

# Maximizing Student Agency

## Implementing and Measuring Student-Centered Learning Practices



OCTOBER 2018

Kristina Zeiser | Carrie Scholz | Victoria Cirks

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Bridging the worlds of research, practice, and policy, JFF's Student-Centered Learning Research Collaborative investigates student-centered approaches to improve outcomes for learners from all backgrounds, particularly those who have been marginalized or underserved by the current system. This bold initiative began in 2016 with a core group of scholars, school leaders, policymakers, practitioners, and funders—each known for their impact and influence—coming together to clarify and catalyze the field. Since that time, the Research Collaborative has supported:

- multiple research teams employing a diverse set of research methods to build the evidence base for student-centered learning;
- a variety of field-advancing projects that accelerate innovation and generate investment in student-centered practices;
- a cohort of Students at the Center Distinguished Fellows who show what's possible when applications of student-centered practices are driven by rigorous research and a commitment to equity;
- and a series of public-facing resources designed to scale implementation and ensure all students flourish in our schools.

American Institutes for Research (AIR) conducted this study as part of the Research Collaborative's initial cycle of research. The team at AIR worked alongside fellow scholars, educators, and policymakers to investigate the impact of specific student-centered practices and then translate their findings for cross-sector audiences. This report represents their work over the past two years as they designed, tested, and revised teacher practices as part of a networked improvement community and examined how student agency impacted academic outcomes.

Other Research Collaborative studies in this cycle include:

- ♦ *Learning With Others: A Study Exploring the Relationship Between Collaboration, Personalization, and Equity*, American Institutes for Research
- ♦ *"In theory it's a good idea": Understanding implementation of proficiency-based education in Maine*, Education Development Center
- ♦ *Abolishing the phrase "I'm not a math person"*, High Tech High Graduate School of Education

For more information about and additional resources derived from this study from American Institutes for Research and the Student-Centered Learning Research Collaborative, visit [sclresearchcollab.org](http://sclresearchcollab.org).

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# Introduction

## What Is Student Agency?

Student agency, or the ability to manage one's learning, can have significant effects on academic achievement as students take an active role in seeking and internalizing new knowledge. Students who believe that knowledge can grow over time perform better on IQ tests than students who believe intelligence is invariable (Cury, Elliot, Da Fonseca, & Moller, 2006); students with a growth mindset are more likely to set academic goals focused on mastering content, rather than setting goals focused on achieving a particular test score or course grade (Cury et al., 2006); and students who set mastery-oriented goals tend to process information in a deeper and more organized fashion than those who set performance-oriented goals (Elliot, McGregor, & Gable, 1999). In addition, the skills and behaviors associated with student agency are positively related to college and career outcomes because students are able to direct their own learning and transfer the knowledge they learned in the classroom to new settings (National Research Council, 2012).

However, less is known about the instructional strategies teachers can use to develop agency in students. To learn more about the practices that support student agency, the American Institutes for Research (AIR) worked with four New Tech Network (NTN) high schools in three states (Exhibit 1) for the study *Maximizing Student Agency: Implementing and Measuring Student-Centered Learning Practices* to determine which teacher practices help or hinder the development of student agency, and whether these practices are effective across educational contexts and with different student subgroups.

NTN schools use project-based learning to empower and challenge students to learn and succeed, collaborate and communicate, and engage in the world around them. A critical component of their approach is student agency, or students' capabilities to manage their own learning and be successful in school. Teachers from each of the four NTN high schools participated in a networked improvement community (NIC) to test and refine strategies to support student agency.

**Exhibit 1. Participating New Tech Network Schools**



# Maximizing Student Agency: Implementing and Measuring Student-Centered Learning Practices

AIR’s study team used a mixed-methods approach<sup>1</sup> to address key research questions aligned to larger focus areas for the study (Table 1).

**Table 1. Focus Areas and Research Questions**

Focus Area	Primary Research Question(s)
Teacher practices designed to promote student agency	What practices do teachers employ to provide feedback to students on their performance that assist with the development of student agency?
	How do teachers use data to inform their practices?
Contextual factors influencing the promotion of student agency	What contextual factors do teachers view as facilitators of or challenges to implementing these practices?
Lessons learned about surveying student agency over time	How well do student survey questions measure student agency?
	Were the measurement properties of the agency scales consistent over time and across the student subgroups?
	Are there significant subgroup differences in measures of student agency?
	How does student agency change during the school year?
	Do changes in student agency during the school year differ between subgroups of students?

## Networked Improvement

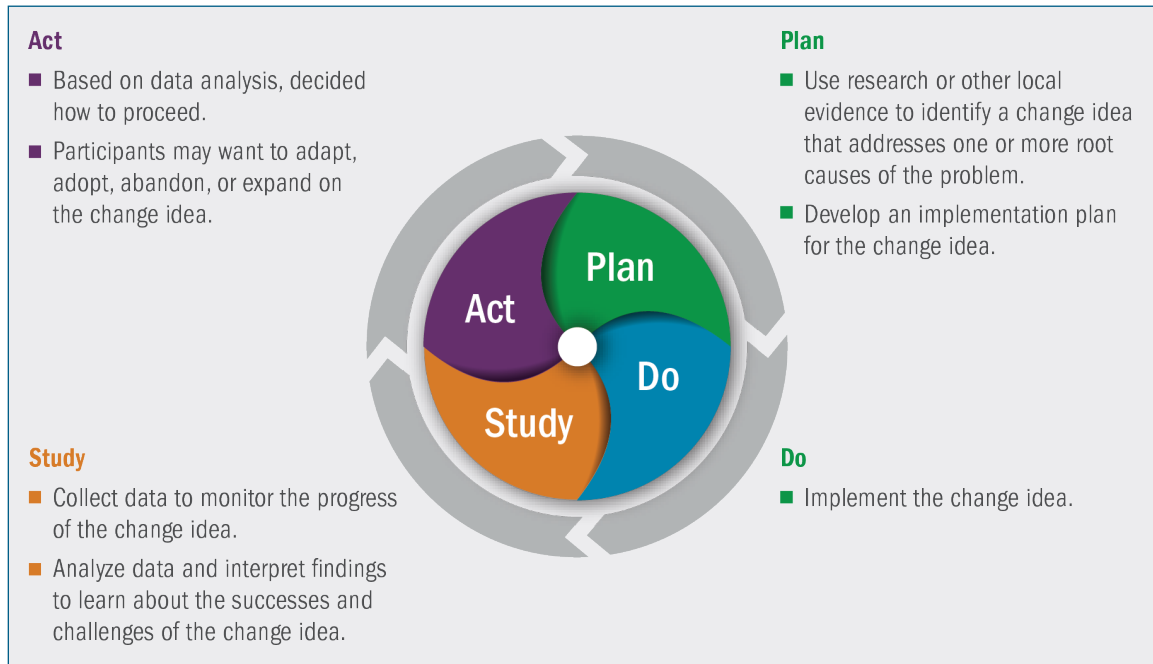
A key feature of the study was the use of a networked improvement community (NIC)—a group of high school teachers from four high schools across three states who wanted to further promote student agency in their classrooms. From spring 2017 to spring 2018, the NIC members:

- Convened to define the root causes preventing them from promoting student agency in their classrooms,
- Agreed that they could make changes in their practice to create opportunities for students to demonstrate agency,
- Selected a change idea (i.e., practice) to promote agency that they would systematically test,
- Developed formative measures to track the extent to which students demonstrated agency, and
- Implemented the change idea during Plan-Do-Study-Act (PDSA) cycles (Exhibit 2) to determine the extent to which their change ideas led to increased student agency.

<sup>1</sup> Study methodology is detailed in the technical appendix.

A more detailed description of the NIC's efforts, AIR's supports, and related resources follows.

## Exhibit 2. PDSA Cycles



AIR facilitated five NIC convenings during the 2017–18 school year. Between these meetings, AIR met with teachers individually or as a school-based large group to support key decision points throughout the improvement process. Exhibit 3 outlines a timeline of events.

## Spring 2017

The NIC launched and AIR introduced the NIC's guiding principles:

- Teachers are central to student empowerment,
- Guiding the development of student agency is complex and almost impossible to do in isolation, and
- Teaching can be continuously improved.

The NIC reviewed the definition of student agency driving the study. We shared two sources of data from focus groups conducted prior to the NIC's launch: the Menu of Teacher practices and challenges for promoting student agency. The convening concluded with teachers from each school beginning to articulate their goals for student agency.

## Summer 2017

AIR examined the evidence base available for the Menu of Teacher Practices generated by the focus group results. The purpose of this step was to inform the NIC of specific examples of practices, as appropriate, when the NIC participants selected their change ideas to test.

## Fall 2017

### October 2017

The NIC convened to discuss the benefits of a NIC and the importance of a shared, measurable goal for their work together (i.e., an aim statement), as well as to revisit the shared barriers or root causes that prevent teachers from promoting agency. The NIC then discussed which of these root causes teachers have the power to change and what practices might be potential drivers for that change. The NIC participants further refined their thinking about these topics through online discussions on the NIC's online Groupsite platform before they were finalized.

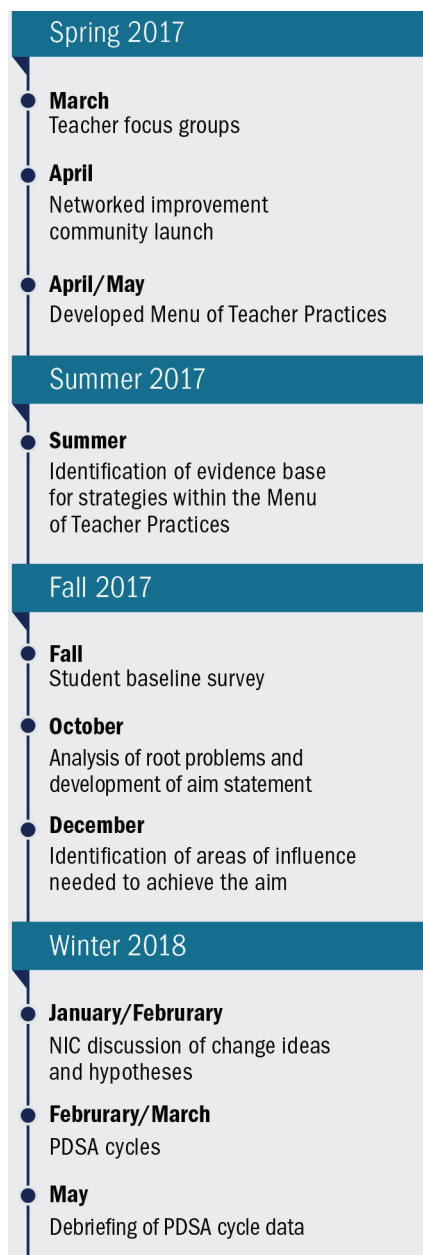
### November–December 2018

NIC members selected the change ideas they wanted to test. They completed a “Change Idea Hypothesis Worksheet” where they articulated the practice, why they selected it, what the practice would look like/sound like, what the immediate student response and longer term student outcomes might be, and what measures would be used to determine if their hypotheses were correct. In the worksheet, the teachers also articulated their plans for when the change idea would be implemented (i.e., before, during, and/or after school), how often it would be implemented during a given week, duration of the practice (i.e., how many weeks before the aforementioned changes could be realized), and how the teacher planned to track whether s/he implemented the change idea as planned.

The NIC participants decided to test *seven out of the 17 practices* listed on the Menu of Teacher Practices. Three of the practices were “student opportunities”; three were “student-teacher collaborations”; and one was a “teacher-led approach.”

AIR provided feedback on the Change Idea Hypothesis Worksheets, met with the individual teams and/or participants, and discussed how to further specify their hypotheses and measurement plans.

## Exhibit 3. NIC Timeline





## Winter 2018

### January 2018

AIR and the NIC participants codeveloped measures aligned to the goals in the NIC members' Change Idea Hypothesis Worksheets and encouraged members to share their change ideas on the NIC Groupsite.

## Spring 2018

### February–May 2018

NIC participants implemented their change ideas and met with AIR to examine early PDSA cycle results, troubleshoot measurement challenges, discuss whether the change idea needed to be adapted, and reflect on their experiences in the improvement process.

### May–June 2018

NIC participants began to send AIR their final PDSA cycle data. AIR requested that NIC participants also complete a Change Idea Planner. This form was designed to capture the change idea as it was implemented in the PDSA cycle. The NIC thought of this form as a “recipe” for others to consider following in their classroom once the teams have more data to decide if these practices increase student agency. The NIC held its final convening so that each team could hear from the others about their change ideas, early results, lessons learned, and next steps. AIR also shared early results from the student agency surveys (described in the following section). The teams enthusiastically shared their desire to keep this work going.

## Data Sources

Data<sup>2</sup> for the current study came from three primary sources: survey data, focus group data, and PDSA cycle data collected by the NIC.

**Student survey data.** In fall 2017 and spring 2018, the research team administered a student survey that included measures of student agency as well as student demographic information. In fall 2017, we collected survey data from 184 students attending the four participating schools.<sup>3</sup> A second survey was administered to 385 students (including 132 of the students who took the fall survey) in spring 2018. Although the fall 2017 survey was limited to students in classes with NIC teachers, to facilitate analyses that look more closely at differences between subgroups of students, all students within participating schools were invited to participate in the spring 2018

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<sup>2</sup> Information about survey samples, response rates, and data analysis methods is detailed in the technical appendix.

