Maximizing Student Agency

Implementing and Measuring Student-Centered Learning Practices

TECHNICAL APPENDIX

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.

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Introduction

The study, *Maximizing Student Agency: Implementing and Measuring Student-Centered Learning Practices*, aimed to identify the instructional practices that may be useful for the development of different aspects of student agency (i.e., self-efficacy, self-regulated learning, and persistence) and determine whether these instructional practices are equally helpful for different subgroups of students. In collaboration with four New Tech Network (NTN) high schools, the American Institutes for Research (AIR) used a mixed-methods approach consisting of teacher and student surveys and focus groups as well as facilitation of a networked improvement community (NIC) to address the research questions in Table 1.

Table 1. Research Questions

Focus Area	Primary Research Question(s)	Data Sources
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?	■ Teacher focus group data ■ Menu of Teacher Practices ■ Teacher survey data
	How do teachers use data to inform their practices?	■ PDSA cycle data ■ NIC meeting data
Contextual factors influencing the promotion of student agency	What contextual factors do teachers view as facilitators of or challenges to implementing these practices?	■ Teacher focus group data
Lessons learned about surveying student agency over time	How well do student survey questions measure student agency?	■ Student survey data
	Were the measurement properties of the agency scales consistent over time and across the student subgroups?	■ Student survey data
	Are there significant subgroup differences in measures of student agency?	■ Student survey data
	How does student agency change during the school year?	■ Teacher focus group data ■ Student survey data ■ NIC meeting data
	Do changes in student agency during the school year differ between subgroups of students?	■ Teacher focus group data ■ Student survey data ■ NIC meeting data

The technical appendix provides additional information about the study, including a description of the study sample, survey administration procedures, survey response rates, statistical analyses used to address research questions, and detailed study findings. A full accounting of results pertaining to the study's research questions can be found in the final report, *Maximizing Student Agency: Implementing and Measuring Student-Centered Learning Practices*.

Study Sample

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. Participating schools were recruited from an initial list of eight schools provided by our partners at NTN. Each of the eight schools had experience participating in research studies and worked closely with NTN on an existing continuous improvement initiative (the Assessment Improvement Community), and so NTN felt they were ready and able to participate in this study. From the initial list, four schools agreed to participate in the study.

Data Sources

AIR's study team addressed the research questions (Table 1) using a mixed-methods approach. To address research questions associated with teacher practices designed to promote student agency and contextual factors influencing the promotion of student agency, the team conducted teacher focus groups in spring 2017 and spring 2018, and teacher surveys in fall 2017 and spring 2018. To address research questions associated with surveying student agency over time, the team administered a student survey in fall 2017 and spring 2018. To address the research question associated with teachers' use of data to inform instructional practices, the project team worked with a NIC comprised of teachers from the four study high schools. Data for the current study came from three primary sources: survey data, focus group data, and Plan-Do-Study-Act (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. In fall 2017, we collected survey data from 184 students attending the four participating schools.[1] 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 survey. Overall, we analyzed data from 437 unique survey respondents.

For each survey, students were asked to consider one of their classes when responding to survey questions. In the fall survey, students were asked to report on either (1) the NIC teacher in whose class they took the survey or, if they did not take the survey in a NIC teacher's class, (2) the NIC

[1] 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.

teacher that they would see next.[2] In the spring, students who took the fall survey were asked to report on the class they reported on in the fall. Similar to the fall survey, students who had NIC teachers but who did not take the fall survey were asked to report on either (1) the NIC teacher in whose class they took the survey or, if they did not take the survey in a NIC teacher's class, (2) the NIC teacher that they would see next. All students who responded to the spring survey but who did not have a teacher participating in the NIC were asked to report on the first academic class of the day.

The distribution of survey respondents across schools and survey administrations is presented in Table 2. Response rates were calculated by counting any student who responded to the fall or spring survey as a survey respondent. Although survey response rates ranged from 21% to 48% across participating schools, response rates varied widely by grade level. Response rates by grade level are provided in Table 3. In general, response rates were highest for Grade 9 students (with response rates exceeding 70% in two participating schools) and lower for the higher grades (although one school had a 70% response rate among Grade 11 students).

Table 2. Distribution of Consented Students and Student Survey Respondents Across Study Schools

School	Total Students	Consented Students	Fall Only	Spring Only	Both Surveys	Total Survey Respondents	Survey Response Rates
School A	291	140	7	76	31	114	39.2%
School B	298	144	17	65	27	109	36.6%
School C	314	155	11	104	34	149	47.5%
School D	310	66	17	8	40	65	21.0%
Total	1,213	505	52	253	132	437	36.0%

Table 3. Student Survey Response Rates Across Study Schools, by Grade Level

School	Grade 9	Grade 10	Grade 11	Grade 12[3]
School A	71.9%	65.5%	14.3%	0.0%
School B	71.1%	54.1%	13.2%	6.9%
School C	68.9%	42.3%	53.6%	0.0%
School D	13.8%	3.9%	69.7%	0.0%
Total	52.1%	42.2%	36.1%	2.2%

[2] For each school, and in both the fall and spring surveys, NIC teachers were listed in a drop-down menu so that students could see the list of teachers who participated in the NIC.

[3] Data collection efforts were focused on students in Grades 9–11 as few NIC teachers taught students in Grade 12. All students were invited to complete the survey during the spring 2018 administration, yet we saw few Grade 12 responses.

Teacher Survey Data

The research team administered surveys to 58 teachers in fall 2017 and 65 teachers in spring 2018. The response rate increased from 75% in the fall to 82% in the spring, with response rates across schools ranging from 68% to 100% in the fall and from 77% to 90% in the spring (see Table 4). At both survey administrations, the response rates for NIC teachers (100% in the fall and 96% in the spring[4]) exceeded the response rate for non-NIC teachers (64% in the fall and 76% in the spring).

Table 4. Distribution of Teacher Survey Respondents Across Study Schools

	Fall Survey			Spring Survey		
School	Total Teachers	Number of Respondents	Response Rate	Total Teachers	Number of Respondents	Response Rate
School A	9	9	100%	10	9	90%
School B	19	13	68%	19	15	79%
School C	23	18	78%	24	21	88%
School D	26	18	69%	26	20	77%
Total	77	58	75%	79	65	82%

Focus Group Data

In spring 2017, the research team conducted teacher focus groups[5] at each school. The AIR team conducted eight focus groups with a total of 40 teachers. Topics of discussion included the following five categories:

Definitions of student agency,

Goals for student agency in the classroom,

Teacher practices and opportunities designed to promote student agency,

Data currently collected on student agency, and

Facilitators of and barriers to agency.

Using the information provided by teachers during these focus groups, AIR developed the Menu of Teacher Practices, which guided the selection of practices the NIC tested. 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. Topics of discussion included the following:

Learnings about student agency,

Change ideas or practices implemented to develop student agency,

[4] There were two schools in which staffing changes (e.g., long-term substitute taking over a NIC classroom for a maternity leave, teachers leaving the NIC) impacted the response rate.

[5] The focus group protocol is available upon request.

Measurement and data of change ideas,

Student demonstrations of agency, and

Facilitators of and barriers to agency.

In spring 2018, AIR conducted student focus groups at each of the study schools. Participants were selected randomly from the list of consented students at each school. Alternates were identified, also randomly, in the event that selected students were not able to participate in the focus group. The number and grade level of students participating in each focus group is presented in Table 5. 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.

Table 5. Student Focus Groups

School	Number of Students	Grade Level			
		Grade 9	Grade 10	Grade 11	Grade 12
School A	10	X	X		
School B	11	X	X		
School C	10	X			
School D	17	X	X	X	

PDSA Cycle Data

The research team aided 25 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 a PDSA cycle to develop change ideas, implement them, test their effectiveness, and refine them. As part of testing the effectiveness of their change ideas, teachers collected data throughout spring 2018. Examples of the types of data collected by the teachers include student responses to brief surveys (i.e., exit slips), students' grades, workshop attendance, and work resubmission rates. Table 6 describes the measures used by NIC teachers.

NIC teachers at two schools (School A and School B) addressed the same change ideas and collected the same data throughout their schools. Two teachers at School C collected data on their own change ideas. Three teachers at School D chose the same change idea but administered separate surveys, while one teacher at School D chose a different change idea.

Table 6. PDSA Cycle Data 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
		Workshop attendance
	Provide students with personalized verbal feedback.	Feedback survey
School D	Provide students more choice in support resources.	Resources survey A
		Resources survey B
		Resources survey C
		Agency survey
	Provide one-on-one conferencing on IAKT assignments.	Student writing grades

Student and Teacher Survey Samples

Table 7 presents the characteristics of the 437 students who responded to either the fall or spring survey. We also show sample characteristics separately for students who responded to the fall survey and students who responded to the spring survey. In general, the composition of the student sample was similar between survey administrations: the percentage of students in Grade 9 was larger than the percentage of students in higher grades; the percentage of students reporting about their social studies courses or interdisciplinary classes was larger than the percentage of students reporting on their mathematics, English language arts (ELA), or science courses; and about half of the sample was female. Approximately 40% of the sample was White, 20% was Black, between 24% and 29% was Hispanic, and approximately 20% of students spoke a language other than English at home. Finally, across survey administrations, approximately 70% of students were classified as having a lower socioeconomic status (SES) because they had fewer than 100 books at home.[6] Because approximately 2% of students in the fall and 7% of students in the spring did not provide demographic information, examination of subgroup differences in measures of student agency are limited to 175 students in the fall and 354 students in the spring who provided all the demographic information.

[6] This measure of socioeconomic status is currently used in the Trends in International Mathematics and Science Study student survey (https://nces.ed.gov/timss/pdf/2015_8th_grade_Student_Questionnaire.pdf). Both student surveys also have measures of socioeconomic status based on the number of electronic devices students have in their homes. We decided to focus on the definition of socioeconomic status based on the number of books in students' homes because observed differences in student agency were more consistent across measures of student agency using this definition.

