Reengaging Students: Students' Engagement in School Following Case Management Services from Communities In Schools Amidst the COVID-19 Pandemic

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Introduction

The construct of student engagement in school, defined by The Glossary of Education Reform as "the degree of attention, curiosity, interest, optimism, and passion that students show when they are learning or being taught," has been studied and prioritized in education for many years.[1] Student engagement is more than simple participation in class; it is characterized by behavioral, social, emotional, and cognitive components, all of which play a unique but equally important role in students' experience with learning and life outcomes[2]. Interest in student engagement has risen over the last several decades as many education systems in the U.S. have shifted to encompass a whole child approach to student learning. In recent years, schools and districts across the country have attempted to increase student engagement by employing school climate initiatives, implementing attendance incentive programs, and prioritizing student-teacher relationships, among many other efforts targeting student engagement.[3]

By the fall of 2020, an estimated 25% of those 12 million students were estimated to have likely gone missing from the school environment entirely.

While interest and prioritization of student engagement has been growing for the last several decades, the concept sprung to the forefront of education following school shutdowns across the country – and across the world – in response to the COVID-19 pandemic. When nearly all schools across the U.S. shut their doors to in-person education in mid-March 2020, Bellwether Education estimated that over 12 million marginalized (defined as students in foster care, students experiencing homelessness, students with disabilities, English Language Learners, and migrant students) were at risk of being left out of virtual learning opportunities due to issues such as lack of technology or broadband access, family housing or economic difficulties, and more. By the fall of 2020, an estimated 25% of those 12 million students – equal to just over 3 million students – were estimated to have likely gone missing from the school environment (virtual or in-person) entirely[4].

In the summer of 2020, the Communities In Schools (CIS) National Office and the American Institutes for Research (AIR) partnered to develop a survey of student engagement as a resource for CIS site coordinators navigating pandemic-related shifts in learning. The aim of this initiative was to develop a tool that would provide site coordinators with actionable data to identify students who are disengaged or at risk of disengaging from learning, enabling them to identify and prioritize students' specific engagement needs when planning supports and services. The survey was released to the CIS Network in September of 2020. In the 2021-2022 school year, the survey was used by 34 CIS affiliates with 3,699 case managed students completing the assessment at both the beginning and the end of the year. This brief presents

findings on students' engagement from the student engagement survey during the 2021-2022 school year.

Methods

Survey Development. The student engagement survey was developed by adapting items from other validated school climate surveys, including the Alaska School Climate and Connectedness Survey (SCCS)[5], the AIR Conditions for Learning Surveys (CFL)[6], the Authoritative School Climate Survey (ASCS)[7], the Community and Youth Collaborative Institute (CAYCI) School Experience Surveys[8], the REACH Survey from the Search Institute[9], and the U.S. Department of Education School Climate Surveys (EDSCLS)[10]. The final version of the survey that was released to the CIS network in the fall of 2020 was comprised of 14 items covering four key domains of engagement: Emotional, Social, Behavioral, and Cognitive. The items were rated on a 4-point scale, ranging from strongly disagree to strongly agree. The survey also yields a composite measure of Global Engagement using the scores achieved on the four separate domains.

To account for developmental differences in students' abilities to read and comprehend survey items at different ages, three different versions of the survey were created. For elementary school students, both a parent-response and student-response version were developed to provide the opportunity for parents to complete the survey on behalf of children unable to read and respond to items on their own. The version for middle and high school students is intended to be completed by students.

Following the first year of use, AIR conducted extensive psychometric testing of all versions of the engagement survey to ensure proper item fit and reliability (Rasch; Cronbach's Alpha). Items on the emotional, social, behavioral, and cognitive engagement domains demonstrated acceptable item fit and reliability metrics. In addition, global engagement – the composite score for the survey that encompasses all survey items – demonstrated strong reliability with Cronbach's alpha > 0.70, and Rasch > 0.70 across all versions of the survey. Both Cronbach's alpha and Rasch are on a scale of 0-1, with higher values representing higher reliability. Additionally, mean square estimates of item fit ranged from 0.60-1.70 for all versions of the

survey, indicating acceptable fit for all items. Mean square estimates of item fit are expected to be between 0.5 and 2, with a value of 1 indicating ideal item fit. Psychometric findings indicated that edits or changes to the survey were not indicated at the time of analysis. Updated psychometric analyses will be conducted as additional data is received.

Data Collection. In September of 2020, the survey was released to the CIS network alongside a training webinar conducted by CIS National and AIR. All affiliates in the CIS network were given access to all versions of the survey and were encouraged to use the assessment at the beginning and end of the school year (at minimum) to gauge students' initial level of engagement and to track progress over time. However, initial data collection efforts were focused on establishing psychometrics of the instruments, and some affiliates prioritized using the assessment with students at the beginning of the year to ensure a sufficient sample size for the analysis. Site coordinators were encouraged to administer initial assessments within 6 weeks of a student enrolling onto their caseload.