<sup>3</sup> This number excludes survey respondents who were removed from the data for a variety of reasons, including missing student name, students reporting that they did not take a class with a NIC teacher (in the fall), duplicate records where students reported twice about the same class, and missing data for all 54 items associated with the student agency scales.

survey. Overall, we analyzed data from 437 unique survey respondents.

A list of the student agency measures included in the student survey, along with references to the sources of the measures, is provided in Table 2. Each construct was measured with between four and nine survey items, and responses to survey items ranged from 1 (*disagree*) to 4 (*strongly agree*). For each survey construct, we calculated a scale score by averaging responses to relevant survey items. Averages and standard deviations for the student agency measures also are provided in Table 2.<sup>4</sup>

**Table 2. Student Agency Constructs, Sources, and Example Items**

Construct	Source	Example Item	Fall		Spring	
			Average	Standard Deviation	Average	Standard Deviation
Self-efficacy	Chen, Gully, & Eden, 2001	In general, I think that I can achieve goals that are important to me.	3.07	0.60	3.03	0.61
Perseverance of interest <sup>a</sup>	Duckworth & Quinn, 2009	New ideas and projects sometimes distract me from previous ones.	2.69	0.68	2.56	0.74
Perseverance of effort	Duckworth & Quinn, 2009	I finish whatever I begin.	2.88	0.66	2.84	0.67
Locus of control	Levenson, 1981	I can pretty much determine what will happen in my life.	2.97	0.57	2.89	0.55
Mastery orientation	Midgley et al., 2000	An important reason why I do my classwork is because I like to learn new things.	2.67	0.72	2.60	0.75
Meta-cognitive self-regulation	Pintrich & DeGroot, 1990	I ask myself questions to make sure I understand the material I have been studying in this class.	2.66	0.67	2.63	0.64
Self-regulated learning	Consortium on Chicago School Research, 2009	I set aside time to do my homework and study.	2.79	0.72	2.67	0.70
Future orientation	Consortium on Chicago School Research, 2009	What I learn in class is necessary for success in the future.	3.07	0.80	2.89	0.78

<sup>a</sup> Items in the perseverance of interest construct were reverse-coded so that higher values indicate a higher level of perseverance.

<sup>4</sup> As described in the technical appendix, we found that the measurement properties of several agency measures improved after removing one or two survey items. The averages and standard deviations in Table 2 were calculated after removing these survey items.

In addition to the measures of student agency, student surveys included questions that capture key student background information, including gender, race/ethnicity (White, Black, Hispanic, or “other” racial/ethnic group), socioeconomic status, and English learner (EL) status (i.e., whether a language other than English is spoken at home).

**Teacher survey data.** The research team administered surveys to 58 teachers in fall 2017 and 65 teachers in spring 2018. In the teacher survey, teachers were asked about the frequency with which they engaged in practices associated with increasing student agency<sup>5</sup> with most of their students. In addition, teachers were asked about how many students in their school (none, some, about half, most, or nearly all) have different types of learning opportunities. Finally, the teacher survey included survey items that allowed us to measure key aspects of the school setting (e.g., teachers’ commitment to the school, perceived program coherence, instructional improvement culture, self-efficacy for teaching).

**Teacher focus group data.** In spring 2017, the research team conducted focus groups with 40 teachers to discuss their definitions of student agency, goals for agency in their classroom, practices and opportunities designed to promote agency, data currently collected on student agency, and facilitators of and barriers to agency. In spring 2018, the research team conducted a second round of teacher focus groups to gather additional data about perceptions of student agency as well as NIC activities.

**Student focus group data.** In spring 2018, AIR conducted student focus groups at each of the study schools, with a total of 48 students. Students were asked to provide feedback on the following:

- Definitions of student agency,
- Opportunities they have been provided to employ agency,
- Instructional practices their teachers have used this year (aligned to the Menu of Teacher Practices),
- Skills those practices have helped develop, and
- Ideas for improvement.

**PDSA cycle data.** The research team aided 25<sup>6</sup> teachers participating in the NIC in choosing specific change ideas to implement within the classroom to increase student agency. The team guided NIC teachers in completing PDSA cycles to develop change ideas, implement them, test related outcomes, and refine them. Examples of the types of data collected by the teachers include student responses to brief surveys, students’ grades, workshop attendance, and work resubmission rates.

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<sup>5</sup> The practices included in the teacher survey reflected the instructional practices identified during the spring 2017 focus groups and outlined within the Menu of Teacher Practices.

<sup>6</sup> During the course of the study, there were changes to the composition of the NIC (e.g., long-term substitute taking over a NIC classroom for a maternity leave, teachers leaving the NIC).

## Study Findings

In this section, we summarize the study findings by the study's three focus areas defined earlier: teacher practices designed to promote student agency; contextual factors influencing student agency; and lessons learned about surveying student agency over time.

### Teacher Practices Designed to Promote Student Agency

The first overall focus area for the study was identifying practices that teachers used to promote agency. Data from the teacher focus groups, teacher surveys, PDSA cycles, and NIC meetings were used to answer two primary research questions:

- What practices do teachers employ to provide feedback to students on their performance that assist with the development of student agency?
- How do teachers use data to inform their practices?

#### What practices do teachers employ to provide feedback to students on their performance that assist with the development of student agency?

Key Findings
<ul style="list-style-type: none"><li>■ Created from discussions during teacher focus groups, the Menu of Teacher Practices identified 17 instructional practices that teachers use to develop agency at the four study schools. These practices fall into three general categories: student opportunities, student-teacher collaboration, and teacher-led approaches.</li><li>■ NIC participants tested seven of the 17 practices included in the Menu of Teacher Practices. Three of the practices fell in the category of student opportunities, three practices represented student-teacher collaborations, and one was a teacher-lead approach.</li><li>■ In both fall 2017 and spring 2018, the most common practice was to develop personal relationships with students to better understand their agency strengths, needs, and motivators.</li><li>■ The percentage of teachers reporting that they model agency skills to demonstrate those skills to students in a meaningful context or provide students with tools, strategies, and resources to coach them toward mastery of agency skills doubled between fall 2017 (14% for each practice) and spring 2018 (30% and 28%, respectively).</li></ul>

During the spring 2017 teacher focus groups, participants were asked to identify practices they use in their classroom to help develop agency. Responses were coded and analyzed to develop the Menu of Teacher Practices (see Exhibit 4; also Appendix A). The menu includes brief descriptions of 17 teacher practices that fall within three general categories:

- **Student opportunities.** Practices in which students are the primary decisionmakers in how the instructional practice is implemented.
- **Student-teacher collaboration.** Practices in which students and teachers work together to implement the instructional practice.
- **Teacher-led approaches.** Practices in which teachers are the primary decisionmakers in how the instructional practice is implemented.

## Exhibit 4. Menu of Teacher Practices on Student Agency



### Student Opportunities

**Choice.** Teachers provide students with opportunities to make choices about the content and process of their work.

**Group Work.** Teachers provide students with opportunities to work in groups to learn and practice agency necessary for group success.

**Harnessing Outside Opportunities.** Teachers provide students with opportunities to demonstrate agency outside the classroom and make connections between outside agency and its application in the classroom.

**Revision.** Teachers provide students with opportunities to revise assignments or tests after they have received feedback.

**Student Self-Reflection.** Teachers provide students with opportunities to self-reflect using journals, logs, or other structured templates or tools.

**Student-Led Instruction.** Teachers provide students with opportunities to demonstrate agency by leading instruction on a particular skill or concept.



### Student-Teacher Collaboration

**Developing Relationships.** Teachers develop personal relationships with students to better understand their agency strengths, needs, and motivators.

**Feedback.** Teachers provide students with feedback and scaffold the process of students asking for feedback.

**Goal Setting.** Teachers help students set goals to complete coursework while improving agency.

**Individual Conferences.** Teachers hold one-on-one meetings with students to discuss elements of student agency and its relationship to academic work.

**Student Voice.** Teachers provide students with opportunities to contribute to and provide feedback on key decisions in the classroom.



### Teacher-Led Approaches

**Assessment.** Teachers design formative and summative assessments to evaluate student agency and/or to provide students with extrinsic motivation to build agency.

**Direct Instruction.** Teachers provide explicit instruction to develop skills related to student agency.

**Modeling.** Teachers model agency to demonstrate it to students in a meaningful context.

**Positive Reinforcement.** Teachers provide positive reinforcement for demonstration of agency.

**Scaffolding.** Teachers provide students with tools, strategies, and resources to help scaffold students toward mastery of agency.

**Verbal Cues.** Teachers provide brief spoken prompts in real time to highlight or remind students of behaviors that demonstrate agency.

To learn more about how these practices are used in the participating schools, AIR administered teacher surveys. In the fall and spring surveys, teachers were asked about the frequency with which they used specific practices to promote student agency. Table 3 presents the percentage of

teachers who reported using these practices in the fall and spring with most of their students more than three times per week. In both fall and spring, the most common practice was to develop personal relationships with students to better understand their agency strengths, needs, and motivators. Some of the least frequently reported practices in both fall and spring included holding one-on-one meetings with students to discuss elements of student agency and its relationship to academic work, providing students with extrinsic motivation to build agency skills, and providing explicit instruction to develop skills related to student agency. For the majority of practices listed in Table 3, we did not observe a large change in the percentage of teachers reporting that they use practices more than three times per week with most of their students between the fall and spring survey administrations. However, the percentage of teachers reporting that they model agency skills to demonstrate those skills to students in a meaningful context or provide students with tools, strategies, and resources to coach them toward mastery of agency skills doubled between fall 2017 (14% for each practice) and spring 2018 (30% and 28%, respectively).

**Table 3. Percentage of Teachers Who Reported Using Practices More Than Three Times per Week With Most of Their Students, Overall and for Teachers Who Did and Did Not Participate in the NIC**

Practice	Fall 2017			Spring 2018		
	All Teachers (n=58)	NIC Teachers (n=33)	Non-NIC Teachers (n=25)	All Teachers (n=65)	NIC Teachers (n=35)	Non-NIC Teachers (n=30)
Make connections between outside agency and its application in the classroom.	20.7	15.2	28.0	17.2	20.0	13.8
Revise assignments or tests after they have received feedback.	13.8	15.2	12.0	21.9	22.9	20.7
Self-reflect using journals, logs or other structured templates or tools.	20.7	15.2	28.0	14.1	17.1	10.3
Lead instruction on a particular skill or concept.	15.5	12.1	20.0	22.2	32.4	10.3
Contribute to and provide feedback on key decisions in the classroom.	19.0	21.2	16.0	23.4	25.7	20.7
Develop personal relationships with students to better understand their agency strengths, needs, and motivators.	56.9	57.6	56.0	57.8	54.3	62.1
Guide students in the process of asking for feedback.	27.6	24.2	32.0	26.6	20.0	34.5
Help students set goals to complete coursework while improving their agency to do so on their own.	20.7	15.2	28.0	18.8	14.3	24.1
Hold one-on-one meetings with students to discuss elements of student agency and its relationship to academic work.	10.3	9.1	12.0	9.4	8.6	10.3

Practice	Fall 2017			Spring 2018		
	All Teachers (n=58)	NIC Teachers (n=33)	Non-NIC Teachers (n=25)	All Teachers (n=65)	NIC Teachers (n=35)	Non-NIC Teachers (n=30)
Design formative and summative assessments to evaluate student agency.	12.1	15.2	8.0	10.9	14.3	6.9
Provide students with extrinsic motivation to build agency skills.	10.5	9.4	12.0	12.5	14.3	10.3
Provide explicit instruction to develop skills related to student agency.	10.5	12.5	8.0	14.1	17.1	10.3
Model agency skills to demonstrate those skills to students in a meaningful context.	14.0	18.8	8.0	29.7	37.1	20.7
Provide positive reinforcement for demonstration of agency skills.	29.8	34.4	24.0	26.6	31.4	20.7
Provide students with tools, strategies, and resources to coach them toward mastery of agency skills.	14.0	18.8	8.0	28.1	34.3	20.7
Provide brief spoken prompts in real time to highlight or remind students of behaviors that demonstrate agency.	28.1	37.5	16.0	30.2	38.2	20.7