Table 7. Composition of Student Survey Sample

Variable	All Survey Respondents (*n*=437)		Respondents With Fall Data (*n*=184)		Respondents With Spring Data (*n*=385)	
	Number	Percent	Number	Percent	Number	Percent
School						
School A	114	26.1	38	20.7	107	27.8
School B	109	24.9	44	23.9	92	23.9
School C	65	14.9	57	31.0	48	12.5
School D	149	34.1	45	24.5	138	35.8
Grade Level						
Grade 9	187	42.8	94	51.1	167	43.4
Grade 10	141	32.3	45	24.5	123	31.9
Grade 11	104	23.8	40	21.7	95	24.7
Grade 12	5	1.1	5	2.7	0	0.0
Subject						
Math	52	11.9	33	17.9	43	11.2
English	54	12.4	26	14.1	50	13.0
Science	85	19.5	34	18.5	71	18.4
Other/Interdisciplinary	125	28.6	44	23.9	116	30.1
Social studies	121	27.7	47	25.5	105	27.3
Gender						
Male	196	44.9	78	42.4	178	46.2
Female	213	48.7	103	56.0	182	47.3
Missing	28	6.4	3	1.6	25	6.5
Race/Ethnicity						
White	181	41.4	76	41.3	162	42.1
Black	88	20.1	39	21.2	77	20.0
Hispanic	110	25.2	54	29.3	94	24.4
Other	30	6.9	12	6.5	27	7.0
Missing	28	6.4	3	1.6	25	6.5

Variable	All Survey Respondents (*n*=437)		Respondents With Fall Data (*n*=184)		Respondents With Spring Data (*n*=385)	
	Number	Percent	Number	Percent	Number	Percent
Language Status						
English spoken at home	321	73.5	142	77.2	286	74.3
Another language spoken at home	84	19.2	39	21.2	70	18.2
Missing	32	7.3	3	1.6	29	7.5
Socioeconomic Status						
Fewer than 100 books at home	308	70.5	125	67.9	275	71.4
At least 100 books at home	101	23.1	50	27.2	85	22.1
Missing	28	6.4	9	4.9	25	6.5

Table 8 presents the characteristics of the teachers who completed the fall 2017 and spring 2018 teacher surveys. At each survey administration, more than half of survey respondents participated in the NIC, and nearly half of teachers provided instruction to multiple grade levels. Teachers were most likely to report teaching between 75 and 100 students in a day, and about half had taught at the high school level for 11 years or more. Finally, teachers were distributed across core academic subjects as well as other types of classes such as foreign language and electives.

Table 8. Composition of Teacher Survey Sample

Variable	Respondents With Fall Data (*n*=58)		Respondents With Spring Data (*n*=65)	
	Number	Percent	Number	Percent
NIC Participation				
Participated in the NIC	33	56.9	35	53.9
Did not participate in the NIC	25	43.1	30	46.2
School				
School A	9	15.5	9	13.8
School B	13	22.4	15	23.1
School C	18	31.0	21	32.3
School D	18	31.0	20	30.8
Grade Level				
Grade 9	10	17.2	12	18.5
Grade 10	9	15.5	8	12.3
Grade 11	9	15.5	8	12.3
Grade 12	4	6.9	4	6.2

Variable	Respondents With Fall Data (*n*=58)		Respondents With Spring Data (*n*=65)	
	Number	Percent	Number	Percent
Multiple grades	24	41.3	31	47.7
Missing	2	3.5	2	3.1
Subject				
Math	12	20.7	12	18.5
English language arts	12	20.7	13	20.0
Science	7	12.1	10	15.4
Social studies	8	13.8	9	13.8
Other/Interdisciplinary	12	20.7	11	16.9
Multiple subjects	6	10.3	9	13.8
Missing	1	1.7	1	1.5
Number of Students Taught During a Typical Day				
Fewer than 50	4	6.9	7	10.8
50–74	14	24.1	18	27.7
75–100	24	41.4	30	46.2
More than 100	14	24.1	9	13.9
Missing	2	3.5	1	1.5
Years of Teaching Experience in Grades 9–12				
1 year	3	5.2	1	1.5
2–3 years	8	13.8	10	15.4
4–5 years	11	19.0	10	15.4
6–10 years	5	8.6	13	20.0
11 or more years	30	51.7	30	46.2
Missing	1	1.7	1	1.5
Years of Teaching Experience in the School				
1 year	10	17.2	2	3.1
2–3 years	10	17.2	22	33.9
4–5 years	14	24.1	15	23.1
6–10 years	13	22.4	18	27.7
11 or more years	3	5.2	4	6.2
Missing	8	13.8	4	6.2

Survey Measures

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 9. 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 9.[7]

Table 9. Student Agency Constructs, Sources, and Example Items

			Fall		Spring	
Construct	Source	Example Item	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[a]	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

[a] Items in the perseverance of interest construct were reverse-coded so that higher values indicate a higher level of perseverance.

[7] As described below, 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 9 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).

In the teacher survey, teachers were asked about the frequency with which they engaged in practices associated with increasing student agency[8] 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).

Methods

Focus Group Analyses

To identify the instructional practices used by teachers to develop agency and the facilitating factors and challenges in using those practices, the research team conducted teacher focus groups. Focus groups were recorded, transcribed, and coded using a coding structure aligned to the research questions. The research team analyzed the focus group data to identify both themes and outliers within the responses. The research team used data from the spring 2017 focus groups to catalog and categorize the instructional practices identified by participants, capture themes related to the key elements of those practices and shared relevant quotes that illustrated how teachers used the practice and develop the Menu of Teacher Practices. The practices listed in the Menu of Teacher Practices were included in a teacher survey that was administered in fall 2017 and spring 2018, allowing the research team to calculate the percentage of teachers who reported using specific practices with most of their students more than three times a week. Finally, to identify perceptions of the facilitators and challenges in implementing those practices, the team used data from both the spring 2017 and spring 2018 focus groups. Responses were grouped by theme and sorted based on frequency of response to identify the primary facilitators and challenges.

Examination of Measurement Properties

The first stage of survey data analysis involved the assessment of the survey measures of student agency. The research team calculated Cronbach's alpha (a measure of internal consistency) and conducted confirmatory factor analysis (CFA) to examine the measurement properties of the student agency constructs. CFAs tested whether previously validated survey measures did a good job of measuring intended constructs within our survey sample by calculating model fit statistics, such as the root mean square error of approximation (RMSEA) and the comparative fit index (CFI). For these analyses, we used the following cut-offs to indicate a good fit to the data: alpha > 0.70, CFI > 0.95, RMSEA < 0.10.[9]

[8] 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.

[9] Small sample sizes reduce the likelihood of achieving ideal model fit.

Tests of Measurement Invariance

To measure changes in student agency over time, it was necessary to determine whether the measurement properties of the agency scales were consistent over time. In addition, to compare levels of student agency across student subgroups, it was necessary to determine whether the measurement properties of the agency scales were consistent across student subgroups. We examined measurement invariance of student agency measures by the following student characteristics: grade level, gender, race/ethnicity, English learner (EL) status, socioeconomic status (SES), and subject area. We examined both metric invariance (i.e., regression weights were not equivalent across groups) and scalar invariance (i.e., at a given level of the student agency measure, the intercept of individual survey items was not equivalent across groups). In addition to examining the significance of chi-square model fit statistics tests, we looked at meaningful changes in the CFI and RMSEA values between models that did and did not constrain the regression weights and item intercepts to be equivalent across groups. Measures were classified as having invariance issues if (1) the difference in chi-square model fit tests between constrained models (where regression weights and intercepts were constrained to be equal across groups) and unconstrained models (where regression weights and/or intercepts were allowed to vary across groups) were significant at the .1 confidence level AND (2) values of RMSEA differed by .015 or more or values of CFI differed by 0.01 or more between constrained and unstrained models. These tests allowed us to determine whether student agency measures worked equally well for different groups of students.

Comparing Levels of Student Agency Across Student Subgroups

To examine subgroup differences in levels of student agency in the fall and spring, we estimated two-level ordinary least squares (OLS) regression models where students are nested within schools. We examined differences in levels of student agency based on the following student characteristics: grade level, gender, race/ethnicity, EL status, SES level, and subject area. All student subgroup indicators were included in a single regression model so that, for instance, racial/ethnic gaps in student agency measures accounted for racial/ethnic differences in SES level or EL status.

Examining Change in Student Agency During the School Year

Similar two-level OLS regression models were estimated to examine changes in student agency over time as well as subgroup differences in changes in student agency measures. For these statistical models, the outcome of interest was change in student agency, which was measured as the spring value of the student agency measure minus the fall value of the student agency measure. To estimate average change over time within the student sample, all subgroup indicators were centered within schools. To estimate subgroup differences in change over time, models included uncentered subgroup indicators, and all subgroup indicators were included in the same statistical model.

Examination of PDSA Data

To identify how teachers are using data to inform their practices, the research team examined notes from NIC meetings and PDSA cycle data provided to the team by the participating teachers. We used these sources of information to summarize the data collection methods used by the NIC teachers, and how teachers used these data to test the effectiveness of their instructional approaches.

Detailed Study Findings

Analysis of the Quality of Survey Measures

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. Results of these analyses indicated that, for measures of future orientation, locus of control, and metacognitive self-regulation, measurement of the constructs improved after removing one or two items (see Table 10). The standardized regression weights associated with the original and revised measures are presented in Tables 11, 12, and 13 for future orientation, locus of control, and metacognitive self-regulation, respectively.

