32.6%	8.4%	7.7%	6.9%	3.1%	
		d) How fast or slow each student moves through the course content?	27.6%	41.4%	15.7%	8.1%	3.8%	3.5%	
		e) The due date for each student's coursework?	42.5%	39.1%	12.3%	2.3%	N/A	3.1%	
		f) What kinds of help and support each student needs?	9.6%	31.8%	40.2%	14.6%	N/A	3.1%	
		g) <u>How</u> each student will show what he or she learned (e.g., whether students will take a test, write a paper, make a presentation, etc.)?	39.5%	34.5%	15.3%	6.1%	N/A	3.1%	
		h) <u>When</u> each student will take a final exam or assessment?	68.2%	20.7%	4.2%	2.7%	N/A	3.5%	

Note. Survey item 31 begins with the following preface: “Teachers have many perspectives on student and adult roles in the classroom. We are interested in who makes decisions about student learning and participation in your course.” Results are not shown for categories that have fewer than five teachers.



<b>Technology Use (course-specific)</b>	17. Do you use any technology-based systems to help assess, track, or customize instruction and supports for student learning in your course? Some teachers refer to this as a learning management system.	<b>Yes</b>	<b>Not Sure</b>	<b>No</b>	<b>Missing</b>
		49.8%	16.5%	31.4%	2.3%

<b>Technology Use (course-specific)</b>	18. What do you use a technology-based system for? (Check ALL that apply.)		<b>Yes</b>	<b>No</b>	<b>Cronbach's Alpha</b> 0.56*
		a) To track student progress or proficiency.	74.6%	25.4%	
		b) To track assignment completion.	76.3%	23.7%	
		c) To track student grades or credits.	84.4%	15.6%	
		d) To post course resources and materials for students to access.	74.6%	25.4%	

*Note.* Percentages are based on a sample of 173 teachers who said *yes* or *not sure* to a previous survey question about whether they use any technology-based systems to help assess, track, or customize instruction and supports for student learning in the specified course.

\*Although a Cronbach's alpha threshold of 0.7 is commonly used as an indication of items' strong internal consistency, because it is statistically more difficult to achieve this 0.7 cutoff with a smaller number of survey items, we include information for item sets that fell short of this threshold. When we classified the 82 teachers who responded in a previous survey question that they did not use any technology-based systems in the specified course as a "no" for each of these items, the estimated Cronbach's alpha was 0.86 for the complete set of responses.

Technology Use (course-specific)	16. How often do students use technology to support their learning in this course?	Students in my course use technology to...	Never	Less than once per month	At least once per month	At least once per week	Every day	Missing	Cronbach's alpha
		a) Learn new topics, material, or skills (e.g., watch an educational video online).	5.4%	14.6%	25.3%	37.6%	14.9%	2.3%	0.86
b) Expand or deepen their understanding on a topic, unit, or competency area.	4.2%	15.3%	25.7%	38.3%	14.2%	2.3%			
c) Catch up on a topic, unit, or competency area that they haven't finished yet.	11.5%	19.5%	24.9%	29.9%	11.5%	2.7%			
d) Move ahead to the next topic, unit, or competency area before other students.	38.7%	24.9%	10.3%	15.7%	7.3%	3.1%			

Varied and Flexible Instructional Approaches (course-specific)	15. Please indicate how often you and your students typically do the following activities in the specific course you selected.		Never	Less than once per month	At least once per month	At least once per week	Every day	Missing	Cronbach's alpha
		a) Students give presentations in front of the class or a group (i.e., student presentation).	6.9%	32.6%	41.8%	14.2%	2.3%	2.3%	0.72
b) Students review and discuss another student's work.	8.1%	17.6%	26.4%	33.3%	12.3%	2.3%			
c) Students work together in groups on a project.	4.6%	15.7%	30.3%	37.2%	10.0%	2.3%			
d) Students participate in applied learning activities in class.	N/A	11.1%	22.2%	42.9%	20.3%	2.3%			
e) Students work on an independent study or project as part of the course.	27.2%	31.0%	20.3%	11.9%	7.3%	2.3%			

**Assessment Strategies**

Formative Assessment (all courses)	5. To what extent is each of these statements true for the courses you teach?	e) I work individually with each student to determine how he or she will demonstrate mastery of learning targets.	NOT true for any courses I teach	True for SOME courses I teach (fewer than half)	True for MANY courses I teach (half or more)	True for ALL the courses I teach
			46.7%	24.1%	12.6%	16.5%

*Note.* The category *NOT true for any courses I teach* includes 78 teachers who reported in a previous survey question that students are not required to demonstrate proficiency or mastery of a specific set of learning targets in order to pass and get credit for any of their courses. We have revised the survey so that all teachers would respond to this survey item. Results are not shown for categories that have fewer than five teachers.