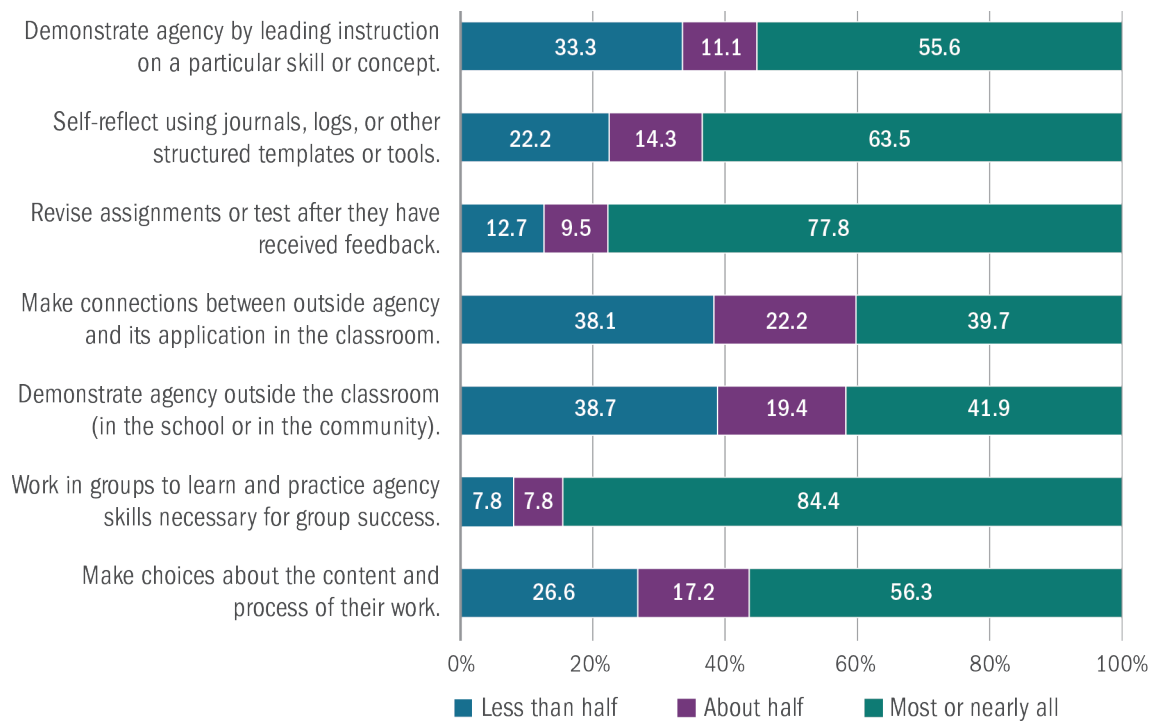
Although the study's research questions did not specify a comparison of the practices employed by teachers who participated in the NIC and teachers who did not participate in the NIC (non-NIC teachers), the study team explored whether specific practices were more common among NIC teachers, and whether they observed changes over time in practices implemented by NIC and non-NIC teachers. Because all teachers who responded to the surveys taught in schools that promoted student agency, several practices were employed by both types of teachers (e.g., revising assignments or tests after they have received feedback; developing personal relationships with students to better understand their agency strengths, needs, and motivators; providing students with extrinsic motivation to build agency skills). However, several practices were employed more frequently by teachers participating in the NIC, such as providing positive reinforcement for demonstration of agency skills; modeling agency skills to demonstrate those skills to students in a meaningful context; providing students with tools, strategies, and resources to coach them toward mastery of agency skills; and providing brief spoken prompts in real time to highlight or remind students of behaviors that demonstrate agency.

In contrast, we also observed differences in which non-NIC teachers appeared to use specific practices more frequently than NIC teachers: guiding students in the process of asking for feedback, helping students set goals to complete coursework while improving their agency to do so on their own, and holding one-on-one meetings with students to discuss elements of student agency and its relationship to academic work. Finally, while we did not observe substantial declines (of more

than 5 percentage points) in the percentage of NIC teachers reporting the frequent use of specific practices between the fall and spring, we did observe decreases of this magnitude for the practices of making connections between outside agency and its application in the classroom (14 percentage points), self-reflection using journals, logs or other structured templates or tools (18 percentage points), and leading instruction on a particular skill or concept (10 percentage points) among non-NIC teachers.

We also explored the extent to which teachers' reported practices were employed at the school level. Exhibit 5 presents the percentage of teachers who reported that specific opportunities were available for less than half, about half, or most/nearly all of the students in their schools in spring 2018.<sup>7</sup> Results suggest that some opportunities were more prevalent for students in participating schools (e.g., 84% of teachers in the spring reported that most or nearly all of their students work in groups to learn and practice agency skills necessary for group success) while other opportunities were less prevalent (40% of teachers reported that most or nearly all of their students make connections between outside agency and its application in the classroom).

**Exhibit 5. Percentage of Teachers Reporting the Schoolwide Use of Strategies to Promote Student Agency in Spring 2018**



<sup>7</sup> The survey was also administered in fall 2017. Results were similar between the beginning and end of the school year.



## How do teachers use data to inform their practices?

### Key Findings

- NIC teachers developed their own measures, including surveys, attendance trackers, and grade trackers, to test outcomes associated with their change ideas related to student agency.

Within the NIC, teachers developed their own measures, including surveys, attendance trackers, and grade trackers, to test the effectiveness of change ideas related to student agency (Table 4). To keep the schools anonymous, we refer to them as School A–D.

**Table 4. PDSA Cycle Measures**

School	Change Idea	Measure
School A	Administer a student self-reflection at the end of each week to measure mastery and resources used.	Weekly self-reflection survey
School B	Provide students with additional resources and feedback so they can revise and improve their work.	Individual Assessment of Knowledge and Thinking (IAKT) survey
		Growth mindset survey
School C	Waive zero-grade policy for students who seek out extra help.	Writing agency survey
	Provide students with personalized verbal feedback.	Workshop attendance
School D	Provide students more choice in support resources.	Feedback survey
		Resources survey A
		Resources survey B
		Resources survey C
		Agency survey
	Provide one-on-one conferencing on IAKT assignments.	Student writing grades

Although we illustrate a few examples of how teachers used student data below, detailed tables of all the PDSA cycle data are provided in Appendix B. Several teachers wanted to learn what resources students use most often or find most helpful. For example, School B developed and administered a survey for their students to complete approximately once per month. Teachers were able to use these data to see that students reported conducting independent research online and responding to teacher feedback contributed a lot to their learning, while teacher-led workshops and conferences did not contribute a lot to their learning (see Table 5).

**Table 5. School B IAKT Survey Responses**

	February (n=93)		March (n=202)		May (n=178)	
	Number	Percent	Number	Percent	Number	Percent
<b>To what extent did responding to teacher feedback left in Echo contribute to your learning while completing this IAKT?</b>						
Did not use	4	4.3	27	13.4	24	13.5
Did not contribute	4	4.3	6	3.0	6	3.4
Contributed some	30	32.3	68	33.7	60	33.7
Contributed a lot	55	59.1	101	50.0	88	49.4
<b>To what extent did responding to peer feedback contribute to your learning while completing this IAKT?</b>						
Did not use	32	34.4	53	26.2	47	26.4
Did not contribute	11	11.8	19	9.4	18	10.1
Contributed some	34	36.6	41	20.2	35	19.7
Contributed a lot	16	17.2	89	44.1	78	43.8
<b>To what extent did using the resources available in the project briefcase contribute to your learning while completing this IAKT?</b>						
Did not use	14	14.9	20	9.9	18	10.1
Did not contribute	4	4.3	6	3.0	6	3.4
Contributed some	35	37.2	99	49.0	88	49.4
Contributed a lot	41	43.6	77	38.1	66	37.1
<b>To what extent did conducting independent research online contribute to your learning while completing this IAKT?</b>						
Did not use	7	7.5	13	6.4	12	6.7
Did not contribute	3	3.2	0	0.0	0	0.0
Contributed some	16	17.0	20	9.9	18	10.1
Contributed a lot	68	72.3	169	83.7	148	83.2
<b>To what extent did teacher-led workshops contribute to your learning while completing this IAKT?</b>						
Did not use	37	41.6	106	52.5	95	53.4
Did not contribute	15	16.9	47	23.3	41	23.0
Contributed some	27	30.3	35	17.3	30	16.9
Contributed a lot	10	11.2	14	6.9	12	6.7
<b>To what extent did teacher-led conferences contribute to your learning while completing this IAKT?</b>						
Did not use	42	46.7	107	53.0	96	53.9
Did not contribute	14	15.6	41	20.3	36	20.2
Contributed some	25	27.8	40	19.8	34	19.1
Contributed a lot	9	10.0	14	6.9	12	6.7

Teachers then used this information to examine student responses within their classes, study student response patterns across classes, and determine whether to continue to test the change idea. Teachers saw that students generally reported an increase in their perceived connections between taking ownership of their learning (i.e., using resources, conducting independent research, and participating in workshops) and their performance on the IAKT. This increase occurred one month after implementing the change idea. The increase flattened out and declined approximately one month later, perhaps because of the time of year (i.e., students had been finalizing their projects and were not learning as much new content). Teachers were eager to test this change idea starting in fall 2018 to see if students may be able to perceive the connection between their agency and their performance earlier in the school year and sustain it over the course of the school year.

Based on the results, the teachers also plan to be more explicit in how they talk about their supports for their students. For example, the teachers hypothesized that students may not consider their informal, frequent conferencing as teacher-led conferences. The teachers plan to be more intentional about the language they use in the classroom so that students are able to more accurately define and identify their learning experiences.

Several other teachers provided more feedback to students, with the goal of helping students achieve mastery of a content area or skill. One teacher in particular introduced the change idea of having one-on-one conferences during which the student took an active role in recording teacher feedback as well as their own insights. To test the effectiveness of this increased feedback, the teacher tracked student grades on writing assignments over the course of the semester (see Table 6).

**Table 6. School D Student Writing Grades**

		Score of 1		Score of 2		Score of 3	
		Number	Percent	Number	Percent	Number	Percent
Baseline Assignment (n=75)	Development	60	79.7	15	20.3	0	0.0
	Organization	35	47.3	36	48.7	3	4.1
	Language	52	68.9	23	31.1	0	0.0
Assignment 1 Draft (n=75) April 10	Development	56	74.3	14	18.9	5	6.8
	Organization	55	73.0	17	23.0	3	4.1
	Language	53	70.3	19	25.7	3	4.1
Assignment 1 Final (n=75)	Development	43	56.8	26	35.1	6	8.1
	Organization	43	56.8	17	23.0	15	20.3
	Language	43	56.8	21	28.4	11	14.9
Assignment 2 Draft (n=75) April 26	Development	60	79.7	13	17.6	2	2.7
	Organization	52	68.9	20	27.0	3	4.1
	Language	55	73.0	19	25.7	1	1.4

		Score of 1		Score of 2		Score of 3	
		Number	Percent	Number	Percent	Number	Percent
Assignment 2 Final (n=75)	Development	60	79.7	12	16.2	3	4.1
	Organization	52	68.9	14	18.9	9	12.2
	Language	52	68.9	19	25.7	4	5.4
Assignment 3 Draft (n=75) May 11	Development	50	66.2	24	32.4	1	1.4
	Organization	45	59.5	26	35.1	4	5.4
	Language	44	58.1	28	37.8	3	4.1
Assignment 3 Final (n=75)	Development	20	27.0	25	33.8	29	39.2
	Organization	25	33.8	23	31.1	26	35.1
	Language	25	33.8	24	32.4	25	33.8

Note. Writing assignments were scored on a scale from 1 to 3, with 3 being the highest or best score.

These data helped the teacher to compare students' baseline writing assignments (when students received written feedback from their teacher) to those assignments completed while the change idea was being implemented. Overall, the percentage of students scoring 3s on aspects of their writing increased over the semester. In addition, the percentage of students showing growth, or increased scores, between their draft and final versions of assignments increased over the semester. These data suggested to the teacher that taking time to provide individual feedback is valuable because it is correlated with improved student writing skills.

## Contextual Factors Influencing the Promotion of Student Agency

The second overall focus area for the study was identifying factors that influence the use of instructional practices that promote agency. Data from the teacher focus groups were used to answer the following research question:

- What contextual factors do teachers view as facilitators of or challenges to implementing these practices?

### What contextual factors do teachers view as facilitators of or challenges to implementing these practices?

Key Findings
<ul style="list-style-type: none"> <li>■ Teachers identified supportive schoolwide processes, teacher collaboration, and professional development as the primary facilitators of implementation of instructional practices that promote agency.</li> <li>■ Teachers identified limited time, student awareness and exposure to certain instructional practices, and educator perception and capacity as the primary challenges they see in implementation of instructional practices that promote agency.</li> </ul>

## Facilitators

Focus group participants identified three primary facilitators in deepening the use of instructional practices that promote student agency: supportive school processes, teacher collaboration, and professional development.

**Schoolwide processes.** The primary facilitator identified by teachers were the schoolwide processes in place at NTN schools. NTN schools follow a comprehensive school model in which student agency is up front and center. NTN has agency rubrics that identify along a continuum the ability to develop and reflect on growth mindset and demonstrate ownership over one's learning.<sup>8</sup> In addition, each school had existing collaborative structures that support the collaborative development of projects.

**Teacher collaboration.** Across each of the four schools, focus group respondents highlighted teacher collaboration as a key facilitator. Teacher collaboration provided opportunities for increased communication about effective (and ineffective) instructional strategies and collaborative problem solving that allows teachers to share strategies across grade levels and content areas.

**Professional development.** Ongoing professional development to build the capacity of teachers also was identified as a key factor in supporting the use of instructional practices that develop agency. The role of the teacher in NTN schools is often that of a facilitator, which is a shift from the role of the teacher in a traditional classroom. Teachers reported professional development opportunities as ways to build new, effective facilitation skills.