Table 10. Model Fit Statistics for Confirmatory Factor Analysis Models Estimating Measures of Student Agency

Student Agency Measure	CFI	RMSEA	Cronbach's Alpha
Self-efficacy	0.953	0.109	0.90
Perseverance (original—both interest and effort)	*0.953*	*0.076*	*0.70*
Perseverance of interest	0.981	0.102	0.71
Perseverance of effort	0.996	0.050	0.75
Locus of control (original)	*0.928*	*0.086*	*0.75*
Locus of control (excluding item 3)	0.966	0.070	0.75
Mastery orientation	0.968	0.111	0.88
Metacognitive self-regulation (original)	*0.874*	*0.111*	*0.85*
Metacognitive self-regulation (excluding items 1 and 7)	0.958	0.078	0.89
Self-regulated learning	0.976	0.065	0.91
Future orientation (original)	*0.970*	*0.120*	*0.87*
Future orientation (excluding item 1)	0.999	0.033	0.89

Table 11. Standardized Regression Weights for Future Orientation Survey Items, Original Measure, and After Removing Problematic Item

To what extent do you agree or disagree with the following statements about you?	Original Measure	After Removing Problematic Survey Item
1. Grades in high school matter for success in college.	0.57	Removed
2. My classes give me useful preparation for what I plan to do in life.	0.80	0.81
3. High school teaches me valuable skills.	0.82	0.82
4. Working hard in high school matters for success in the workforce.	0.76	0.74
5. What I learn in class is necessary for success in the future.	0.86	0.87

Table 12. Standardized Regression Weights for Locus of Control Survey Items, Original Measure, and After Removing Problematic Item

To what extent do you agree or disagree with the following statements about you?	Original Measure	After Removing Problematic Survey Item
1. Whether or not I get to be a leader depends mostly on my ability.	0.47	0.46
2. When I make plans, I am almost certain to make them work.	0.61	0.61
3. How many friends I have depends on how nice a person I am.	0.33	Removed
4. I can pretty much determine what will happen in my life.	0.49	0.47
5. I am usually able to protect my personal interests.	0.72	0.72
6. When I get what I want, it's usually because I worked hard for it.	0.70	0.72
7. My life is determined by my own actions.	0.62	0.62

Table 13. Standardized Regression Weights for Metacognitive Self-Regulation Survey Items, Original Measure, and After Removing Problematic Items

To what extent do you agree or disagree with the following statements about you?	Original Measure	After Removing Problematic Survey Item
1. During class time I often miss important points because I'm thinking of other things.	0.05	Removed
2. When I become confused about something I'm reading for this class, I go back and try to figure it out.	0.66	0.66
3. If class materials are difficult to understand, I change the way I read the material.	0.72	0.71
4. Before I study new class material thoroughly, I often skim it to see how it is organized.	0.66	0.66
5. I ask myself questions to make sure I understand the material I have been studying in this class.	0.75	0.75

To what extent do you agree or disagree with the following statements about you?	Original Measure	After Removing Problematic Survey Item
6. I try to change the way I study in order to fit the class requirements and instructor's teaching style.	0.74	0.74
7. I often find that I have been reading for class but don't know what it was all about.	0.26	Removed
8. I try to think through a topic and decide what I am supposed to learn from it rather than just reading it over when studying.	0.60	0.59
9. When studying for this class, I try to determine which concepts I don't understand well.	0.74	0.74
10. When I study for this class, I set goals for myself in order to direct my activities.	0.75	0.75
11. If I get confused taking notes in class, I make sure I figure it out afterward.	0.73	0.73

Measurement Invariance

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. Results of these analyses are presented below.

Differences Between Fall and Spring Survey Administrations

Results confirmed that the ways in which survey responses related to one another did not change over time, allowing us to examine change over time, with one exception: We did not observe scalar invariance for the measure of future orientation. An examination of estimated intercepts indicates that, for a given level of future orientation, responses to individual survey items were generally higher in the fall than they were in the spring (Table 14).

Table 14. Results of Measurement Invariance Tests, Fall Versus Spring Survey Administration

	Metric Invariance (*p*-value)	Scalar Invariance (*p*-value)	Notes on CFI and RMSEA if *p*-value Is Less Than .1	Invariant?
Self-efficacy	0.729	0.115	N/A	Yes
Perseverance of interest	0.808	0.084	CFI improved by .007; RMSEA improved by .009	Yes
Perseverance of effort	0.987	0.410	N/A	Yes
Locus of control (excluding item 3)	0.408	0.216	N/A	Yes
Mastery orientation	0.802	0.750	N/A	Yes

	Metric Invariance (*p*-value)	Scalar Invariance (*p*-value)	Notes on CFI and RMSEA if *p*-value Is Less Than .1	Invariant?
Metacognitive self-regulation (excluding items 1 and 7)	0.930	0.779	N/A	Yes
Self-regulated learning	0.740	0.491	N/A	Yes
Future orientation (excluding item 1)	0.301	**0.013**	CFI improved by .007; RMSEA improved by .019	No

Note. Numbers in red indicate a significant improvement in model fit by allowing measurement properties to differ between the fall and spring survey administrations.

Differences by Subject Area

Measures of locus of control and self-regulated learning did not work equally well across academic subjects (Tables 15–17). The second survey item for locus of control ("When I make plans, I am almost certain to make them work") did not work as well in English language arts (ELA) or social studies classes as it did in other classes, while the third survey item ("I can pretty much determine what will happen in my life") did not work as well in mathematics or social studies as it did in other classes. For the measure of self-regulated learning, the third and fourth items ("If I need to study, I don't go out with my friends" and "I always study for tests") did not work as well in ELA or interdisciplinary classes as they did for other classes.

Table 15. Results of Measurement Invariance Tests, by Subject Area

	Metric Invariance (*p*-value)	Scalar Invariance (*p*-value)	Notes on CFI and RMSEA if *p*-value Is Less Than .1	Invariant?
Self-efficacy	0.971	0.283	N/A	Yes
Perseverance of interest	0.119	0.523	N/A	Yes
Perseverance of effort	0.131	0.175	N/A	Yes
Locus of control (excluding item 3)	**0.003**	**0.011**	CFI improved by .040 and .033; RMSEA improved by .004 and .000	No
Mastery orientation	0.865	0.506	N/A	Yes
Metacognitive self-regulation (excluding items 1 and 7)	0.845	0.136	N/A	Yes
Self-regulated learning	**0.018**	0.176	CFI improved by .010; RMSEA improved by .001	No
Future orientation (excluding item 1)	0.886	0.542	N/A	Yes

Note. Numbers in red indicate a significant improvement in model fit by allowing measurement properties to differ by subject area.

Table 16. Standardized Regression Weights for Locus of Control Survey Items, by Subject Area

To what extent do you agree or disagree with the following statements about you?	Mathematics	English Language Arts	Science	Social Studies	Interdisciplinary
1. Whether or not I get to be a leader depends mostly on my ability.	0.62	0.65	0.66	0.58	0.58
2. When I make plans, I am almost certain to make them work.	0.77	0.22	0.59	0.30	0.52
3. I can pretty much determine what will happen in my life.	0.08	0.56	0.63	0.35	0.60
4. I am usually able to protect my personal interests.	0.84	0.45	0.82	0.75	0.62
5. When I get what I want, it's usually because I worked hard for it.	0.74	0.76	0.68	0.78	0.65
6. My life is determined by my own actions.	0.63	0.58	0.64	0.67	0.53

Table 17. Standardized Regression Weights for Self-Regulated Learning Survey Items, by Subject Area

To what extent do you agree or disagree with the following statements about you?	Mathematics	English Language Arts	Science	Social Studies	Interdisciplinary
1. I set aside time to do my homework and study.	0.75	0.68	0.87	0.76	0.78
2. I try to do well on my schoolwork even when it isn't interesting to me.	0.62	0.76	0.75	0.73	0.62
3. If I need to study, I don't go out with my friends.	0.74	0.49	0.72	0.68	0.56
4. I always study for tests.	0.75	0.51	0.79	0.78	0.53
5. I keep track of my long-term assignments so I know when to turn them in.	0.76	0.74	0.83	0.79	0.72
6. I manage my time well enough to get all my work done.	0.73	0.90	0.86	0.7	0.83
7. I can keep my schoolwork and personal life organized.	0.78	0.89	0.75	0.73	0.78
8. I set goals for my performance in classes.	0.84	0.71	0.81	0.75	0.84
9. I have a system for organizing my schoolwork.	0.72	0.77	0.78	0.74	0.72

Differences by Grade Level

Measures of student agency were invariant across grade levels, with one exception: The measure of locus of control did not work similarly well across grade levels (see Table 18). As shown in Table 19, the standardized regression weights differed by grade level such that some items were more strongly related for Grade 9 students (e.g., "Whether or not I get to be a leader depends mostly on my ability") and some items were more strongly related for Grade 10 and Grade 11 students (e.g., "When I get what I want, it's usually because I worked hard for it"). In addition, the item "When I make plans, I am almost certain to make them work" loaded particularly weakly to the construct of locus of control for Grade 10 students only. These findings suggest that survey items did not work similarly well across grade levels.

Table 18. Results of Measurement Invariance Tests, by Grade Level

	Metric Invariance (*p*-value)	Scalar Invariance (*p*-value)	Notes on CFI and RMSEA if *p*-value Is Less Than .1	Invariant?
Self-efficacy	0.959	0.351	N/A	Yes
Perseverance of interest	0.789	0.517	N/A	Yes
Perseverance of effort	0.116	0.125	N/A	Yes
Locus of control (excluding item 3)	**0.063**	0.512	CFI improved by .013; RMSEA did not improve	No
Mastery orientation	**0.051**	**0.067**	CFI improved by .006 and .005; RMSEA improved by .006 and .007	Yes
Metacognitive self-regulation (excluding items 1 and 7)	0.860	0.277	N/A	Yes
Self-regulated learning	0.320	0.256	N/A	Yes
Future orientation (excluding item 1)	0.935	**0.046**	CFI improved by .009; RMSEA improved by .004	Yes

Note. Numbers in red indicate a significant improvement in model fit by allowing measurement properties to differ by grade level.

Table 19. Standardized Regression Weights for Locus of Control Survey Items, by Grade Level

To what extent do you agree or disagree with the following statements about you?	Grade 9	Grade 10	Grade 11
1. Whether or not I get to be a leader depends mostly on my ability.	0.69	0.54	0.57
2. When I make plans, I am almost certain to make them work.	0.56	0.29	0.54
3. I can pretty much determine what will happen in my life.	0.46	0.44	0.55
4. I am usually able to protect my personal interests.	0.70	0.71	0.76
5. When I get what I want, it's usually because I worked hard for it.	0.66	0.80	0.72
6. My life is determined by my own actions.	0.51	0.69	0.71

Differences by Race/Ethnicity

The measure of perseverance of interest did not work equally well for White and non-White students (see Table 20). Further examination revealed that regression weights were stronger for non-White students for three of the four survey items, while regression weights were more similar in magnitude for the survey item "I have difficulty maintaining my focus on projects that take more than a few months to complete" (see Table 21). In addition, mastery orientation did not achieve scalar invariance. An examination of estimated intercepts revealed that, given the same level of mastery orientation, the intercept for the first item ("I like classwork that I'll learn from even if I make a lot of mistakes") was higher for White students, and the intercept for the fourth and fifth items ("An important reason why I do my classwork is because I want to get better at it" and "An important reason I do my classwork is because I enjoy it") was higher for non-White students.