			Never	Less than once per month	At least once per month	At least once per week	Every day	Missing	Cronbach's alpha
<b>Formative Assessment (course-specific)</b>	24. Now we'd like to learn about how you assess student learning. How do you assess student progress? Please rate how often you use the following formative assessment approaches to track student learning in the course you selected.	a) Students make a formal or informal presentation.	8.4%	29.5%	41.8%	14.2%	3.1%	3.1%	0.65*
		b) You ask students to indicate their level of understanding of material or skills covered (e.g., thumbs up/down, exit slips).	2.7%	7.7%	16.1%	39.1%	31.4%	3.1%	
		c) Students formally self-assess their own work.	5.4%	22.2%	35.3%	22.6%	11.5%	3.1%	
		d) Students assess their peers' work.	12.6%	30.3%	32.6%	18.0%	3.1%	3.5%	
		e) You meet individually with students to discuss their progress in your course.	6.1%	37.9%	38.7%	12.6%	N/A	3.1%	
		f) Students take a practice test or quiz to see if they are ready to take a final exam or assessment.	18.0%	24.9%	33.0%	17.6%	3.5%	3.1%	

*Note.* Results are not shown for categories that have fewer than five teachers.

\*Although a Cronbach's alpha threshold of 0.7 is commonly used as an indication of items' strong internal consistency, because it is statistically more difficult to achieve this 0.7 cutoff with a smaller number of survey items, we include information for item sets that fell short of this threshold.

<b>Assessment of Learning (all courses)</b>	5. Most teachers use a variety of instructional approaches across the multiple courses they teach. To what extent is each of these statements true for the courses you teach? (Note: If you teach multiple sections of a course, please answer based on the number of individual sections or classes you teach.)	f) Students can choose to retake or redo a final course assessment (without any points off).	<b>NOT true for any courses I teach</b>	<b>True for SOME courses I teach (fewer than half)</b>	<b>True for MANY courses I teach (half or more)</b>	<b>True for ALL the courses I teach</b>
			46.0%	14.6%	11.9%	27.6%

<b>Assessment of Learning (course-specific)</b>	26. Please tell us which of the following actions you take when students do not meet minimum performance levels on (i.e., do not pass) the summative assessments in your course.	When a student does not pass a summative assessment, how often do you...	<b>Never</b>	<b>Some of the time</b>	<b>Most of the time</b>	<b>All of the time</b>	<b>Missing</b>	<b>Cronbach's alpha</b>
		a) Allow the student to demonstrate understanding in another way (e.g., a different type of assessment)?	21.5%	44.4%	19.9%	10.7%	3.5%	0.61*
		b) Arrange for the student to receive additional instructional support (e.g., during or after school or during the summer)?	2.7%	24.1%	37.6%	31.8%	3.8%	
		c) Allow the student to retake or redo the assessment at a later date (without any points off)?	20.7%	24.1%	21.1%	31.0%	3.1%	

\*Although a Cronbach's alpha threshold of 0.7 is commonly used as an indication of items' strong internal consistency, because it is statistically more difficult to achieve this 0.7 cutoff with a smaller number of survey items, we include information for item sets that fell short of this threshold.

**Pacing and Progression**

<b>Flexible Pacing and Progression (all courses)</b>	5. Most teachers use a variety of instructional approaches across the multiple courses they teach. To what extent is each of these statements true for the courses you teach? (Note: If you teach multiple sections of a course, please answer based on the number of individual sections or classes you teach.)	d) Students have the option of moving through course material faster or slower than other students.	<b>NOT true for any courses I teach</b>	<b>True for SOME courses I teach (fewer than half)</b>	<b>True for MANY courses I teach (half or more)</b>	<b>True for ALL the courses I teach</b>
			41.4%	28.4%	17.2%	13.0%

<b>Flexible Pacing and Progression (all courses)</b>	5. Most teachers use a variety of instructional approaches across the multiple courses they teach. To what extent is each of these statements true for the courses you teach? (Note: If you teach multiple sections of a course, please answer based on the number of individual sections or classes you teach.)	g) Students can pass and get credit as soon as they meet all required learning targets, even if the course isn't over yet.	<b>NOT true for any courses I teach</b>	<b>True for SOME courses I teach (fewer than half)</b>	<b>True for MANY courses I teach (half or more)</b>	<b>True for ALL the courses I teach</b>
			82.8%	5.8%	4.6%	6.9%

*Note.* The category *NOT true for any courses I teach* includes 78 teachers who reported in a previous survey question that students are not required to demonstrate proficiency or mastery of a specific set of learning targets in order to pass and get credit for any of their courses. We have revised the survey so that all teachers would respond to this survey item. Results are not shown for categories that have fewer than five teachers.