## Challenges or Barriers

Across the four schools, teachers noted a variety of challenges or barriers. The most commonly mentioned challenges were a lack of time to focus on agency development, limited student awareness or demonstration of agency, and educator perceptions and capacity.

**Time.** Teachers identified a general lack of time to focus on promoting agency as one challenge. The pressure to focus on content standards that are often aligned to educator evaluation systems resulted in some teachers feeling that the ultimate instructional priority was on ensuring proficiency on state assessments. Time also came into play as a challenge when teachers discussed the amount of time needed to prepare resources and manage formative data.

**Student awareness.** Teachers across the four schools shared a perception that students are not always prepared to take advantage of opportunities to demonstrate agency. Because NTN schools begin with Grade 9, teachers perceived that when students reach their building, they have had limited exposure to instructional practices such as choice or student-led instruction. Therefore, they are underprepared to engage fully in these practices when implemented in the classroom in NTN schools.

**Educator perceptions and capacity.** Even within the participating schools' structure and culture that have a specific focus on agency, teachers reported that some of their colleagues have perceptions that limit their use of agency-supporting instructional practice. In addition, some identified capacity gaps in terms of technological and pedagogical skills that would support improved implementation of some of the practices.

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<sup>8</sup> <https://newtechnetwork.org/resources/new-tech-network-agency-rubrics/>

## Lessons Learned About Surveying Student Agency Over Time

The third overall focus area for the study was learning more about surveying student agency over time and examining how well the measures performed with different subgroups of students. Data from the teacher focus groups, student surveys, and NIC meetings were used to answer five primary research questions:

- How well do student survey questions measure student agency?
- Were the measurement properties of the agency scales consistent over time and across student subgroups?
- Are there significant subgroup differences in measures of student agency?
- How does student agency change during the school year?
- Do changes in student agency during the school year differ between subgroups of students?

### How well do student survey questions measure student agency?

#### Key Findings

- For measures of future orientation, locus of control, and metacognitive self-regulation, measurement of the scales improved after removing one or two items. The rest of the measures of student agency had effective measurement properties within the study sample.
- The measure of perseverance of interest did not relate strongly with other components of student agency, which is likely due in part to the way in which survey questions were worded.

To examine change in survey measures over time and compare levels of student agency across student subgroups, it was necessary to examine the measurement properties of the student agency scales. First, we performed confirmatory factor analyses (CFAs) to ensure that the survey questions accurately measured intended constructs of student agency (e.g., self-efficacy) among the students in our study. Results of these analyses indicated that, for measures of future orientation, locus of control, and metacognitive self-regulation, measurement of the scales improved after removing one or two items. The rest of the measures of student agency had effective measurement properties within the study sample. See the technical appendix for more details.

After calculating scale scores by averaging survey responses across relevant survey items for each of the measures of student agency, we examined interrelationships between the different measures of student agency. The correlation matrix for these measures is provided in Table 7. The eight measures are all intended to measure underlying components of student agency, so it is expected that the measures will be positively correlated with each other. As shown in Table 7, the measure of perseverance of interest did not relate strongly with other components of student agency. It is likely that this was at least partly due to the way in which survey questions were worded. Although survey questions associated with other measures of student agency were positively worded, with positive responses indicating a higher level of student agency, questions related to perseverance of interest were negatively worded. The research team reverse-coded the perseverance of interest measure, so that higher values indicate a higher level of student agency, but it appears that the wording of the survey questions led to systematic differences in patterns of student responses.

**Table 7. Correlations Between Measures of Student Agency**

Measure	SE	PI	PE	LC	MO	MSR	SRL	FO
Self-efficacy (SE)	1							
Perseverance of interest (PI)	0.01	1						
Perseverance of effort (PE)	0.69	-0.04	1					
Locus of control (LC)	0.60	-0.13	0.62	1				
Mastery orientation (MO)	0.58	-0.05	0.59	0.54	1			
Metacognitive self-regulation (MSR)	0.64	-0.07	0.61	0.61	0.70	1		
Self-regulated learning (SRL)	0.68	0.08	0.62	0.58	0.66	0.73	1	
Future orientation (FO)	0.51	-0.02	0.45	0.45	0.60	0.56	0.62	1

### Were the measurement properties of the agency scales consistent over time and across the student subgroups?

#### Key Findings

- Between five and eight of the student agency measures worked equally well across subgroups of students, with the largest number of issues observed by gender and socioeconomic status (SES) level.
- The analysis suggests there are only a few instances where student agency constructs did not work equally well across student subgroups.

In addition to examining the overall measurement properties of the student agency constructs, it was necessary to determine whether the measurement properties were consistent over time and across various subgroups of students (e.g., across subject areas, demographic traits, grade levels). Results of these analyses confirmed that the ways in which survey responses related to one another within student agency measures did not differ across survey administrations, allowing us to examine change in levels of student agency from fall to spring.<sup>9</sup>

Across the student agency measures, we did not observe a consistent pattern of differing measurement properties across multiple subgroups of students. However, we found a few instances where the measurement properties of student agency measures were not equal across different student subgroups (please see the Technical Appendix for detailed findings):

- **Subject area.** Measures of locus of control and self-regulated learning did not work equally well across academic subjects. Specifically, one survey item was not as strongly related to the locus of control construct for English language arts (ELA) and social studies classes as it was for other classes, and another survey item was not as strongly related to the locus of control construct in mathematics or social studies as it was for other classes. In addition, two survey items were not as strongly related to the self-regulated learning construct in ELA or interdisciplinary classes as they were for other classes. Overall, however, the majority of survey items worked equally well across subject areas for both constructs.

<sup>9</sup> The research team did find evidence that survey items related to future orientation may have been interpreted differently by students in the fall and the spring. Please see the technical appendix for detailed findings.

- **Grade level.** The measure of locus of control did not work equally well across grade levels. In particular, two survey items were not as strongly related to the locus of control construct for Grade 9 students as they were for students in higher grade levels, while two survey items were not as strongly related to the locus of control construct for Grade 10 students as they were for Grade 9 students. Because the majority of the locus of control survey items did not work equally well across grade levels, we would not recommend comparing levels of locus of control by grade level.
- **Race/ethnicity.** Measures of perseverance of interest and mastery orientation did not work equally well for White and non-White students. In particular, most of the survey items were not as strongly related to the perseverance of interest construct for White students as they were for non-White students, suggesting that we should not compare levels of perseverance of interest across racial/ethnic groups. In addition, results suggest that some of the survey items associated with mastery orientation were not interpreted similarly by White and non-White students, making comparisons across racial/ethnic groups problematic.
- **Gender.** Measures of perseverance of interest, locus of control, and future orientation did not work equally well for male and female students. Results suggest that some of the survey items associated with these constructs were not similarly interpreted by male and female students, making comparisons by gender problematic.
- **SES.** Measures of perseverance of effort, locus of control, and metacognitive self-regulation did not work equally well for higher SES students (who reported having 100 or more books in their homes) and lower SES students. Results suggest that some of the survey items associated with these constructs were not similarly interpreted by higher SES students and lower SES students, making comparisons by SES problematic.

Overall, these findings show that between five and eight of the student agency measures worked equally well across subgroups of students, with the largest number of issues observed by gender and SES (with three problematic student agency measures within each of these subgroup comparisons). Therefore, it is only in the minority of instances where student agency constructs did not work equally well across student subgroups that we should use caution when interpreting subgroup differences in levels of and changes in student agency over time. For all other instances that were not found to be problematic, comparisons can be made across student subgroups.

### Are there significant subgroup differences in measures of student agency?

#### Key Findings

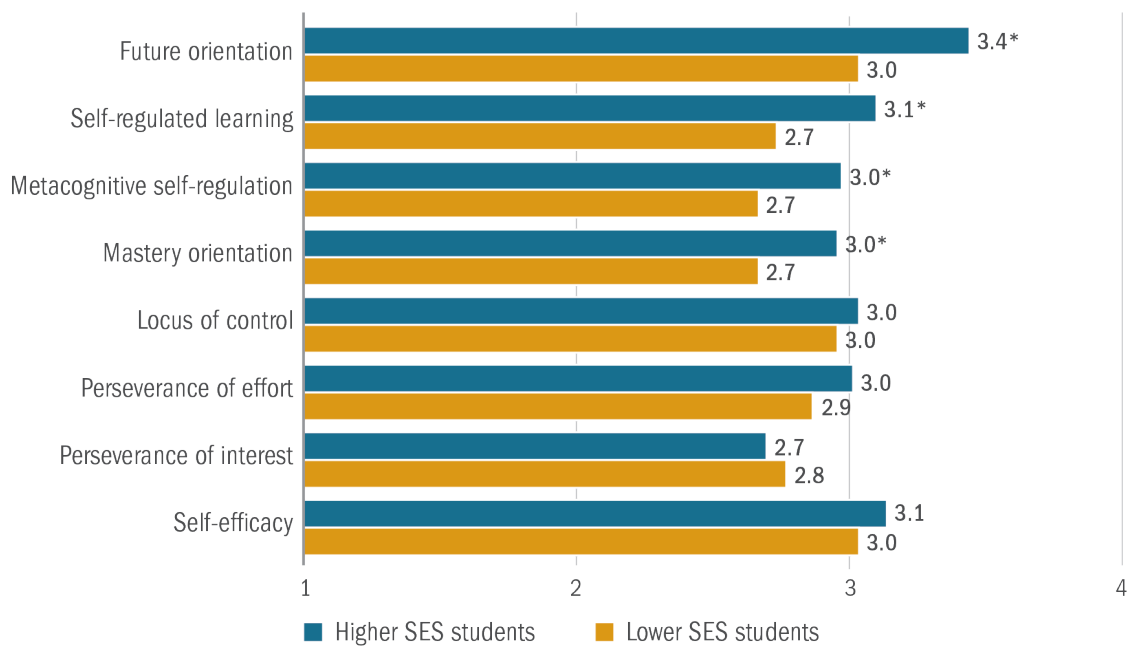
- Findings from the fall and spring reveal somewhat different patterns of subgroup differences, likely due to the smaller number of survey respondents in the fall.
- The fall survey results found subgroup differences by SES and subject area, while the spring survey results found subgroup differences by EL status and SES.



The study team examined whether levels of student agency measures in the fall and spring significantly differed across student subgroups defined by grade level, subject area, gender, race/ethnicity, EL status, and SES. Findings from the fall and spring reveal somewhat different patterns of subgroup differences. While the figures below illustrate significant subgroup gaps in student agency, detailed tables of all regression results are provided in the technical appendix.

**Fall survey data.** Among the 175 students who responded to the fall survey and provided demographic information, we found subgroup differences by SES and subject area. Students from higher SES families (defined as having at least 100 books in their homes) reported significantly higher levels of mastery orientation, metacognitive self-regulation, self-regulated learning skills, and future orientation relative to lower SES students (see Exhibit 6).<sup>10</sup> In addition, we observed subject area differences in reported levels of perseverance of interest and self-regulated learning (with higher reports in science relative to social studies); locus of control, mastery orientation, metacognitive self-regulation, future orientation (with higher reports in ELA relative to social studies); and perseverance of effort (with higher reports in ELA and science relative to social studies; see Exhibit 7).<sup>11</sup>