Table 20. Results of Measurement Invariance Tests, by Race/Ethnicity

	Metric Invariance (*p*-value)	Scalar Invariance (*p*-value)	Notes on CFI and RMSEA if *p*-value Is Less Than .1	Invariant?
Self-efficacy	0.551	0.122	N/A	Yes
Perseverance of interest	**0.039**	0.431	CFI improved by .011; RMSEA improved by .004	No
Perseverance of effort	0.639	0.497	N/A	Yes
Locus of control (excluding item 3)	0.137	0.678	N/A	Yes
Mastery orientation	0.560	**0.000**	CFI improved by .015; RMSEA improved by .007	No
Metacognitive self-regulation (excluding items 1 and 7)	0.496	**0.025**	CFI improved by .006; RMSEA improved by .002	Yes
Self-regulated learning	0.378	**0.079**	CFI improved by .003; RMSEA improved by .001	Yes
Future orientation (excluding item 1)	0.641	0.369	N/A	Yes

Note. Numbers in red indicate a significant improvement in model fit by allowing measurement properties to differ by race/ethnicity.

Table 21. Standardized Regression Weights for Perseverance of Interest Survey Items, for White and Non-White Students

To what extent do you agree or disagree with the following statements about you?	White Students	Non-White Students
1. I often set a goal but later choose to pursue a different one.	0.56	0.67
2. I have been obsessed with a certain idea or project for a short time but later lost interest.	0.57	0.77
3. I have difficulty maintaining my focus on projects that take more than a few months to complete.	0.84	0.77
4. New ideas and projects sometimes distract me from previous ones.	0.61	0.77

Differences by Gender

Several measures of student agency did not achieve scalar invariance by gender: perseverance of interest, locus of control, and future orientation. The remaining measures of student agency achieved measurement invariance by gender (see Table 22). Specifically, at a given level of perseverance of interest or locus of control, intercepts were generally higher for male students than for female students. In contrast, at a given level of future orientation, intercepts were generally higher for female students than for male students.

Table 22. Results of Measurement Invariance Tests, by Gender

	Metric Invariance (*p*-value)	Scalar Invariance (*p*-value)	Notes on CFI and RMSEA if *p*-value Is Less Than .1	Invariant?
Self-efficacy	0.949	0.716	N/A	Yes
Perseverance of interest	0.228	**0.016**	CFI improved by .018; RMSEA improved by .004	No
Perseverance of effort	0.428	0.225	N/A	Yes
Locus of control (excluding item 3)	0.263	**0.029**	CFI improved by .015; RMSEA improved by .002	No
Mastery orientation	0.182	**0.029**	CFI improved by .006; RMSEA improved by .002	Yes
Metacognitive self-regulation (excluding items 1 and 7)	**0.025**	0.168	CFI improved by .005; RMSEA improved by .001	Yes
Self-regulated learning	0.278	**0.095**	CFI improved by .003; RMSEA improved by .003	Yes
Future orientation (excluding item 1)	0.629	**0.028**	CFI improved by .008; RMSEA improved by .018	No

Note. Numbers in red indicate a significant improvement in model fit by allowing measurement properties to differ by gender.

Differences by SES

Several measures of student agency did not achieve scalar invariance by SES level: perseverance of effort, locus of control, and metacognitive self-regulation. The remaining measures of student agency achieved measurement invariance by SES level (see Table 23). Specifically, at a given level of perseverance of effort or locus of control or metacognitive self-regulation, intercepts were generally higher for higher SES students than for lower SES students.

Table 23. Results of Measurement Invariance Tests, by SES Level

	Metric Invariance (*p*-value)	Scalar Invariance (*p*-value)	Notes on CFI and RMSEA if *p*-value Is Less Than .1	Invariant?
Self-efficacy	0.568	**0.010**	CFI improved by 0.006; RMSEA improved by 0.001	Yes
Perseverance of interest	0.290	0.939	N/A	Yes
Perseverance of effort	0.729	**0.093**	CFI improved by .004; RMSEA improved by .021	No
Locus of control (excluding item 3)	0.428	**0.003**	CFI improved by .025; RMSEA improved by .006	No
Mastery orientation	0.300	**0.004**	CFI improves by .009; RMSEA improved by .001	Yes
Metacognitive self-regulation (excluding items 1 and 7)	0.259	**0.003**	CFI improved by .01; RMSEA improved by .001	No
Self-regulated learning	0.945	**0.029**	CFI improved by .005; RMSEA improved by .001	Yes
Future orientation (excluding item 1)	0.351	0.143	N/A	Yes

Note. Numbers in red indicate a significant improvement in model fit by allowing measurement properties to differ by SES level.

Differences by EL Status

All measures of student agency were invariant by EL status (see Table 24).

Table 24. Results of Measurement Invariance Tests, by EL Status

	Metric Invariance (*p*-value)	Scalar Invariance (*p*-value)	Notes on CFI and RMSEA if *p*-value Is Less Than .1	Invariant?
Self-efficacy	**0.001**	0.340	CFI improved by .009; RMSEA improved by .002	Yes
Perseverance of interest	0.131	0.339	N/A	Yes
Perseverance of effort	0.312	0.497	N/A	Yes

	Metric Invariance (*p*-value)	Scalar Invariance (*p*-value)	Notes on CFI and RMSEA if *p*-value Is Less Than .1	Invariant?
Locus of control (excluding item 3)	0.596	0.958	N/A	Yes
Mastery orientation	0.552	0.074	CFI improved by .004; RMSEA improved by .003	Yes
Metacognitive self-regulation (excluding items 1 and 7)	0.610	0.343	N/A	Yes
Self-regulated learning	0.284	0.455	N/A	Yes
Future orientation (excluding item 1)	0.161	0.550	N/A	Yes

Note. Numbers in red indicate a significant improvement in model fit by allowing measurement properties to differ by EL status.

Regression Results: Subgroup Differences in Levels of Student Agency

Findings from the fall and spring reveal somewhat different patterns of subgroup differences (see Tables 25–32).

Table 25. Subgroup Differences in Self-Efficacy, in Fall and Spring

	Fall Survey (*n*=175)			Spring Survey (*n*=354)		
	Coefficient	Standard Error	*p*-value	Coefficient	Standard Error	*p*-value
Gender (male reference)						
Female	0.045	0.092	0.624	0.092	0.064	0.149
Race/Ethnicity (White reference)						
Black	-0.005	0.128	0.971	0.146	0.089	0.101
Hispanic	-0.186	0.136	0.169	0.048	0.093	0.611
Other	-0.297	0.192	0.123	-0.022	0.125	0.863
English Learner (EL) Status (non-EL reference)						
EL	0.103	0.123	0.403	-0.179	0.091	0.049
Socioeconomic Status (fewer than 100 books reference)						
100 or more books at home	0.104	0.114	0.359	0.188	0.080	0.019
Grade Level (Grade 9 reference)						
Grade 10	0.021	0.147	0.884	-0.041	0.085	0.629
Grade 11	0.121	0.120	0.311	0.092	0.084	0.272

	Fall Survey (*n*=175)			Spring Survey (*n*=354)		
	Coefficient	Standard Error	*p*-value	Coefficient	Standard Error	*p*-value
Subject Area (social studies reference)						
Mathematics	-0.040	0.140	0.774	-0.119	0.119	0.317
English language arts	0.201	0.167	0.228	0.034	0.118	0.770
Science	0.179	0.149	0.230	0.157	0.105	0.135
Interdisciplinary	-0.014	0.155	0.928	-0.002	0.100	0.983
Constant	2.964	0.149	0.000	2.912	0.106	0.000

Table 26. Subgroup Differences in Perseverance of Interest, in Fall and Spring

	Fall Survey (*n*=175)			Spring Survey (*n*=353)		
	Coefficient	Standard Error	*p*-value	Coefficient	Standard Error	*p*-value
Gender (male reference)						
Female	0.226	0.099	0.022	0.081	0.080	0.311
Race/Ethnicity (White reference)						
Black	0.157	0.138	0.255	-0.046	0.112	0.682
Hispanic	-0.054	0.147	0.714	0.012	0.118	0.917
Other	0.194	0.208	0.351	-0.080	0.157	0.610
English Learner (EL) Status (non-EL reference)						
EL	0.010	0.134	0.938	-0.040	0.114	0.727
Socioeconomic Status (fewer than 100 books reference)						
100 or more books at home	-0.073	0.123	0.552	0.114	0.102	0.265
Grade Level (Grade 9 reference)						
Grade 10	-0.147	0.159	0.354	-0.084	0.107	0.432
Grade 11	-0.131	0.130	0.312	0.119	0.109	0.275
Subject Area (social studies reference)						
Mathematics	0.124	0.151	0.414	0.023	0.154	0.882
English language arts	0.109	0.181	0.545	-0.007	0.151	0.961
Science	0.359	0.161	0.026	-0.158	0.137	0.249
Interdisciplinary	0.010	0.167	0.954	0.018	0.125	0.883
Constant	2.510	0.161	0.000	2.513	0.144	0.000