			Not a classroom practice I use	Occasional classroom practice I use	Regular classroom practice I use	Missing	Cronbach's alpha
<b>Flexible Pacing and Progression (course-specific)</b>	22. Teachers use many approaches to managing student learning and course pacing. Please indicate the extent to which these practices occur in your classroom for the course you selected.	a) Students move on to the next topic, unit, or competency area along with their classmates, regardless of whether they achieved mastery.	21.1%	25.7%	50.2%	3.1%	0.60*
		b) Students can take extra time to finish a topic, unit, or competency area if they need to, even if other students have already moved on.	13.0%	47.1%	36.8%	3.1%	
		c) Students who show that they understand a topic, unit, or competency area can move ahead of other students.	54.4%	24.5%	18.0%	3.1%	
		d) Students are required to complete the same assigned course work.	7.7%	26.1%	63.2%	3.1%	

*Note.* The category *Not a classroom practice I use* includes a small number of teachers who reported that the practice is not allowed in their school. In the revised survey, we changed the response options for these survey items to *never*, *some of the time*, *most of the time*, and *all of the time*. Before constructing a scale, the responses for items 29a and 29d should be reversed because they reflect traditional practices.

\*Although a Cronbach's alpha threshold of 0.7 is commonly used as an indication of items' strong internal consistency, because it is statistically more difficult to achieve this 0.7 cutoff with a smaller number of survey items, we include information for item sets that fell short of this threshold.

### When and Where Learning Takes Place

When and Where Learning Takes Place (schoolwide)	8. Please read the following statements and tell us how much they reflect current schoolwide policies and practices in your school.	At our school.....	Not practiced at our school	Occasional school practice	Regular school practice	Missing	Cronbach's alpha
		a) Students earn full course credit for courses they take outside of school (like summer courses or college classes).	12.6%	38.7%	44.8%	3.8%	0.66*
		b) Students earn full course credit for activities they do outside of school (e.g., volunteering, or attending a conference).	59.4%	25.7%	10.7%	4.2%	
		c) Students earn full course credit for doing an independent study (e.g., writing a play or building a website).	31.4%	43.7%	20.3%	4.6%	
		d) Students take an online course for credit in lieu of an in-person course.	9.6%	48.3%	38.3%	3.8%	

*Note.* The category *Not practiced at our school* combines teachers who reported *Not allowed at our school* and teachers who reported *Allowed but not practiced at our school* in the original survey. In the revised survey, we changed the response options for these survey items to *never, some of the time, most of the time, and all of the time*.

\*Although a Cronbach's alpha threshold of 0.7 is commonly used as an indication of items' strong internal consistency, because it is statistically more difficult to achieve this 0.7 cutoff with a smaller number of survey items, we include information for item sets that fell short of this threshold.

When and Where Learning Takes Place (course-specific)	15. Please indicate how often you and your students typically do the following activities in the specific course you selected.	f) Students participate in course activities, or an applied learning experience, outside of the school building <u>during</u> the school day.	Never	Less than once per month	At least once per month	At least once per week	Every day	Missing
			41.8%	26.4%	13.8%	11.5%	4.2%	2.3%



## Teacher CBE Practices Survey: Summary of Item Set Reliability

Table 1 includes summary information related to the internal consistency (i.e., reliability) of the item sets intended to measure underlying constructs within the six CBE domains. Cronbach's alpha, which is commonly used as a measure of an item set's reliability, indicates the general strength of the relationship between survey items within a set. These reliabilities were calculated based on the original wording of items in the teacher survey. In cases in which survey items or response options have been modified, these changes are noted.

**Table 1. Reliability of TCP Item Sets Within Five Domains of Competency-Based Education**

Scale	No. of Respondents	No. of Items	Cronbach's Alpha
<b>Measurement of Learning</b>			
Measurement of Learning: Traditional Approaches (course-specific)	254	5	0.67*
<b>Instructional Approaches and Supports</b>			
Advisory (schoolwide)	177	6	0.86
Personalized Support/Individualized Support for Progress (course-specific)	253	5	0.74
High Expectations (schoolwide)	253	3	0.87
Supportive Student-Teacher Relationships (course-specific)	253	4	0.80
Student Autonomy and Decision Making (course-specific)	253	8	0.87
Traditional Technology Use (course-specific)	173	4	0.56*
Personalized Technology Use (course-specific)	255	4	0.86
Varied and Flexible Instructional Approaches (course-specific)	255	5	0.72
<b>Assessment Strategies</b>			
Formative Assessment (course-specific)	253	6	0.65*
Assessment of Learning (course-specific)	253	3	0.61*
<b>Pathways and Progression</b>			
Flexible Pacing and Progression (course-specific)	253	4	0.60*
<b>When and Where Learning Takes Place</b>			
When and Where Learning Takes Place (schoolwide)	251	4	0.66*

\*These item sets do not meeting Cronbach's alpha threshold of 0.7, which is commonly used as an indication of strong internal consistency.

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