**Exhibit 6. Differences in Student Agency in Fall 2017 by Socioeconomic Status (SES)**

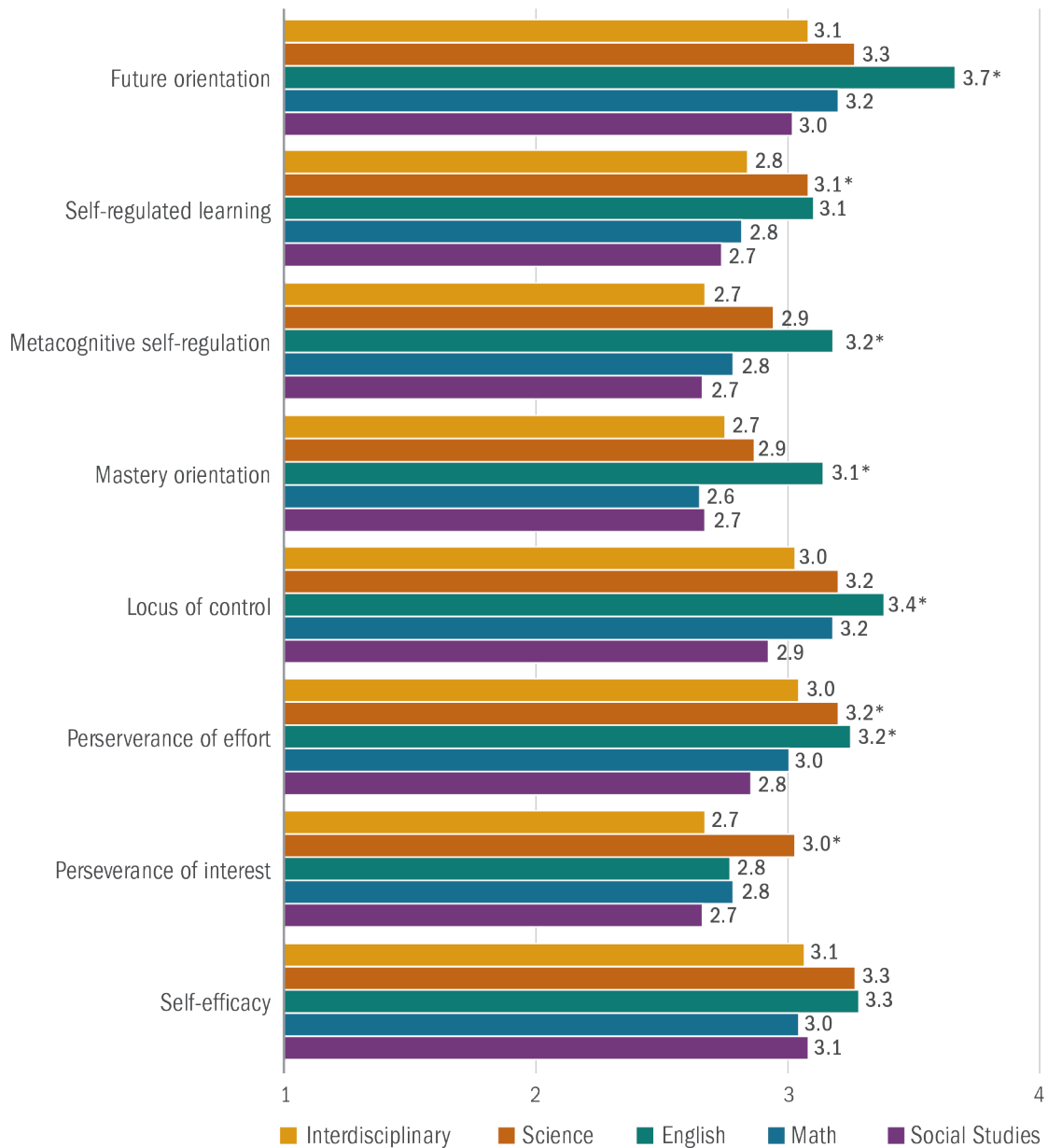


\* Indicates that difference between higher SES and lower SES students is statistically significant at the .05 confidence level.

<sup>10</sup> Differences in metacognitive self-regulation by SES should be interpreted with caution because results of statistical tests suggest that survey items may have been interpreted differently by higher SES and lower SES students (see the technical appendix for more details).

<sup>11</sup> Differences in locus of control and self-regulated learning by subject area should be interpreted with caution because two survey items from each scale did not work equally well across subject areas (see the technical appendix for more details).

**Exhibit 7. Differences in Student Agency in Fall 2017 by Subject Area**

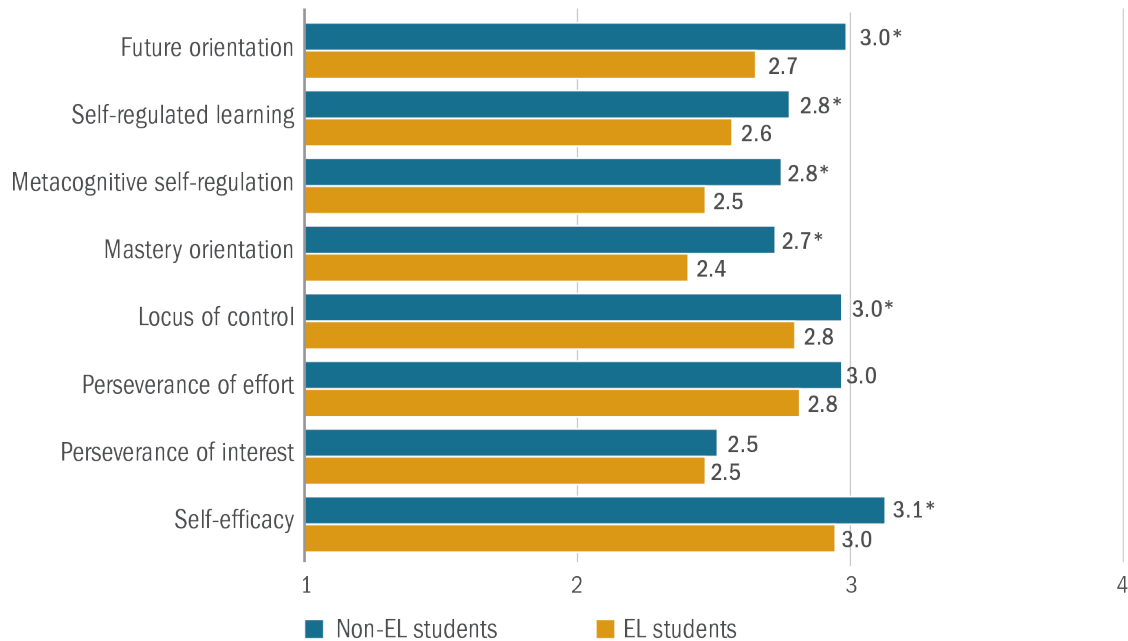


\* Indicates that value is significantly higher than the value for social studies, the reference category, at the .05 confidence level.

**Spring survey data.** Among the 354 students who responded to the spring survey and provided demographic data, we found subgroup differences by EL status and SES. First, EL students reported lower levels of self-efficacy, locus of control, mastery orientation, metacognitive self-regulation, self-regulated learning, and future orientation than non-EL students (see Exhibit 8). In addition, students with higher levels of SES reported higher levels of self-efficacy, perseverance

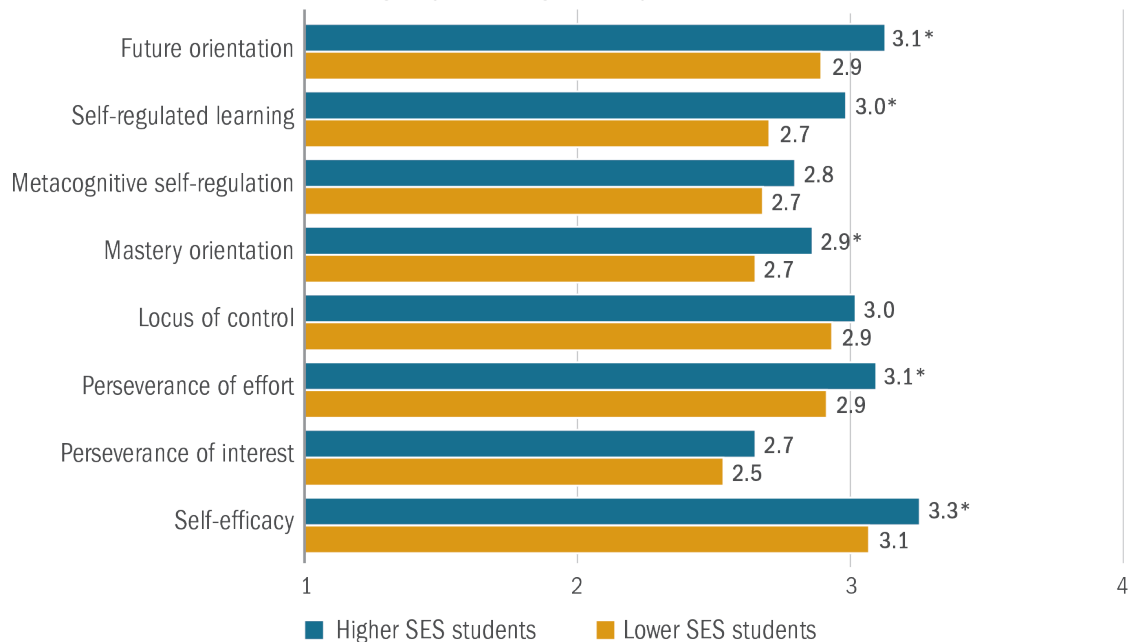
of effort, mastery orientation, self-regulated learning, and future orientation relative to lower SES peers (see Exhibit 9).<sup>12</sup>

**Exhibit 8. Differences in Student Agency in Spring 2018 by EL Status**



\* Indicates that difference between EL students and non-EL students is statistically significant at the .05 confidence level.

**Exhibit 9. Differences in Student Agency in Spring 2018 by SES**



\* Indicates that difference between higher SES and lower SES students is statistically significant at the .05 confidence level.

<sup>12</sup> Differences in perseverance of effort by SES should be interpreted with caution because results of statistical tests suggest that survey items may have been interpreted differently by higher SES and lower SES students (see the technical appendix for more details).

These findings show a consistent SES advantage in reports of student agency across the fall and spring survey administrations. In contrast, we did not observe consistent gaps in student agency by race/ethnicity, gender, or grade level in either the fall or the spring. It is possible that discrepancies between survey administrations (e.g., consistent differences by EL status observed in the spring survey data but not the fall survey data) are due to the smaller number of survey respondents in the fall.

### How does student agency change during the school year?

Key Findings	
■	Student-level measures of student agency did not significantly change during the school year, with two exceptions: levels of perseverance of interest significantly declined from the fall to the spring, while levels of metacognitive self-regulation significantly increased over time.

To examine changes in measures of student agency during the school year, we administered surveys to 132 students in both fall 2017 and spring 2018. We calculated changes in student agency measures by subtracting students' fall values of student agency measures from their spring values. Our results revealed that student-level measures of student agency did not significantly change during the school year with two exceptions: levels of perseverance of interest significantly declined from the fall to the spring, while levels of metacognitive self-regulation significantly increased over time (see Table 8).

**Table 8. Changes in Measures of Student Agency From Fall 2017 to Spring 2018**

Construct	Change Over Time	Standard Error	p-value
Self-efficacy	0.072	0.045	0.107
Perseverance of interest	-0.216	0.105	0.039
Perseverance of effort	0.051	0.087	0.555
Locus of control	-0.022	0.053	0.669
Mastery orientation	0.091	0.108	0.397
Metacognitive self-regulation	0.133	0.059	0.025
Self-regulated learning	0.035	0.066	0.589
Future orientation	-0.051	0.055	0.361

NIC teachers shared anecdotal evidence of changes they perceived in student agency. During the spring 2018 focus groups, teachers were asked to reflect on the year and share examples of emerging or developing student agency<sup>13</sup> over the course of the year. Teachers from all four schools commented that students appeared to improve at seeking support in ways that were aligned with the goals of agency development. Teachers noted that students asked for feedback with the intention to improve drafts and recognized that seeking support is “a practice of highly

<sup>13</sup> The participants tended to talk about specific skill development and demonstration of agency simultaneously.

successful students” instead of a sign of lower ability. Teachers observed students exhibiting self-reliance in seeking resources and supports independently, and asking each other for help before turning to the teacher for support. Teachers in three schools noted that students use the feedback built into the class design to genuinely learn from mistakes and to master the content instead of turning in work to consider it “done.” While not an overall theme across the focus groups, individual teachers provided examples of student skill development that included increases in student confidence, collaboration with peers, communication, and time management.

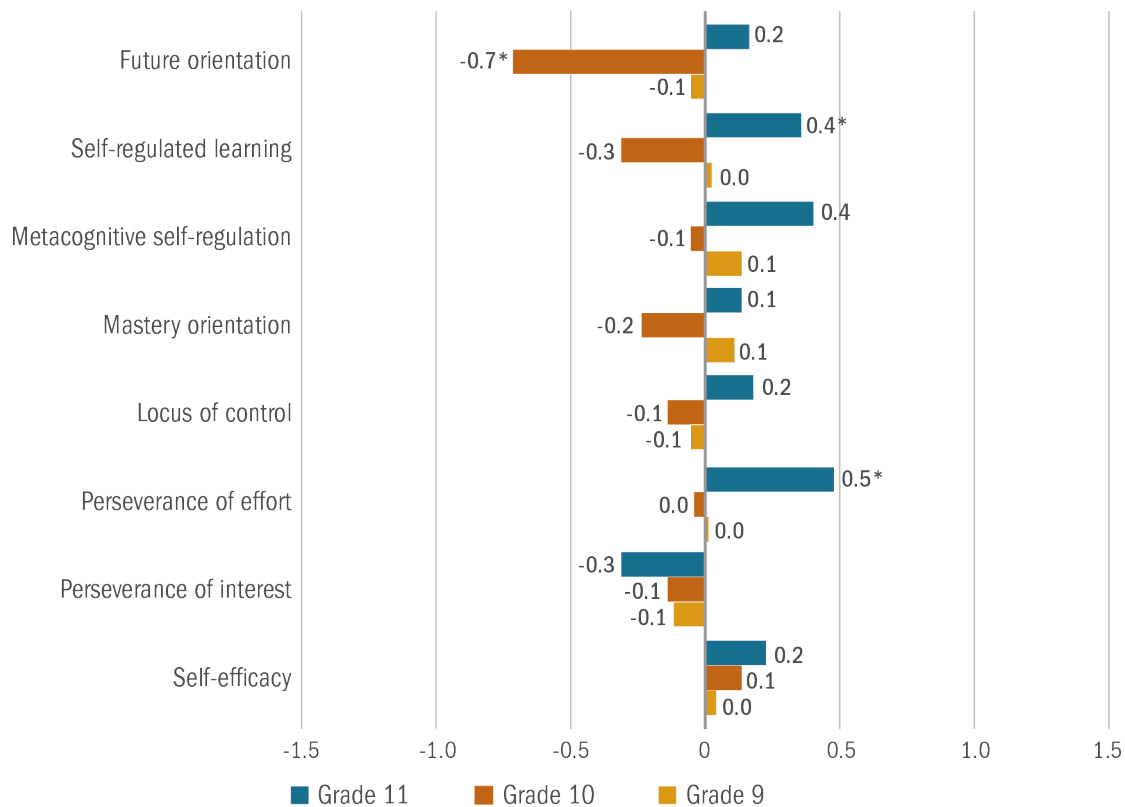
### Do changes in student agency during the school year differ between subgroups of students?