Table 27. Subgroup Differences in Perseverance of Effort, in Fall and Spring

	Fall Survey (*n*=175)			Spring Survey (*n*=353)		
	Coefficient	Standard Error	*p*-value	Coefficient	Standard Error	*p*-value
Gender (male reference)						
Female	0.091	0.100	0.364	-0.015	0.069	0.825
Race/Ethnicity (White reference)						
Black	0.072	0.139	0.603	0.091	0.096	0.345
Hispanic	-0.123	0.148	0.403	0.017	0.101	0.867
Other	-0.180	0.209	0.389	-0.078	0.136	0.565
English Learner (EL) Status (non-EL reference)						
EL	-0.102	0.134	0.450	-0.147	0.099	0.137
Socioeconomic Status (fewer than 100 books reference)						
100 or more books at home	0.142	0.124	0.251	0.186	0.087	0.033
Grade Level (Grade 9 reference)						
Grade 10	0.035	0.160	0.828	-0.030	0.093	0.750
Grade 11	0.076	0.130	0.561	0.158	0.091	0.084
Subject Area (social studies reference)						
Mathematics	0.150	0.152	0.327	-0.113	0.129	0.383
English language arts	0.394	0.182	0.030	0.081	0.128	0.527
Science	0.342	0.163	0.036	0.275	0.114	0.016
Interdisciplinary	0.186	0.168	0.269	0.021	0.108	0.846
Constant	2.626	0.162	0.000	2.746	0.116	0.000

Table 28. Subgroup Differences in Locus of Control, in Fall and Spring

	Fall Survey (*n*=175)			Spring Survey (*n*=354)		
	Coefficient	Standard Error	*p*-value	Coefficient	Standard Error	*p*-value
Gender (male reference)						
Female	-0.050	0.086	0.560	-0.055	0.058	0.350
Race/Ethnicity (White reference)						
Black	0.150	0.120	0.209	0.003	0.081	0.971
Hispanic	0.005	0.127	0.970	0.063	0.085	0.458
Other	-0.238	0.181	0.187	-0.054	0.114	0.635

	Fall Survey (*n*=175)			Spring Survey (*n*=354)		
	Coefficient	Standard Error	*p*-value	Coefficient	Standard Error	*p*-value
English Learner (EL) Status (non-EL reference)						
EL	-0.039	0.116	0.739	-0.164	0.083	0.049
Socioeconomic Status (fewer than 100 books reference)						
100 or more books at home	0.094	0.107	0.378	0.086	0.073	0.240
Grade Level (Grade 9 reference)						
Grade 10	-0.017	0.138	0.902	-0.009	0.078	0.903
Grade 11	-0.185	0.113	0.100	0.048	0.077	0.537
Subject Area (social studies reference)						
Mathematics	0.252	0.132	0.056	0.134	0.109	0.218
English language arts	0.449	0.157	0.004	0.199	0.109	0.067
Science	0.271	0.140	0.054	0.216	0.096	0.024
Interdisciplinary	0.110	0.145	0.448	0.103	0.091	0.257
Constant	2.810	0.140	0.000	2.801	0.097	0.000

Table 29. Subgroup Differences in Mastery Orientation, in Fall and Spring

	Fall Survey (*n*=175)			Spring Survey (*n*=354)		
	Coefficient	Standard Error	*p*-value	Coefficient	Standard Error	*p*-value
Gender (male reference)						
Female	-0.076	0.106	0.473	0.022	0.079	0.781
Race/Ethnicity (White reference)						
Black	0.280	0.148	0.059	0.081	0.111	0.465
Hispanic	0.180	0.157	0.252	0.198	0.117	0.091
Other	-0.019	0.223	0.931	-0.006	0.156	0.972
English Learner (EL) Status (non-EL reference)						
EL	-0.017	0.143	0.906	-0.311	0.113	0.006
Socioeconomic Status (fewer than 100 books reference)						
100 or more books at home	0.283	0.132	0.032	0.208	0.101	0.038
Grade Level (Grade 9 reference)						
Grade 10	0.159	0.170	0.351	-0.095	0.106	0.370
Grade 11	0.198	0.139	0.155	0.078	0.107	0.467

	Fall Survey (*n*=175)			Spring Survey (*n*=354)		
	Coefficient	Standard Error	*p*-value	Coefficient	Standard Error	*p*-value
Subject Area (social studies reference)						
Mathematics	-0.020	0.162	0.903	-0.140	0.152	0.355
English language arts	0.468	0.194	0.016	0.046	0.150	0.760
Science	0.197	0.173	0.256	0.085	0.134	0.524
Interdisciplinary	0.082	0.179	0.646	-0.072	0.124	0.559
Constant	2.318	0.172	0.000	2.579	0.138	0.000

Table 30. Subgroup Differences in Metacognitive Self-Regulation, in Fall and Spring

	Fall Survey (*n*=175)			Spring Survey (*n*=352)		
	Coefficient	Standard Error	*p*-value	Coefficient	Standard Error	*p*-value
Gender (male reference)						
Female	0.159	0.098	0.103	0.096	0.066	0.149
Race/Ethnicity (White reference)						
Black	0.290	0.136	0.032	0.087	0.092	0.344
Hispanic	0.090	0.144	0.534	0.115	0.097	0.235
Other	-0.082	0.205	0.690	0.052	0.130	0.687
English Learner (EL) Status (non-EL reference)						
EL	0.046	0.131	0.724	-0.285	0.095	0.003
Socioeconomic Status (fewer than 100 books reference)						
100 or more books at home	0.308	0.121	0.011	0.128	0.083	0.123
Grade Level (Grade 9 reference)						
Grade 10	0.131	0.156	0.404	0.011	0.088	0.905
Grade 11	0.185	0.127	0.146	0.099	0.087	0.258
Subject Area (social studies reference)						
Mathematics	0.111	0.149	0.456	-0.178	0.123	0.149
English language arts	0.507	0.178	0.004	0.106	0.122	0.387
Science	0.272	0.159	0.086	0.199	0.109	0.068
Interdisciplinary	0.008	0.165	0.962	0.025	0.103	0.805
Constant	2.165	0.158	0.000	2.499	0.110	0.000

Table 31. Subgroup Differences in Self-Regulated Learning, in Fall and Spring

	Fall Survey (*n*=175)			Spring Survey (*n*=353)		
	Coefficient	Standard Error	*p*-value	Coefficient	Standard Error	*p*-value
Gender (male reference)						
Female	0.111	0.107	0.300	0.102	0.073	0.162
Race/Ethnicity (White reference)						
Black	0.221	0.149	0.138	0.191	0.101	0.058
Hispanic	0.172	0.158	0.275	0.153	0.106	0.149
Other	-0.074	0.224	0.741	0.092	0.142	0.516
English Learner (EL) Status (non-EL reference)						
EL	-0.030	0.144	0.835	-0.207	0.103	0.046
Socioeconomic Status (fewer than 100 books reference)						
100 or more books at home	0.372	0.133	0.005	0.286	0.091	0.002
Grade Level (Grade 9 reference)						
Grade 10	0.137	0.171	0.425	-0.113	0.097	0.244
Grade 11	0.162	0.139	0.244	0.113	0.096	0.237
Subject Area (social studies reference)						
Mathematics	0.082	0.163	0.615	-0.229	0.135	0.090
English language arts	0.372	0.194	0.056	-0.051	0.136	0.709
Science	0.357	0.174	0.040	0.158	0.119	0.184
Interdisciplinary	0.109	0.180	0.546	-0.031	0.113	0.786
Constant	2.303	0.173	0.000	2.529	0.121	0.000

Table 32. Subgroup Differences in Future Orientation, in Fall and Spring

	Fall Survey (*n*=175)			Spring Survey (*n*=353)		
	Coefficient	Standard Error	*p*-value	Coefficient	Standard Error	*p*-value
Gender (male reference)						
Female	0.123	0.117	0.294	0.173	0.080	0.030
Race/Ethnicity (White reference)						
Black	0.267	0.163	0.102	0.123	0.111	0.268
Hispanic	0.290	0.173	0.094	0.191	0.117	0.101
Other	0.140	0.246	0.569	-0.009	0.157	0.956

	Fall Survey (*n*=175)			Spring Survey (*n*=353)		
	Coefficient	Standard Error	*p*-value	Coefficient	Standard Error	*p*-value
English Learner (EL) Status (non-EL reference)						
EL	-0.033	0.158	0.832	-0.330	0.114	0.004
Socioeconomic Status (fewer than 100 books reference)						
100 or more books at home	0.405	0.146	0.005	0.226	0.100	0.024
Grade Level (Grade 9 reference)						
Grade 10	-0.055	0.188	0.772	-0.317	0.107	0.003
Grade 11	-0.274	0.153	0.074	-0.094	0.105	0.373
Subject Area (social studies reference)						
Mathematics	0.183	0.179	0.306	-0.026	0.149	0.860
English language arts	0.643	0.213	0.003	-0.107	0.150	0.474
Science	0.246	0.191	0.198	0.149	0.131	0.257
Interdisciplinary	0.066	0.198	0.740	-0.082	0.125	0.508
Constant	2.639	0.190	0.000	2.871	0.133	0.000

Regression Results: Subgroup Differences in Changes in Student Agency During the School Year

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. Tables 33–40 present results of regression analyses examining subgroup differences in changes in student agency measures during the school year.

Table 33. Changes in Self-Efficacy From Fall 2017 to Spring 2018 and Levels of Self-Efficacy in Fall 2017, Among Students Who Responded to Both Surveys

	Change From Fall to Spring (*n*=132)			Fall Levels (*n*=132)		
	Coefficient	Standard Error	*p*-value	Coefficient	Standard Error	*p*-value
Gender (male reference)						
Female	0.004	0.093	0.964	0.158	0.096	0.099
Race/Ethnicity (White reference)						
Black	-0.003	0.135	0.985	0.053	0.140	0.704
Hispanic	0.196	0.134	0.144	-0.059	0.139	0.673
Other	0.323	0.196	0.100	-0.320	0.203	0.114
English Learner (EL) Status (non-EL reference)						
EL	-0.063	0.127	0.622	-0.038	0.131	0.772

	Change From Fall to Spring (*n*=132)			Fall Levels (*n*=132)		
	Coefficient	Standard Error	*p*-value	Coefficient	Standard Error	*p*-value
Socioeconomic Status (fewer than 100 books reference)						
100 or more books at home	0.053	0.120	0.662	0.065	0.124	0.602
Grade Level (Grade 9 reference)						
Grade 10	0.080	0.152	0.598	0.077	0.157	0.623
Grade 11	0.199	0.142	0.160	-0.044	0.147	0.766
Subject Area (social studies reference)						
Mathematics	-0.497	0.224	0.027	0.023	0.232	0.922
English language arts	0.272	0.185	0.142	0.234	0.192	0.222
Science	-0.045	0.144	0.756	0.146	0.149	0.328
Interdisciplinary	0.120	0.163	0.462	0.081	0.169	0.631
Constant	-0.082	0.155	0.597	2.923	0.160	0.000