#### Key Findings

- With the exception of grade level, the study team did not observe consistent patterns in subgroup differences in changes in measures of student agency during the school year.
- Grade 11 students experienced greater increases in persistence of effort and self-regulated learning than Grade 9 students, and Grade 10 students experienced significantly larger decreases in future orientation than Grade 9 students, during the school year.
- Because fall levels of student agency measures did not significantly differ by grade level, these findings suggest that rates of change in student agency measures may not be consistent across grade levels.

In addition to estimating changes in student agency among all students in the sample, within the sample of 132 students who took both the fall and spring survey, we examined whether changes during the school year significantly differed for different subgroups of students. With the exception of grade level, we did not observe consistent patterns in subgroup differences in changes in measures of student agency during the school year. We found that Grade 11 students experienced greater increases in persistence of effort and self-regulated learning than Grade 9 students, and that Grade 10 students experienced significantly larger decreases in future orientation than Grade 9 students, during the school year (see Exhibit 10). Because fall levels of student agency measures did not significantly differ by grade level, these findings suggest that rates of change in student agency measures may not be consistent across grade levels.

**Exhibit 10. Changes in Student Agency Measures Between Fall 2017 and Spring 2018, by Grade Level**



\* Indicates that value is significantly higher than the value for Grade 9 students, the reference category, at the .05 confidence level.

In addition, we found a few instances, as follows, where changes over time significantly differed between student subgroups for one or two of the student agency measures. Detailed results for all analyses can be found in the technical appendix.

- **Subject area.** Students experienced smaller increases in future orientation during the school year in ELA and science classes than in social studies courses (the reference category), though this may be due in part to the fact that fall levels of future orientation were significantly higher for students reporting on these classes. Also, students experienced greater decreases in self-efficacy during the school year in mathematics than in social studies courses, despite the fact that we did not observe differences in fall levels of self-efficacy by subject area.
- **Gender.** Female students experienced smaller increases in perseverance of effort during the school year relative to male students, despite the fact that we did not observe gender differences in fall measures of perseverance of effort.
- **EL status.** Increases in metacognitive self-regulation were significantly smaller for EL students relative to non-EL students even though fall levels of metacognitive self-regulation did not significantly differ by EL status.

# Conclusion

## Teacher Practices that Support Development of Student Agency

The teachers who volunteered to participate in the NIC brought with them varying perspectives on what it means to promote student agency. These perspectives seemed to influence the expectations they set and opportunities they created for their students to demonstrate agency in their classrooms. The NIC created an opportunity for teachers and researchers to learn from this variation in teacher perspectives.

Through engaging in a networked improvement community, teachers built their capacity to articulate their practices so that others might replicate them, predict which short- and long-term outcomes would improve as a result of the change idea, and map out data sources to measure those outcomes. This exercise was difficult for many, but through scaffolded conversations with the AIR team, the NIC participants learned how to be more purposeful in making connections between their instructional changes and desired student behaviors.

The networked improvement approach allowed teachers to develop their own formative measures to track the results associated with those instructional changes. They learned how to look at data and decide whether the formative measures were gathering the types of information they were most interested in learning about. They were then able to share change ideas and challenges with one another through the NIC convenings.

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“ When it comes to implementing a change idea, I was really excited at the way that we were able to start as a group and come up with a broad range of ideas, work with other schools and see what their thoughts were and then decide as a team if we wanted to all do the same change idea.... I felt like everybody got on board...we had set times, we knew every two weeks we were going to get back together and review things. ”

– NIC Teacher

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## Use of Student Agency Measures

This study raises a number of implications as researchers and practitioners work to measure student agency and identify instructional practices that are effective in promoting student agency. First, we found that current survey measures of student agency did not always perform equally well across student subgroups (e.g., by subject area or SES), so we caution their use across educational contexts. Researchers and practitioners should take the time to investigate whether the measures they intend to use are interpreted similarly by different subgroups of students.

Second, with the exceptions of perseverance of interest and metacognitive self-regulation, we did not see significant changes in student agency over time using current survey measures. In fact, observed declines in perseverance of interest between the fall and spring may be due to the fact that the spring survey was administered at the end of the school year, when students were eager to start their summer vacations. In addition, in focus groups, NTN teachers mentioned “survey fatigue” when discussing the spring 2018 survey administration. Researchers and practitioners should consider this inability to capture short-term changes in student agency, the timing of data collection, and implications of survey fatigue when selecting measures for future studies. One possible solution is using an improvement science approach which would allow for multiple checks over time using multiple, practical measures within the classroom, which may result in the collection of more actionable data on student agency.

Third, we found that the measure of perseverance of interest did not relate strongly with other components of student agency, likely due in part to the way in which survey questions were worded. Although survey questions associated with other measures of student agency were worded, with positive responses indicating a higher level of student agency, questions related to perseverance of interest were negatively worded. In the future, researchers and practitioners should consider rewording all questions within a student agency survey to have a common direction.



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# Appendix A. Menu of Teacher Practices



## Menu of Teacher Practices on Student Agency

In April 2017, approximately 40 teachers from four New Tech Network (NTN) high schools participated in a series of focus groups designed to collect information on the practices they used to build student agency among their students. The data collected from the focus groups were utilized to develop the Menu of Teacher Practices on Student Agency.

Three categories provide the organizational framework for the menu: 1. Student Opportunities, 2. Student-Teacher Collaboration, and 3. Teacher-Led Approaches.

The menu includes brief descriptions of 17 teacher practices that fall within each of these three categories, and key elements that teachers identified as being part of each practice.

### Menu of Teacher Practices on Student Agency



#### Student Opportunities

**Choice.** Teachers provide students with opportunities to make choices about the content and process of their work.

**Group Work.** Teachers provide students with opportunities to work in groups to learn and practice agency necessary for group success.

**Harnessing Outside Opportunities.** Teachers provide students with opportunities to demonstrate agency outside the classroom and make connections between outside agency and its application in the classroom.

**Revision.** Teachers provide students with opportunities to revise assignments or tests after they have received feedback.

**Student Self-Reflection.** Teachers provide students with opportunities to self-reflect using journals, logs, or other structured templates or tools.

**Student-Led Instruction.** Teachers provide students with opportunities to demonstrate agency by leading instruction on a particular skill or concept.



#### Student-Teacher Collaboration

**Developing Relationships.** Teachers develop personal relationships with students to better understand their agency strengths, needs, and motivators.

**Feedback.** Teachers provide students with feedback and scaffold the process of students asking for feedback.

**Goal Setting.** Teachers help students set goals to complete coursework while improving agency.

**Individual Conferences.** Teachers hold one-on-one meetings with students to discuss elements of student agency and its relationship to academic work.

**Student Voice.** Teachers provide students with opportunities to contribute to and provide feedback on key decisions in the classroom.



#### Teacher-Led Approaches

**Assessment.** Teachers design formative and summative assessments to evaluate student agency and/or to provide students with extrinsic motivation to build agency.

**Direct Instruction.** Teachers provide explicit instruction to develop skills related to student agency.

**Modeling.** Teachers model agency to demonstrate it to students in a meaningful context.

**Positive Reinforcement.** Teachers provide positive reinforcement for demonstration of agency.

**Scaffolding.** Teachers provide students with tools, strategies, and resources to help scaffold students toward mastery of agency.

**Verbal Cues.** Teachers provide brief spoken prompts in real time to highlight or remind students of behaviors that demonstrate agency.

The Menu of Teacher Practices on Student Agency was produced with support from Jobs for the Future's Student-Centered Learning Research Collaborative and its funders. It was designed to be a living document that will continue to be revised as teachers pilot new practices and refine existing practices relevant to building student agency.

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**CHOICE:** Teachers provide students with opportunities to make choices about the content and process of their work.

### Key Elements of Choice

**Choice of Content:** Students have the opportunity to choose a topic or content area that builds personal relevance.

**Choice of Method:** Students have the opportunity to choose an approach to meeting the requirements of an assignment.

**Choice of Skill:** Students have the opportunity to choose their role in a group, the skills they are seeking to develop, and/or extra supports for skills that they find challenging.

**Choice of Engagement:** Students have the opportunity to choose their level of participation and engagement in a task.

**GROUP WORK:** Teachers provide students with opportunities to work in groups to learn and practice agency necessary for group success.

### Key Elements of Group Work

**Clear Roles and Responsibilities:** Teachers facilitate group success by working with students to clearly define each group member's roles and responsibilities.

**Clear Expectations:** Teachers work with group members to establish goals and benchmarks so that all group members have a common understanding of the task.

**Assessment:** Teachers assess elements of group work, such as communication and collaboration, often incorporating a dimension of self-reflection and peer feedback.

**HARNESSING OUTSIDE OPPORTUNITIES:** Teachers provide students with opportunities to demonstrate agency outside the classroom and make connections between outside agency and its application in the classroom.

### Key Elements of Harnessing Outside Opportunities

**Embedding Personal Relevance:** Teachers provide students with opportunities to work on projects that are personally meaningful and foster conditions for students to demonstrate agency.

**Making Connections:** Teachers illustrate connections between student actions and the extent to which they demonstrate agency.

**REVISION:** Teachers provide students with opportunities to revise assignments or tests after they have received feedback.

### Key Elements of Revision

**Providing Opportunities to Revise Before Grading:** Teachers embed the revision process into their project timeline, providing students with feedback and an opportunity to revise before grades are provided.

**Providing Opportunities to Revise After Grading:** Teachers provide students with the option to revise and resubmit an assignment or test if they are not satisfied with the grade they receive.

**Providing Student-Led Opportunities to Revise:** Teachers provide students with opportunities to collect feedback and make revisions if they choose to do so.

**STUDENT SELF-REFLECTION:** Teachers provide students with opportunities to self-reflect using journals, logs, or other structured templates or tools.

### Key Elements of Student Self-Reflection

**Regular Self-Reflection on Coursework:** Teachers provide opportunities for students to reflect on their coursework each day, identify challenges, and plan for next steps.

**Self-Reflection on Student Agency:** Teachers provide opportunities for students to explicitly reflect on their own student agency skills.

**Self-Reflection on Summative Performance:** Teachers provide opportunities for students to reflect after a project has been completed or on test performance or grades.

**Tying Self-Reflection to Evidence:** Teachers require students to support their self-reflection with evidence, such as coursework or concrete examples.

**STUDENT-LED INSTRUCTION:** Teachers provide students with opportunities to demonstrate agency by leading instruction on a particular skill or concept.

### Key Elements of Student-Led Instruction

**Student-Led Instruction on Content:** Teachers provide students with opportunities to teach concepts or skills that are necessary to master as part of an academic course.

**Student-Led Instruction on Agency Skills:** Teachers provide students with opportunities to teach agency skills that help foster student success on group or project work.

The Menu of Teacher Practices on Student Agency was produced with support from Jobs for the Future's Student-Centered Learning Research Collaborative and its funders.

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**DEVELOPING RELATIONSHIPS:** Teachers develop personal relationships with students to better understand their agency strengths, needs, and motivators.

### Key Elements of Developing Relationships

**Showing Commitment:** Teachers follow through on commitments to students and show persistence in following up with students if they do not follow through on their commitments.

**Showing Empathy:** Teachers make an effort to understand students' circumstances when challenges arise and to help them think about how to overcome those circumstances or better prepare to face them next time.

**Showing Collaboration:** Teachers harness their colleagues' relationships with students when they have not yet established a relationship of their own or have trouble making the connection.

**FEEDBACK:** Teachers provide students with feedback and scaffold the process of students asking for feedback.

### Key Elements of Feedback

**Direct Feedback:** Teachers give students feedback to help improve particular projects and skills and to help students understand that feedback should be seen as an opportunity for growth rather than failure.

**Providing Opportunities to Ask for Feedback:** Teachers scaffold the process of asking for feedback to ensure that students ask for feedback throughout the process rather than only when the teacher requires it.

**Providing Opportunities for Peer Feedback:** Teachers scaffold the process of students working with peers to provide feedback as well as the process of students asking their peers for help before going to the teacher.

**GOAL SETTING:** Teachers help students set goals to complete coursework while improving agency.

### Key Elements of Goal Setting

**Coursework Goals:** Teachers work with students to set goals for project work so that students have benchmarks to guide themselves through a self-directed process of project completion.

**Agency Goals:** Teachers work with students to identify challenges they face due to gaps in agency skills and help students develop plans for improving those challenges.

**INDIVIDUAL CONFERENCES:** Teachers hold one-on-one meetings with students to discuss elements of student agency and its relationship to academic work.

### Key Elements of Individual Conferences

**Individual Conferences:** Teachers may meet with students prior to beginning a project, during a project's implementation, or as a debrief after the fact to help students set goals for agency skills, problem-solve when agency is lacking, or reflect on agency strengths and challenges that they have demonstrated.

**STUDENT VOICE:** Teachers provide students with opportunities to contribute to and provide feedback on key decisions in the classroom.

### Key Elements of Student Voice

**Selection of Resources:** Teachers work with students to select resources that best meet their needs.

**Student Feedback:** Teachers solicit student feedback and make changes to instruction or project parameters based on the feedback they receive.

The Menu of Teacher Practices on Student Agency was produced with support from Jobs for the Future's Student-Centered Learning Research Collaborative and its funders.

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**ASSESSMENT:** Teachers design formative and summative assessments to evaluate student agency and/or to provide students with extrinsic motivation to build agency.

### Key Elements of Assessment

**Assessment Content:** Assessments may be designed to explicitly measure student agency or may be broader assessments that require student agency to successfully complete.

**Assessment Data:** Assessment data may include teacher observation, student self-reflection, and/or simple metrics, such as attendance or turning in homework.

**Sharing Assessment Results:** Assessment results can be shared with students to help build agency dimensions, such as motivation.

**Student Design:** Students can build agency by helping to design assessments of themselves and others.

**DIRECT INSTRUCTION:** Teachers provide explicit instruction to develop skills related to student agency.

### Key Elements of Direct Instruction

**Mini Lesson:** Teachers provide a whole-class lesson on a component of student agency.

**Small-Group Instruction:** Teachers provide small-group instruction on components of student agency for which the group has a need.

**One-on-One Instruction:** Teachers provide individual instruction on a component of student agency to address an immediate need.

**MODELING:** Teachers model agency to demonstrate it to students in a meaningful context.

### Key Elements of Modeling

**Deliberate Modeling:** Teachers integrate opportunities for modeling into their lesson plans as a means of demonstrating agency to students.

**Modeling as Part of Teachable Moments:** Teachers model agency as situations arise that call upon them to exercise specific skills related to agency.

**POSITIVE REINFORCEMENT:** Teachers provide positive reinforcement for demonstration of agency.

### Key Elements of Positive Reinforcement

**Verbal Praise:** Teachers provide real-time verbal praise for demonstration of student agency.

**Celebrations and Rewards:** Teachers set up larger celebrations or rewards focused on providing positive reinforcement for student agency.

**Celebrating Failure:** Teachers celebrate students who get things wrong to highlight that failure is an essential part of the learning process and overcoming failure is a key element of student agency.

**Letting Students Self-Reinforce:** Teachers help students establish systems that they can use to provide positive reinforcement to themselves.

**SCAFFOLDING:** Teachers provide students with tools, strategies, and resources to help scaffold students toward mastery of agency.

### Key Elements of Scaffolding

**Scaffolding Student Use of Time:** Teachers provide parameters, tools, and strategies to help students accomplish a set of tasks in a predetermined length of time.

**Scaffolding Organization:** Teachers provide tools such as agendas, logs, binders, and access to online platforms to help students keep track of assignments and make plans for completing all required work.

**Scaffolding Student Use of Resources:** Teachers provide students with parameters and techniques to help them rely on a wide range of resources beyond asking the teacher for help.

**Scaffolding Group Interactions:** Teachers provide students with strategies and tools to facilitate productive group work experiences.

**Scaffolding Problem Solving:** Teachers provide students with strategies and resources to solve problems on their own when challenges arise.

**Scaffolding Overcoming Failure:** Teachers provide students with strategies for and experience with overcoming failure and working toward success.

**VERBAL CUES:** Teachers provide brief spoken prompts in real time to highlight or remind students of behaviors that demonstrate agency.

### Key Elements of Verbal Cues

**Reminders:** Teachers provide students with brief, subtle reminders to demonstrate agency by reminding students of the desired behavior or praising students who are on track.

**Questions:** Teachers ask students questions to lead them to necessary agency skills while also giving them ownership over the process.

**Explicit Links:** Teachers make connections between the behaviors and skills they see and how they relate back to agency.

The Menu of Teacher Practices on Student Agency was produced with support from Jobs for the Future's Student-Centered Learning Research Collaborative and its funders.

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## Appendix B. Plan-Do-Study-Act Cycle Data

### School A

**Change idea:** Administer a student self-reflection at the end of each week to measure mastery and resources used.

**Table B-1. School A Weekly Survey Respondents**

Week	Date	Freshman Respondents	Sophomore Respondents	Junior Respondents	Senior Respondents	Total Respondents
1	2/23	49	100	38	56	243
2	3/2	45	100	6	0	151
3	3/9	25	103	0	48	176
4	3/16	34	101	15	30	180
5	3/23	2	49	0	5	56
6	3/29	28	99	0	38	165
7	4/13	52	177	34	53	316
8	4/20	63	160	53	54	330
9	4/27	44	132	55	14	245
10	5/4	73	153	27	55	308
11	5/11	61	138	62	38	299
12	5/18	24	50	0	0	74

**Table B-2. School A Weekly Survey Responses (Weeks 1–6)**

	Week 1 Feb 23 (n=243)		Week 2 March 2 (n=151)		Week 3 March 9 (n=176)		Week 4 March 16 (n=180)		Week 5 March 23 (n=56)		Week 6 March 29 (n=165)	
	n	%	n	%	n	%	n	%	n	%	n	%
In the past week, I...												
Asked a classmate for help on a concept that I didn't understand.	179	73.7	76	50.3	119	67.6	124	68.9	32	57.1	112	67.9
Asked for a workshop on a concept that I didn't understand.	28	11.5	21	13.9	21	11.9	21	11.7	6	10.7	19	11.5

	Week 1 Feb 23 (n=243)		Week 2 March 2 (n=151)		Week 3 March 9 (n=176)		Week 4 March 16 (n=180)		Week 5 March 23 (n=56)		Week 6 March 29 (n=165)	
	n	%	n	%	n	%	n	%	n	%	n	%
Attended a mandatory workshop (a facilitator made me go).	41	16.9	25	16.6	33	18.8	32	17.8	4	7.1	26	15.8
Attended a voluntary workshop (I went without being forced).	45	18.5	28	18.5	38	21.6	27	15.0	4	7.1	26	15.8
Ran a workshop for students who needed help on a concept that I understand.	12	4.9	11	7.3	13	7.4	5	2.8	1	1.8	9	5.5
Asked a facilitator for individual help on a concept that I didn't understand.	129	53.1	64	42.4	82	46.6	83	46.1	24	42.9	84	50.9
<b>What supports did we use this past week that helped my learning?</b>												
Conducting research.	78	32.1	32	21.2	28	15.9	36	20.0	0	0.0	26	15.8
Doing an activity/hands-on assignment.	101	41.6	44	29.1	65	36.9	57	31.7	21	37.5	54	32.7
A student led workshop.	21	8.6	17	11.3	17	9.7	14	7.8	0	0.0	9	5.5
Watching a video.	81	33.3	47	31.1	53	30.1	76	42.2	2	3.6	49	29.7
A whole-class workshop.	89	36.6	51	33.8	63	35.8	52	28.9	22	39.3	58	35.2
Reading an article.	74	30.5	43	28.5	45	25.6	46	25.6	0	0.0	40	24.2
A small group.	61	25.1	41	27.2	39	22.2	41	22.8	9	16.1	41	24.8
A facilitator-led workshop.	61	25.1	41	27.2	39	22.2	41	22.8	9	16.1	41	24.8
A practice day.	2	0.8	18	11.9	33	18.8	27	15.0	32	57.1	32	19.4

	Week 1 Feb 23 (n=243)		Week 2 March 2 (n=151)		Week 3 March 9 (n=176)		Week 4 March 16 (n=180)		Week 5 March 23 (n=56)		Week 6 March 29 (n=165)	
	n	%	n	%	n	%	n	%	n	%	n	%
How valuable did you find workshops in supporting your learning during this past week?												
1	21	8.6	17	11.3	10	5.7	18	10.0	4	7.1	16	9.7
2	28	11.5	14	9.3	15	8.5	14	7.8	9	16.1	16	9.7
3	88	36.2	59	39.1	56	31.8	64	35.6	17	30.4	61	37.0
4	74	30.5	37	24.5	66	37.5	57	31.7	13	23.2	46	27.9
5	32	13.2	24	15.9	29	16.5	27	15.0	13	23.2	26	15.8
How well did you do at advocating for your learning needs this week?												
1	9	3.7	10	6.6	3	1.7	6	3.3	4	7.1	8	4.8
2	16	6.6	8	5.3	14	8.0	11	6.1	3	5.4	13	7.9
3	107	44.0	55	36.4	62	35.2	81	45.0	17	30.4	63	38.2
4	79	32.5	54	35.8	61	34.7	57	31.7	17	30.4	53	32.1
5	31	13.2	24	15.9	36	20.5	25	13.9	15	26.8	28	17.0
When it comes to the concepts learned in the past week, I feel like I am...												
proficient.	66	27.2	59	39.1	68	38.6	54	30.0	20	35.7	79	48.2
still working on becoming proficient.	145	59.7	78	51.7	88	50.0	109	60.6	27	48.2	76	46.3
struggling to become proficient.	32	13.2	14	9.3	20	11.4	17	9.4	9	16.1	9	5.5

**Table B-3. School A Weekly Survey Responses (Weeks 7–12)**

	Week 7 April 13 (n=316)		Week 8 April 20 (n=330)		Week 9 April 27 (n=245)		Week 10 May 4 (n=308)		Week 11 May 11 (n=299)		Week 12 May 18 (n=74)	
	n	%	n	%	n	%	n	%	n	%	n	%
In the past week, I...												
Asked a classmate for help on a concept that I didn't understand.	213	67.4	226	68.5	158	64.5	207	67.2	199	66.6	56	75.7
Asked for a workshop on a concept that I didn't understand.	39	12.3	37	11.2	33	13.5	31	10.1	40	13.4	3	4.1



	Week 7 April 13 (n=316)		Week 8 April 20 (n=330)		Week 9 April 27 (n=245)		Week 10 May 4 (n=308)		Week 11 May 11 (n=299)		Week 12 May 18 (n=74)	
	n	%	n	%	n	%	n	%	n	%	n	%
Attended a mandatory workshop (a facilitator made me go).	53	16.8	66	20.0	58	23.7	77	25.0	88	29.4	16	21.6
Attended a voluntary workshop (I went without being forced).	46	14.6	58	17.6	30	12.2	48	15.6	52	17.4	7	9.5
Ran a workshop for students who needed help on a concept that I understand.	6	1.9	19	5.8	10	4.1	10	3.2	10	3.3	2	2.7
Asked a facilitator for individual help on a concept that I didn't understand.	152	48.1	165	50.0	118	48.2	160	51.9	147	49.2	34	45.9
<b>What supports did we use this past week that helped my learning?</b>												
Conducting research.	73	23.1	75	22.7	59	24.1	56	18.2	85	28.4	15	20.3
Doing an activity/hands-on assignment.	126	39.9	107	32.4	100	40.8	115	37.3	112	37.5	31	41.9
A student-led workshop.	13	4.1	37	11.2	11	4.5	11	3.6	11	3.7	3	4.1
Watching a video.	121	38.3	131	39.7	55	22.4	107	34.7	92	30.8	15	20.3
A whole-class workshop.	109	34.5	127	38.5	93	38.0	111	36.0	125	41.8	21	28.4
Reading an article.	96	30.4	120	36.4	71	29.0	91	29.5	88	29.4	9	12.2
A small group.	45	14.2	50	15.2	50	20.4	51	16.6	61	20.4	11	14.9
A facilitator-led workshop.	45	14.2	50	15.2	50	20.4	51	16.6	61	20.4	11	14.9
A practice day.	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

	Week 7 April 13 (n=316)		Week 8 April 20 (n=330)		Week 9 April 27 (n=245)		Week 10 May 4 (n=308)		Week 11 May 11 (n=299)		Week 12 May 18 (n=74)	
	n	%	n	%	n	%	n	%	n	%	n	%
<b>How valuable did you find workshops in supporting your learning during this past week?</b>												
1	29	9.2	34	10.3	24	9.8	30	9.7	20	6.7	18	24.3
2	65	20.6	66	20.0	42	17.1	62	20.1	48	16.1	15	20.3
3	136	43.0	143	43.3	95	38.8	135	43.8	135	45.2	25	33.8
4	86	27.2	87	26.4	84	34.3	81	26.3	96	32.1	16	21.6
5a	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
<b>How well did you do at advocating for your learning needs this week?</b>												
1	%	5.1	18	5.5	12	4.9	17	5.5	10	3.3	8	10.8
2	57	18.0	52	15.8	37	15.1	52	16.9	39	13.0	15	20.3
3	138	43.7	159	48.2	109	44.5	138	44.8	143	47.8	30	40.5
4	105	33.2	101	30.6	87	35.5	101	32.8	107	35.8	21	28.4
5a	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
<b>When it comes to the concepts learned in the past week, I feel like I am...</b>												
proficient.	134	42.5	132	40.4	117	47.8	117	38.0	128	42.8	26	35.1
still working on becoming proficient.	161	51.1	163	49.8	108	44.1	164	53.2	145	48.5	38	51.4
struggling to become proficient.	20	6.3	32	9.8	20	8.2	27	8.8	26	8.7	10	13.5

<sup>a</sup> The questions “How valuable did you find workshops in supporting your learning during this past week” and “How well did you do at advocating for your learning needs this week?” offered 1–5 Likert scales in weeks 1–6 and 1–4 Likert scales in weeks 7–12. In both cases, 1 corresponds to the worst possible rating and 5 or 4 corresponds to the best possible rating.