Table 34. Changes in Perseverance of Interest From Fall 2017 to Spring 2018 and Levels of Perseverance of Interest in Fall 2017, Among Students Who Responded to Both Surveys

	Change From Fall to Spring (*n*=131)			Fall Levels (*n*=132)		
	Coefficient	Standard Error	*p*-value	Coefficient	Standard Error	*p*-value
Gender (male reference)						
Female	0.036	0.135	0.787	0.109	0.117	0.354
Race/Ethnicity (White reference)						
Black	-0.224	0.198	0.259	0.229	0.171	0.179
Hispanic	-0.236	0.195	0.227	0.140	0.169	0.409
Other	-0.067	0.285	0.814	0.097	0.248	0.695
English Learner (EL) Status (non-EL reference)						
EL	-0.080	0.185	0.666	0.098	0.160	0.540
Socioeconomic Status (fewer than 100 books reference)						
100 or more books at home	-0.113	0.175	0.518	-0.030	0.151	0.845
Grade Level (Grade 9 reference)						
Grade 10	-0.011	0.223	0.959	-0.124	0.192	0.517
Grade 11	-0.169	0.206	0.413	0.065	0.179	0.718

	Change From Fall to Spring (*n*=131)			Fall Levels (*n*=132)		
	Coefficient	Standard Error	*p*-value	Coefficient	Standard Error	*p*-value
Subject Area (social studies reference)						
Mathematics	0.139	0.326	0.671	-0.338	0.283	0.232
English language arts	-0.052	0.269	0.846	0.114	0.234	0.627
Science	-0.138	0.210	0.511	0.132	0.182	0.470
Interdisciplinary	0.175	0.237	0.461	0.073	0.206	0.723
Constant	-0.041	0.225	0.856	2.569	0.195	0.000

Table 35. Changes in Perseverance of Effort From Fall 2017 to Spring 2018 and Levels of Perseverance of Effort in Fall 2017, Among Students Who Responded to Both Surveys

	Change From Fall to Spring (*n*=131)			Fall Levels (*n*=132)		
	Coefficient	Standard Error	*p*-value	Coefficient	Standard Error	*p*-value
Gender (male reference)						
Female	-0.227	0.115	0.048	0.157	0.113	0.164
Race/Ethnicity (White reference)						
Black	-0.128	0.169	0.448	0.167	0.165	0.310
Hispanic	-0.155	0.166	0.348	0.104	0.163	0.525
Other	-0.330	0.242	0.173	0.083	0.239	0.727
English Learner (EL) Status (non-EL reference)						
EL	0.232	0.157	0.139	-0.301	0.155	0.052
Socioeconomic Status (fewer than 100 books reference)						
100 or more books at home	-0.125	0.148	0.398	0.263	0.146	0.071
Grade Level (Grade 9 reference)						
Grade 10	-0.052	0.189	0.785	-0.098	0.185	0.596
Grade 11	0.466	0.175	0.008	-0.170	0.173	0.325
Subject Area (social studies reference)						
Mathematics	0.227	0.277	0.412	-0.271	0.273	0.321
English language arts	0.140	0.229	0.541	0.308	0.226	0.173
Science	-0.024	0.178	0.892	0.210	0.176	0.233
Interdisciplinary	0.128	0.202	0.525	0.036	0.199	0.858
Constant	0.126	0.191	0.509	2.691	0.188	0.000

Table 36. Changes in Locus of Control From Fall 2017 to Spring 2018 and Levels of Locus of Control in Fall 2017, Among Students Who Responded to Both Surveys

	Change From Fall to Spring (*n*=132)			Fall Levels (*n*=132)		
	Coefficient	Standard Error	*p*-value	Coefficient	Standard Error	*p*-value
Gender (male reference)						
Female	-0.107	0.081	0.186	0.085	0.090	0.348
Race/Ethnicity (White reference)						
Black	0.068	0.118	0.566	0.059	0.132	0.655
Hispanic	-0.025	0.117	0.831	0.148	0.131	0.256
Other	0.178	0.171	0.300	-0.186	0.191	0.329
English Learner (EL) Status (non-EL reference)						
EL	0.168	0.111	0.131	-0.270	0.124	0.029
Socioeconomic Status (fewer than 100 books reference)						
100 or more books at home	-0.037	0.105	0.722	0.053	0.117	0.651
Grade Level (Grade 9 reference)						
Grade 10	-0.084	0.133	0.525	0.065	0.148	0.663
Grade 11	0.240	0.124	0.053	-0.172	0.138	0.212
Subject Area (social studies reference)						
Mathematics	-0.325	0.196	0.097	0.395	0.218	0.070
English language arts	0.011	0.162	0.948	0.420	0.181	0.020
Science	-0.047	0.126	0.707	0.153	0.141	0.275
Interdisciplinary	0.041	0.143	0.775	0.144	0.159	0.366
Constant	-0.015	0.135	0.914	2.818	0.151	0.000

Table 37. Changes in Mastery Orientation From Fall 2017 to Spring 2018 and Levels of Mastery Orientation in Fall 2017, Among Students Who Responded to Both Surveys

	Change From Fall to Spring (*n*=132)			Fall Levels (*n*=132)		
	Coefficient	Standard Error	*p*-value	Coefficient	Standard Error	*p*-value
Gender (male reference)						
Female	-0.097	0.111	0.382	0.070	0.120	0.561
Race/Ethnicity (White reference)						
Black	-0.157	0.161	0.331	0.459	0.175	0.009
Hispanic	0.029	0.160	0.857	0.363	0.174	0.037
Other	-0.053	0.237	0.824	0.166	0.255	0.514

	Change From Fall to Spring (*n*=132)			Fall Levels (*n*=132)		
	Coefficient	Standard Error	*p*-value	Coefficient	Standard Error	*p*-value
English Learner (EL) Status (non-EL reference)						
EL	-0.180	0.151	0.232	-0.218	0.165	0.187
Socioeconomic Status (fewer than 100 books reference)						
100 or more books at home	-0.217	0.145	0.134	0.286	0.156	0.066
Grade Level (Grade 9 reference)						
Grade 10	-0.341	0.208	0.100	0.260	0.197	0.187
Grade 11	0.036	0.196	0.855	-0.097	0.184	0.599
Subject Area (social studies reference)						
Mathematics	-0.242	0.270	0.370	0.182	0.291	0.531
English language arts	-0.122	0.222	0.582	0.844	0.241	0.000
Science	-0.286	0.186	0.123	0.368	0.187	0.050
Interdisciplinary	-0.174	0.214	0.416	0.271	0.212	0.202
Constant	0.483	0.212	0.023	2.057	0.201	0.000

Table 38. Changes in Metacognitive Self-Regulation From Fall 2017 to Spring 2018 and Levels of Metacognitive Self-Regulation in Fall 2017, Among Students Who Responded to Both Surveys

	Change From Fall to Spring (*n*=128)			Fall Levels (*n*=130)		
	Coefficient	Standard Error	*p*-value	Coefficient	Standard Error	*p*-value
Gender (male reference)						
Female	-0.044	0.104	0.670	0.250	0.103	0.016
Race/Ethnicity (White reference)						
Black	-0.117	0.152	0.443	0.329	0.150	0.028
Hispanic	-0.056	0.155	0.720	0.256	0.153	0.095
Other	-0.286	0.218	0.189	0.190	0.217	0.382
English Learner (EL) Status (non-EL reference)						
EL	-0.317	0.147	0.031	-0.034	0.142	0.809
Socioeconomic Status (fewer than 100 books reference)						
100 or more books at home	-0.176	0.137	0.198	0.300	0.136	0.028
Grade Level (Grade 9 reference)						
Grade 10	-0.187	0.176	0.287	0.171	0.173	0.323
Grade 11	0.267	0.159	0.094	-0.075	0.158	0.633

	Change From Fall to Spring (*n*=128)			Fall Levels (*n*=130)		
	Coefficient	Standard Error	*p*-value	Coefficient	Standard Error	*p*-value
Subject Area (social studies reference)						
Mathematics	-0.060	0.255	0.814	-0.042	0.255	0.870
English language arts	0.211	0.209	0.313	0.536	0.209	0.010
Science	-0.137	0.166	0.408	0.301	0.164	0.067
Interdisciplinary	0.126	0.187	0.500	0.059	0.187	0.753
Constant	0.302	0.177	0.088	2.062	0.176	0.000

Table 39. Changes in Self-Regulated Learning From Fall 2017 to Spring 2018 and Levels of Self-Regulated Learning in Fall 2017, Among Students Who Responded to Both Surveys

	Change From Fall to Spring (*n*=127)			Fall Levels (*n*=128)		
	Coefficient	Standard Error	*p*-value	Coefficient	Standard Error	*p*-value
Gender (male reference)						
Female	-0.083	0.107	0.436	0.220	0.119	0.066
Race/Ethnicity (White reference)						
Black	-0.024	0.153	0.876	0.357	0.172	0.038
Hispanic	-0.238	0.157	0.130	0.386	0.177	0.030
Other	-0.200	0.220	0.363	0.258	0.249	0.300
English learner (EL) Status (non-EL reference)						
EL	0.004	0.145	0.978	-0.099	0.163	0.544
Socioeconomic Status (fewer than 100 books reference)						
100 or more books at home	-0.041	0.141	0.773	0.230	0.158	0.147
Grade Level (Grade 9 reference)						
Grade 10	-0.341	0.183	0.062	0.398	0.198	0.045
Grade 11	0.330	0.161	0.040	-0.264	0.181	0.144
Subject Area (social studies reference)						
Mathematics	-0.089	0.261	0.734	-0.136	0.292	0.641
English language arts	0.045	0.231	0.845	0.565	0.244	0.020
Science	-0.132	0.168	0.432	0.455	0.188	0.016
Interdisciplinary	-0.106	0.195	0.586	0.407	0.217	0.060
Constant	0.241	0.182	0.185	2.084	0.202	0.000

Table 40. Changes in Future Orientation From Fall 2017 to Spring 2018 and Levels of Future Orientation in Fall 2017, Among Students Who Responded to Both Surveys