## School B

**Change idea:** Provide students with additional resources and feedback so they can revise and improve their work.

**Table B-4. School B IAKT Survey Responses**

	February (n=93)		March (n=202)		May (n=178)	
	Number	Percent	Number	Percent	Number	Percent
<b>To what extent did responding to teacher feedback left in Echo contribute to your learning while completing this IAKT?</b>						
Did not use	4	4.3	27	13.4	24	13.5
Did not contribute	4	4.3	6	3.0	6	3.4
Contributed some	30	32.3	68	33.7	60	33.7
Contributed a lot	55	59.1	101	50.0	88	49.4
<b>To what extent did responding to peer feedback contribute to your learning while completing this IAKT?</b>						
Did not use	32	34.4	53	26.2	47	26.4
Did not contribute	11	11.8	19	9.4	18	10.1
Contributed some	34	36.6	41	20.2	35	19.7
Contributed a lot	16	17.2	89	44.1	78	43.8
<b>To what extent did using the resources available in the project briefcase contribute to your learning while completing this IAKT?</b>						
Did not use	14	14.9	20	9.9	18	10.1
Did not contribute	4	4.3	6	3.0	6	3.4
Contributed some	35	37.2	99	49.0	88	49.4
Contributed a lot	41	43.6	77	38.1	66	37.1
<b>To what extent did conducting independent research online contribute to your learning while completing this IAKT?</b>						
Did not use	7	7.5	13	6.4	12	6.7
Did not contribute	3	3.2	0	0.0	0	0.0
Contributed some	16	17.0	20	9.9	18	10.1
Contributed a lot	68	72.3	169	83.7	148	83.2
<b>To what extent did teacher-led workshops contribute to your learning while completing this IAKT?</b>						
Did not use	37	41.6	106	52.5	95	53.4
Did not contribute	15	16.9	47	23.3	41	23.0
Contributed some	27	30.3	35	17.3	30	16.9
Contributed a lot	10	11.2	14	6.9	12	6.7

	February (n=93)		March (n=202)		May (n=178)	
	Number	Percent	Number	Percent	Number	Percent
<b>To what extent did teacher-led conferences contribute to your learning while completing this IAKT?</b>						
Did not use	42	46.7	107	53.0	96	53.93
Did not contribute	14	15.6	41	20.3	36	20.22
Contributed some	25	27.8	40	19.8	34	19.1
Contributed a lot	9	10.0	14	6.9	12	6.74

**Table B-5. School B Growth Mindset Survey Responses**

	February (n=125)		March (n=101)	
	Number	Percent	Number	Percent
<b>How true is the following about you? My intelligence is something that I can't change very much.</b>				
Not at all true	59	47.2	50	49.5
A little true	28	22.4	23	22.8
Somewhat true	29	23.2	22	21.8
Mostly true	7	5.6	6	5.9
Completely true	2	1.6	0	0.0
<b>How true is the following about you? Challenging myself won't make me any smarter.</b>				
Not at all true	72	57.6	67	66.3
A little true	32	25.6	17	16.8
Somewhat true	11	8.8	14	13.9
Mostly true	9	7.2	3	3.0
Completely true	1	0.8	0	0.0
<b>How true is the following about you? There are some things I am not capable of learning.</b>				
Not at all true	38	30.4	44	43.6
A little true	39	31.2	24	23.8
Somewhat true	25	20.0	21	20.8
Mostly true	13	10.4	7	6.9
Completely true	10	8.0	5	5.0
<b>How true is the following about you? If I am not naturally smart in a subject, I will never do well in it.</b>				
Not at all true	56	44.8	56	55.5
A little true	40	32.0	23	22.8
Somewhat true	17	13.6	17	16.8
Mostly true	7	5.6	4	4.0
Completely true	5	4.0	1	1.0

## School C—Teacher 1

**Change idea:** Waive zero-grade policy for students who seek out extra help.

**Table B-6. School C Writing Agency Survey Responses**

	February (n=22)		March (n=22)		May (n=22)	
	Number	Percent	Number	Percent	Number	Percent
<b>I would describe myself as a writer.</b>						
Agree or Strongly Agree	12	54.6	12	54.6	15	68.2
Disagree or Strongly Disagree	10	45.5	10	45.5	7	31.8
<b>I believe that, with practice, my writing will improve.</b>						
Agree or Strongly Agree	14	63.6	16	72.7	16	72.7
Disagree or Strongly Disagree	8	36.4	6	27.3	6	27.3
<b>When I am struggling with a writing assignment, I think about attending a support session before or after school.</b>						
Agree or Strongly Agree	3	13.6	10	45.5	13	59.1
Disagree or Strongly Disagree	19	86.4	12	54.5	9	40.9
<b>My grade is a reflection of my effort in English I.</b>						
Agree or Strongly Agree	18	81.8	19	86.4	21	95.5
Disagree or Strongly Disagree	4	18.2	3	13.6	1	4.5

**Table B-7. School C Attendance at Workshops**

Date of Workshop	Number	Percent
March 12	0	0.0
March 14	5	22.7
March 19	4	18.2
March 21	14	63.6
March 23	0	0.0
April 9	2	9.1
April 11	2	9.1
April 13	3	13.6
April 16	1	4.5
May 8	0	0.0
May 10	0	0.0

## School C—Teacher 2

**Change idea:** Provide students with personalized verbal feedback.

**Table B-8. School C Feedback Survey Responses**

	Week 1 February 20 (n=66)		Week 2 February 26 (n=63)		Week 3 March 5 (n=53)		Week 4 March 21 (n=56)	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
<b>Receiving feedback helps me improve my work.</b>								
Yes	49	74.24	56	88.89	49	92.45	50	89.29
No	17	25.76	7	11.11	4	7.55	6	10.71
<b>I know how to use feedback.</b>								
Yes	55	83.33	53	84.13	50	94.34	50	89.29
No	11	16.67	10	15.87	3	5.66	6	10.71
<b>When I look at feedback from teachers, I feel...</b>								
Hopeful	33	50.0	30	47.6	27	50.9	29	51.8
Confident	29	43.9	28	44.4	28	52.8	30	53.6
Capable	33	50.0	34	54.0	30	56.6	28	50.0
Positive	34	51.5	35	55.6	28	52.8	27	48.2
Challenged	35	53.0	30	47.6	27	50.9	34	60.7
Anxious	24	36.4	22	34.9	19	35.9	21	37.5
Frustrated	23	34.9	24	38.1	14	26.4	16	28.6
Like a Failure	16	24.2	11	17.5	9	17.0	11	19.6
Overwhelmed	21	100.0	16	25.4	14	26.4	13	23.2
Confused	18	27.3	18	28.6	10	18.9	15	26.8

## School D—Teacher 1

**Change idea:** Provide students more choice in support resources.

**Table B-9. School D Resources: Survey A Responses**

	Week 1 February 23 (n=22)		Week 2 March 3 (n=38)	
	Number	Percent	Number	Percent
<b>I would grade my effort an...</b>				
A	9	40.91	13	34.21
B	6	27.27	11	28.95
C	6	27.27	9	23.68
D	1	4.55	2	5.26
<b>Did you complete all assignments for this week?</b>				
Yes	12	54.55	28	73.68
No	10	45.45	10	26.32
<b>Did this week's test prep activities provide you with relevant test prep/practice?</b>				
Yes	16	72.73	31	81.58
No	5	22.73	1	2.63
<b>I used the following resources this week:</b>				
Workshop (forced)	8	36.36	15	39.47
Study guide	6	27.27	20	52.63
Online practice tests	6	27.27	20	52.63
Review tools	6	27.27	20	52.63
Online Web sources and worked independently	12	54.55	16	42.11
Outside tutoring (after school)	1	4.55	4	10.53

**Table B-10. School D Resources: Survey B Responses**

	Week 3 April 20 (n=28)				Week 4 April 27 (n=40)				Week 5 May 4 (n=15)			
	I used this resource.		This resource was the most helpful.		I used this resource.		This resource was the most helpful.		I used this resource.		This resource was the most helpful.	
	n	%	n	%	n	%	n	%	n	%	n	%
Tutoring	6	21.4	2	7.1	4	10.0	1	2.5	1	6.7	0	0.0
Edcite	23	82.1	14	50.0	31	77.5	25	62.5	8	53.3	4	26.7
Quizlet	11	39.3	2	7.1	10	25.0	3	7.5	1	6.7	0	0.0
Study Guide	8	28.6	1	3.6	10	25.0	2	5.0	5	33.3	0	0.0
Study Island	3	10.7	0	0.0	4	10.0	0	0.0	2	13.3	0	0.0
Crash Course	3	10.7	1	3.6	4	10.0	0	0.0	1	6.7	0	0.0
Individual work	14	50.0	3	10.7	20	50.0	4	10.0	8	53.3	3	20.0
Classroom presentations or slides	11	39.3	4	14.3	15	37.5	2	5.0	7	46.7	2	13.3

## School D—Teacher 2

**Change idea:** Provide students more choice in support resources.

**Table B-11. School D Resources: Survey C Responses**

	Week 1 April 6 (n=21)		Week 2 April 13 (n=28)		Week 3 April 20 (n=9)		Week 4 May 4 (n=23)	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
I used slideshows/notes this week to help me learn the content.	20	95.2	25	89.3	6	66.7	20	86.96
I used videos provided by the teacher to help me learn the content.	1	4.8	2	7.1	0	0.0	2	8.7
I used a whole- class workshop with the teacher to help me learn the content.	16	76.2	19	67.9	2	22.2	15	65.22
I used a Classkick workshop on my own to help me learn the content.	13	61.9	13	46.4	1	11.1	14	60.87



	Week 1 April 6 (n=21)		Week 2 April 13 (n=28)		Week 3 April 20 (n=9)		Week 4 May 4 (n=23)	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
I used individual help from the teacher to help me learn the content.	11	52.4	12	42.9	0	0.0	8	34.78
I used a resource I found on my own to help me learn the content.	3	14.3	1	3.6	5	55.6	3	13.04

## School D—Teacher 3

**Change idea:** Provide students more choice in support resources.

**Table B-12. School D Agency Survey Responses**

	Week 1 January 12 (n=33)		Week 2 January 19 (n=35)		Week 3 January 26 (n=33)		Week 4 February 2 (n=25)	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
<b>I would grade my effort an...</b>								
A	15	45.5	10	28.6	14	42.4	5	20.0
B	10	30.3	11	31.4	8	24.2	7	28.0
C	8	24.2	9	25.7	7	21.2	10	40.0
D	0	0.0	2	5.7	2	6.1	2	8.0
<b>Did you complete all assignments for this week?</b>								
Yes	17	51.52	23	65.7	23	69.7	15	60.0
No	16	48.48	12	34.3	10	30.3	10	40.0
<b>Did this week's test prep activities provide you with relevant test prep/ practice?</b>								
Yes	-	-	30	85.7	29	87.9	21	84.0
No	-	-	4	11.4	1	9.1	3	12.0

## School D—Teacher 4

**Change idea:** Provide one-on-one conferencing on IAKT assignments.

**Table B-13. School D Student Writing Grades**

		Score of 1		Score of 2		Score of 3	
		Number	Percent	Number	Percent	Number	Percent
Baseline Assignment (n=75)	Development	60	79.7	15	20.3	0	0.0
	Organization	35	47.3	36	48.7	3	4.1
	Language	52	68.9	23	31.1	0	0.0
Assignment 1 Draft (n=75) April 10	Development	56	74.3	14	18.9	5	6.8
	Organization	55	73.0	17	23.0	3	4.1
	Language	53	70.3	19	25.7	3	4.1
Assignment 1 Final (n=75)	Development	43	56.8	26	35.1	6	8.1
	Organization	43	56.8	17	23.0	15	20.3
	Language	43	56.8	21	28.4	11	14.9
Assignment 2 Draft (n=75) April 26	Development	60	79.7	13	17.6	2	2.7
	Organization	52	68.9	20	27.0	3	4.1
	Language	55	73.0	19	25.7	1	1.4
Assignment 2 Final (n=75)	Development	60	79.7	12	16.2	3	4.1
	Organization	52	68.9	14	18.9	9	12.2
	Language	52	68.9	19	25.7	4	5.4
Assignment 3 Draft (n=75) May 11	Development	50	66.2	24	32.4	1	1.4
	Organization	45	59.5	26	35.1	4	5.4
	Language	44	58.1	28	37.8	3	4.1
Assignment 3 Final (n=75)	Development	20	27.0	25	33.8	29	39.2
	Organization	25	33.8	23	31.1	26	35.1
	Language	25	33.8	24	32.4	25	33.8

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