	Change From Fall to Spring (*n*=126)			Fall Levels (*n*=127)		
	Coefficient	Standard Error	*p*-value	Coefficient	Standard Error	*p*-value
Gender (male reference)						
Female	-0.028	0.117	0.809	0.236	0.132	0.074
Race/Ethnicity (White reference)						
Black	-0.004	0.167	0.981	0.325	0.190	0.087
Hispanic	-0.057	0.170	0.739	0.299	0.195	0.125
Other	-0.284	0.239	0.234	0.215	0.274	0.433
English Learner (EL) Status (non-EL reference)						
EL	-0.249	0.157	0.112	-0.078	0.179	0.665
Socioeconomic Status (fewer than 100 books reference)						
100 or more books at home	0.104	0.152	0.495	0.197	0.174	0.256
Grade Level (Grade 9 reference)						
Grade 10	-0.664	0.198	0.001	0.067	0.218	0.756
Grade 11	0.222	0.174	0.202	-0.547	0.198	0.006
Subject Area (social studies reference)						
Mathematics	-0.492	0.282	0.081	0.318	0.320	0.322
English language arts	-0.609	0.258	0.018	0.695	0.274	0.011
Science	-0.362	0.181	0.046	0.537	0.206	0.009
Interdisciplinary	-0.337	0.211	0.110	0.252	0.238	0.289
Constant	0.378	0.196	0.054	2.547	0.221	0.000

Data Collection Instrument: Student Survey

Introduction

Welcome to the Student Agency Survey!

We want your opinion about your school, teachers, classes, schoolwork, and yourself. The only right answers to these questions are your honest opinions. It will take about 15 minutes to complete this survey.

This survey is voluntary. If you do not want to answer a question, you may skip it, but we hope you will answer as many questions as you can. Your responses to survey questions will be shared with teachers as part of the study so that they are able to better meet the needs of students.

Your opinions are very important to us. We appreciate your participation in this survey!

If you agree to participate in the study, please click the "Yes" button below to continue on to the survey, and click the "Done" button when you are finished taking the survey. By doing so, you give us your permission to use your responses in our study.

- Yes
- No

Student Information

Student Name: _____

Student ID: _____

Date of Birth: _____

Are you taking this survey in one of the following teachers' classes?

(List out the participating NIC teachers that they could select)

Pick the teacher you saw today.

If you didn't have any of the teachers: _____

Please type in the name of that class: _____

Please select the class period:_____

Please continue to think of that class/teacher as you answer the following questions in the survey.

To what extent do you agree or disagree with the following statements about you?	Strongly Disagree	Disagree	Agree	Strongly Agree
I will be able to achieve most of the goals that I have set for myself.	◯	◯	◯	◯
When facing difficult tasks, I am certain that I will accomplish them.	◯	◯	◯	◯
In general, I think that I can achieve goals that are important to me.	◯	◯	◯	◯
I believe I can succeed at most almost anything to which I set my mind.	◯	◯	◯	◯
I will be able to successfully overcome challenges.	◯	◯	◯	◯
I am confident that I can perform effectively on many different tasks.	◯	◯	◯	◯
I can do most tasks very well.	◯	◯	◯	◯
Even when things are tough, I can perform quite well.	◯	◯	◯	◯

To what extent do you agree or disagree with the following statements about you?	Strongly Disagree	Disagree	Agree	Strongly Agree
I often set a goal but later choose to pursue a different one.	◯	◯	◯	◯
I have been obsessed with a certain idea or project for a short time but later lost interest.	◯	◯	◯	◯
I have difficulty maintaining my focus on projects that take more than a few months to complete.	◯	◯	◯	◯
New ideas and projects sometimes distract me from previous ones.	◯	◯	◯	◯
I finish whatever I begin.	◯	◯	◯	◯
Setbacks don't discourage me.	◯	◯	◯	◯
I am diligent.	◯	◯	◯	◯
I am a hard worker.	◯	◯	◯	◯

To what extent do you agree or disagree with the following statements about you?	Strongly Disagree	Disagree	Agree	Strongly Agree
Whether or not I get to be a leader depends mostly on my ability.	◯	◯	◯	◯
When I make plans, I am almost certain to make them work.	◯	◯	◯	◯
How many friends I have depends on how nice a person I am.	◯	◯	◯	◯
I can pretty much determine what will happen in my life.	◯	◯	◯	◯
I am usually able to protect my personal interests.	◯	◯	◯	◯
When I get what I want, it's usually because I worked hard for it.	◯	◯	◯	◯
My life is determined by my own actions.	◯	◯	◯	◯

To what extent do you agree or disagree with the following statements about you?	Strongly Disagree	Disagree	Agree	Strongly Agree
I like classwork that I'll learn from even if I make a lot of mistakes.	◯	◯	◯	◯
An important reason why I do my classwork is because I like to learn new things.	◯	◯	◯	◯
I like classwork best when it really makes me think.	◯	◯	◯	◯
An important reason why I do my classwork is because I want to get better at it.	◯	◯	◯	◯
An important reason I do my classwork is because I enjoy it.	◯	◯	◯	◯
I do my classwork because I'm interested in it.	◯	◯	◯	◯

To what extent do you agree or disagree with the following statements about you?	Strongly Disagree	Disagree	Agree	Strongly Agree
During class time I often miss important points because I'm thinking of other things.	◯	◯	◯	◯
When I become confused about something I'm reading for this class, I go back and try to figure it out.	◯	◯	◯	◯
If class materials are difficult to understand, I change the way I read the material.	◯	◯	◯	◯
Before I study new class material thoroughly, I often skim it to see how it is organized.	◯	◯	◯	◯
I ask myself questions to make sure I understand the material I have been studying in this class.	◯	◯	◯	◯
I try to change the way I study in order to fit the class requirements and instructor's teaching style.	◯	◯	◯	◯
I often find that I have been reading for class but don't know what it was all about.	◯	◯	◯	◯
I try to think through a topic and decide what I am supposed to learn from it rather than just reading it over when studying.	◯	◯	◯	◯
When studying for this class I try to determine which concepts I don't understand well.	◯	◯	◯	◯
When I study for this class, I set goals for myself in order to direct my activities.	◯	◯	◯	◯
If I get confused taking notes in class, I make sure I figure it out afterwards.	◯	◯	◯	◯

To what extent do you agree or disagree with the following statements about you?	Strongly Disagree	Disagree	Agree	Strongly Agree
I set aside time to do my homework and study.	◯	◯	◯	◯
I try to do well on my schoolwork even when it isn't interesting to me.	◯	◯	◯	◯
If I need to study, I don't go out with my friends.	◯	◯	◯	◯
I always study for tests.	◯	◯	◯	◯
I keep track of my long-term assignments so I know when to turn them in.	◯	◯	◯	◯
I manage my time well enough to get all my work done.	◯	◯	◯	◯
I can keep my schoolwork and personal life organized.	◯	◯	◯	◯
I set goals for my performance in classes.	◯	◯	◯	◯
I have a system for organizing my schoolwork.	◯	◯	◯	◯

To what extent do you agree or disagree with the following statements about you?	Strongly Disagree	Disagree	Agree	Strongly Agree
Grades in high school matter for success in college.	◯	◯	◯	◯
My classes give me useful preparation for what I plan to do in life.	◯	◯	◯	◯
High school teaches me valuable skills.	◯	◯	◯	◯
Working hard in high school matters for success in the workforce.	◯	◯	◯	◯
What I learn in class is necessary for success in the future.	◯	◯	◯	◯

Please think of the teachers in your school as you answer the following questions in the survey.

To what extent do you agree or disagree with the following statements about the teachers in your school?	Strongly Disagree	Disagree	Agree	Strongly Agree
My teachers really listen to what I have to say.	◯	◯	◯	◯
My teachers will discuss my grades with me.	◯	◯	◯	◯
My teachers notice when I am having trouble learning something.	◯	◯	◯	◯
My teachers check to make sure we understand what s/he is teaching us.	◯	◯	◯	◯
My teachers will help me catch up if I am behind.	◯	◯	◯	◯
My teachers explain difficult things clearly.	◯	◯	◯	◯
My teachers believe I can do well in school.	◯	◯	◯	◯
My teachers pay attention to all students, not just the top students.	◯	◯	◯	◯
My teachers have several good ways to explain things.	◯	◯	◯	◯
My teachers will give me extra help on schoolwork if I need it.	◯	◯	◯	◯
My teachers will help me stay busy and interested if I get ahead.	◯	◯	◯	◯

Student Demographics

Are you a male or female?

- ◯ Male
- ◯ Female

Are you Hispanic or Latino?

- ◯ Yes, I am Hispanic or Latino.
- ◯ No, I am not Hispanic or Latino.

Which of the following best describes you?

- ◯ White
- ◯ Black or African American
- ◯ Asian
- ◯ American Indian or Alaska Native
- ◯ Native Hawaiian or other Pacific Islander
- ◯ Multiracial

How often do you speak English at home?

- Always (If Always, skip next question).
- Almost always
- Sometimes
- Never

What language other than English do you speak at home?

- Spanish
- Other (Please specify: _____)

About how many books are there in your home? (Do not count magazines, newspapers, or your schoolbooks.)

- None or very few (0–10 books)
- Enough to fill one shelf (11–25 books)
- Enough to fill one bookcase (26–100 books)
- Enough to fill two bookcases (101–200 books)
- Enough to fill three or more bookcases (more than 200)

How many digital information devices are there in your home? Count computers, tablets, smartphones, smart TVs, and e-readers. (Do not count other devices.)

- None
- 1–3 devices
- 4–6 devices
- 7–10 devices
- More than 10 devices

Data Collection Instrument: Teacher Survey

Introduction

New Tech Network is working with the American Institutes for Research (AIR) to study teacher practices that support the development of student agency. The study aims to identify the instructional practices that are particularly useful for the development of different aspects of student agency (i.e., self-efficacy, self-regulated learning, and persistence) and whether these instructional practices are equally helpful for different subgroups of students. As part of this study, AIR is surveying teachers in four high schools in the New Tech Network.

The survey questions ask for your opinions and experiences related to your school, students, and instruction. By completing the survey, you agree to allow your responses to be included in the study.

This survey will not be used to evaluate you or anyone else in your school.

The survey is voluntary and confidential. We will not and cannot share individual responses with anyone outside of the study team at AIR. Although your data will be linked to your email address, no one outside of AIR will have access to that information. Findings will be reported in groups of responses among the schools participating in the study as well as at the school level.

Responses will not be used to evaluate your school or to compare schools, but will be used to understand behaviors and perspectives of the teachers in this study.

If you do not want to answer a question, you may skip it, but we hope you will answer as many questions as you can. Your perspective is very important to us.

The survey will take approximately 15 minutes to complete.

If you agree to participate in the study, please click the "Yes" button below to continue on to the survey, and click the "Done" button when you are finished. By doing so, you give us your permission to use your responses in our study.

- Yes
- No

NIC Participation

Are you participating in the networked improvement community (NIC) related to this study?

- ◯ Yes
- ◯ No

Instructions

The following questions ask about your general perception of other teachers at your school in the areas of innovation, improvement, and commitment. When you answer, think about your experience working at your current school.

If this is the first year you have worked at your school, please check the box below.

☐ Yes, this is my first year teaching at this school.

Please mark the extent to which you disagree or agree with each of the following:	Strongly Disagree	Disagree	Agree	Strongly Agree
1. I usually look forward to each working day at this school.	◯	◯	◯	◯
2. I wouldn't want to work in any other school.	◯	◯	◯	◯
3. I feel loyal to this school.	◯	◯	◯	◯
4. I would recommend this school to parents seeking a place for their child.	◯	◯	◯	◯
5. I would want to have my child in this school.	◯	◯	◯	◯

For this set of questions, think about the teachers in your school.

To what extent do you disagree or agree with the following?	Strongly Disagree	Disagree	Agree	Strongly Agree
6. Once we start a new program in this school, we follow up to make sure that it's working.	◯	◯	◯	◯
7. We have so many different programs in this school that I can't keep track of them all.	◯	◯	◯	◯
8. Many special programs come and go at this school.	◯	◯	◯	◯
9. Curriculum, instruction, and learning materials are well coordinated across the different grade levels at this school.	◯	◯	◯	◯
10. There is consistency in curriculum, instruction, and learning materials among teachers in the same grade level at this school.	◯	◯	◯	◯

For this set of questions, think about the teachers in your school.

How many teachers at this school:	None	Some	About Half	Most	Nearly All
11. Are really trying to improve their teaching?	◯	◯	◯	◯	◯
12. Are willing to take risks to make the school better?	◯	◯	◯	◯	◯
13. Are eager to try new ideas?	◯	◯	◯	◯	◯

For this set of questions, think about the teachers in your school.

Please mark the extent to which you disagree or agree with each of the following. Teachers in my school:	Strongly Disagree	Disagree	Agree	Strongly Agree
14. Have made changes designed to better meet the needs of the school's diverse student body.	◯	◯	◯	◯
15. Are engaged in systematic analysis of teaching practices.	◯	◯	◯	◯
16. Have well-defined plans for instructional improvement.	◯	◯	◯	◯
17. Openly examine and acknowledge progress towards an instructional vision.	◯	◯	◯	◯
18. Are engaged in systematic analysis of student-performance data.	◯	◯	◯	◯
19. Review student learning and understanding in order to adjust their practices.	◯	◯	◯	◯
20. Have a clear vision of instruction linked to standards for student learning and growth.	◯	◯	◯	◯

Think about the typical students you teach in this school.

How many students:	None	Some	About Half	Most	Nearly All
21. Come to class on time?	◯	◯	◯	◯	◯
22. Attend class regularly?	◯	◯	◯	◯	◯
23. Come to class prepared with the appropriate supplies and books?	◯	◯	◯	◯	◯
24. Regularly pay attention in class?	◯	◯	◯	◯	◯
25. Actively participate in class activities?	◯	◯	◯	◯	◯
26. Always turn in their homework?	◯	◯	◯	◯	◯

How much can you do to:	Nothing or Very Little	Some	A Fair Amount	A Great Deal
27. Overcome the influence of adverse community conditions on students' learning?	◯	◯	◯	◯
28. Promote learning when there is a lack of support from the home?	◯	◯	◯	◯
29. Control disruptive behavior in the classroom?	◯	◯	◯	◯
30. Motivate students who show low interest in schoolwork?	◯	◯	◯	◯
31. Get through to the most difficult students?	◯	◯	◯	◯
32. Get students to work together?	◯	◯	◯	◯
33. Keep students on task on difficult assignments?	◯	◯	◯	◯
34. Get students to do their homework?	◯	◯	◯	◯

How often is each statement below true about you?	Never	A few times per year	Monthly	A few times per month	Every week	A few times per week	Every day
35. I can easily understand how my students feel about things.	◯	◯	◯	◯	◯	◯	◯
36. I deal very effectively with the problems of my students.	◯	◯	◯	◯	◯	◯	◯
37. I feel I'm positively influencing my students' lives through my work.	◯	◯	◯	◯	◯	◯	◯
38. I feel very energetic.	◯	◯	◯	◯	◯	◯	◯
39. I can easily create a relaxed atmosphere with my students.	◯	◯	◯	◯	◯	◯	◯
40. I feel exhilarated after working closely with my students.	◯	◯	◯	◯	◯	◯	◯
41. I have accomplished many worthwhile things in this job.	◯	◯	◯	◯	◯	◯	◯
42. In my work, I deal with emotional problems very calmly.	◯	◯	◯	◯	◯	◯	◯

How often is each statement below true about you?	Never	A few times per year	Monthly	A few times per month	Every week	A few times per week	Every day
43. I feel I treat most students as respected individuals.	◯	◯	◯	◯	◯	◯	◯
44. I've become more callous towards people since I took this job.	◯	◯	◯	◯	◯	◯	◯
45. I worry that this job was hardening me emotionally.	◯	◯	◯	◯	◯	◯	◯
46. I really care what happens to most students.	◯	◯	◯	◯	◯	◯	◯
47. I feel students blamed me for some of their problems.	◯	◯	◯	◯	◯	◯	◯

NOTE: Some questions include the term "agency." By agency, we mean "students' capabilities to manage their own learning and be successful in school."

For a typical class, how often do you use the following practices with most of your students? Provide students with opportunities to...	Rarely	1–3 times a month	1–3 times a week	More than 3 times a week
48. Make connections between outside agency and its application in the classroom.	◯	◯	◯	◯
49. Revise assignments or tests after they have received feedback.	◯	◯	◯	◯
50. Self-reflect using journals, logs or other structured templates or tools.	◯	◯	◯	◯
51. Lead instruction on a particular skill or concept.	◯	◯	◯	◯
52. Contribute to and provide feedback on key decisions in the classroom.	◯	◯	◯	◯

NOTE: Some questions include the term "agency." By agency, we mean "students' capabilities to manage their own learning and be successful in school."

For a typical class, how often do you use the following practices with most of your students?	Rarely	1–3 times a month	1–3 times a week	More than 3 times a week
53. Develop personal relationships with students to better understand their agency strengths, needs, and motivators.	◯	◯	◯	◯
54. Guide students in the process of asking for feedback.	◯	◯	◯	◯
55. Help students set goals to complete coursework while improving their agency to do so on their own.	◯	◯	◯	◯

For a typical class, how often do you use the following practices with most of your students?	Rarely	1–3 times a month	1–3 times a week	More than 3 times a week
56. Hold one-on-one meetings with students to discuss elements of student agency and its relationship to academic work.	◯	◯	◯	◯
57. Design formative and summative assessments to evaluate student agency.	◯	◯	◯	◯
58. Provide students with extrinsic motivation to build agency skills.	◯	◯	◯	◯
59. Provide explicit instruction to develop skills related to student agency.	◯	◯	◯	◯
60. Model agency skills to demonstrate those skills to students in a meaningful context.	◯	◯	◯	◯
61. Provide positive reinforcement for demonstration of agency skills.	◯	◯	◯	◯
62. Provide students with tools, strategies, and resources to coach them towards mastery of agency skills.	◯	◯	◯	◯
63. Provide brief spoken prompts in real time to highlight or remind students of behaviors that demonstrate agency.	◯	◯	◯	◯

NOTE: Some questions include the term "agency." By agency, we mean "students' capabilities to manage their own learning and be successful in school."

How many students in your school have the following opportunities?	None	Some	About Half	Most	Nearly All
64. Make choices about the content and process of their work.	◯	◯	◯	◯	◯
65. Work in groups to learn and practice agency skills necessary for group success.	◯	◯	◯	◯	◯
66. Demonstrate agency outside the classroom (in the school or in the community).	◯	◯	◯	◯	◯
67. Make connections between outside agency and its application in the classroom.	◯	◯	◯	◯	◯
68. Revise assignments or tests after they have received feedback.	◯	◯	◯	◯	◯
69. Self-reflect using journals, logs, or other structured templates or tools.	◯	◯	◯	◯	◯
70. Demonstrate agency by leading instruction on a particular skill or concept.	◯	◯	◯	◯	◯

Teacher Demographics

1. What grade(s) do you teach? (Select all that apply.)

   - 9th
   - 10th
   - 11th
   - 12th

2. What subject(s) do you teach? (Select all that apply.)

   - English language arts
   - Mathematics
   - Science
   - Social studies
   - History
   - Foreign language
   - Other (please specify): _____

3. How many students do you teach in a typical day?

   - Fewer than 50
   - 50 to 74
   - 75 to 100
   - More than 100

4. What is the highest degree you have earned?

   - High school diploma
   - Associate's degree
   - Bachelor's degree
   - Master's degree
   - Educational specialist diploma
   - Ed.D., Ph.D., law degree, or other high-level professional degree
   - I do not have a college degree.

Including this school year (2017–18), how many years have you taught (count this school year as 1):	1 year	2–3 years	4–5 years	6–10 years	11 years or more
Any grade from K–8 at any school?	◯	◯	◯	◯	◯
Any grade from 9–12 at any school?	◯	◯	◯	◯	◯
Any subject at any grade level at this school?	◯	◯	◯	◯	◯

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