Survey data were primarily collected and scored through the Communities In Schools Data Management system (CISDM). Affiliates in Texas are not currently using CISDM due to state data collection requirements; as such, a separate process using Cognito Forms for survey response collection and an Excel-based scoring tool was established for affiliates in Texas. Upon completion of the survey, site coordinators were able to view tables and dashboards detailing student results, including scores on the four engagement domains, the global engagement score, and the categorizations of the student's domain and global scores (low, sliding, moderate, or high).

Sample. It should be noted that use of the survey was not required for the entire CIS network. Overall, 14,938 case managed students from the CIS network completed the survey at least once. Of those, 3,699 students completed the survey at two timepoints. These data were used for all pre-to-post comparative analyses. The sample was largely comprised of Black/African American (59.99%), white (16.85%), and Hispanic (16.23%) students. Additionally, the sample consisted of slightly more female (53.07%) than male (46.39%) students. See figures 1 and 2 for more information.

Figure 1 - Race/Ethnicity

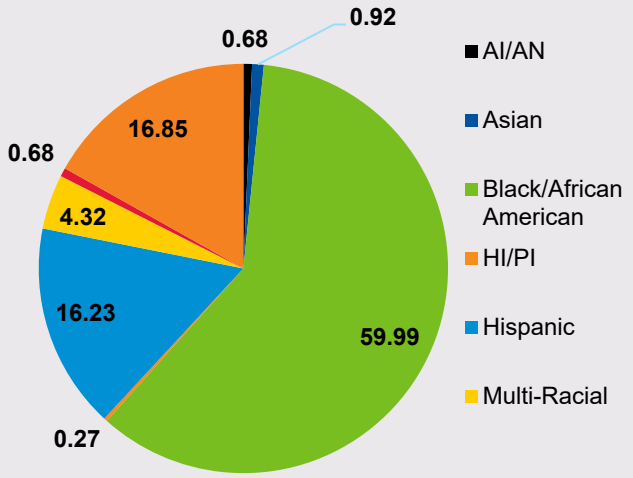
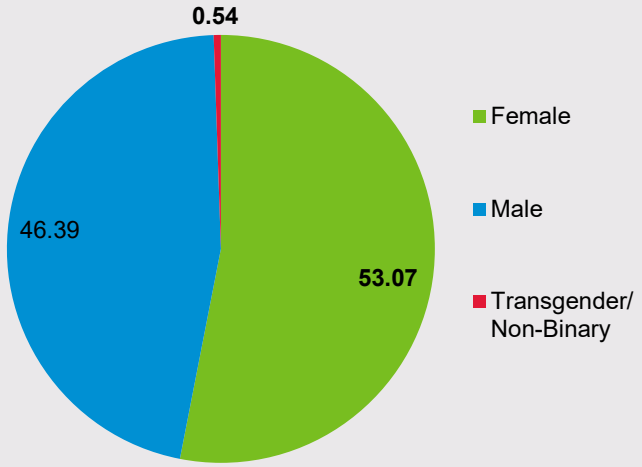


Figure 2 - Gender



Results

Student Engagement Outcomes Overall

Data from the sample of students that completed the survey at the beginning and the end of the school year were used to examine the categorical breakdown of students' global engagement scores at pre and post (see Table 1). At pre-assessment, 10.22% of students were classified as either exhibiting "low" or "sliding" (i.e., at risk of disengaging) global engagement scores. A slightly lower percentage of students (6.05%) were "low" or "sliding" at the second assessment timepoint. Additionally, paired sample t-tests showed a statistically significant improvement in all engagement survey domains including global engagement over the course of the school year (see Table 2).

When considering differences in various demographic groups, pre- to post-comparison analyses indicated small to moderate effect sizes amongst students of all race/ethnicity groups on most engagement domains, with only a few exceptions. Effect sizes for Hawaiian/Pacific Islander, multi-racial, and white students were negligible on the emotional engagement domain. Effect sizes on the behavioral engagement domain were also negligible for Asian and white students. Finally, Asian, white, and multi-racial students exhibited negligible effect sizes on the cognitive engagement domain. American Indian/Alaska Native (AI/AN) students typically exhibited the largest effect sizes, though the sample with this group was relatively small (n = 25). With respect to gender-related differences, small effect sizes were observed on engagement domains amongst students from all gender categories, with the exception of transgender/non-binary students, who demonstrated a negligible effect size on the emotional engagement domain. See Appendix I for further information on student engagement scores disaggregated by race/ethnicity and gender.

Table 1. Global Engagement Score

Global Engagement Score Category	Pre (%)	Post (%)	Difference
Low	1.46%	0.81%	-0.65%
Sliding	8.76%	5.24%	-3.52%
Moderate	34.69%	25.3%	-9.39%
High	55.1%	68.6%	+13.5%

Table 2. Average scores by domain, at pre and post

Engagement Domain	Pre	Post	Change	Effect Size *(Cohen's d)*
Global	3.01	3.13	0.12*	0.27
Social	3.04	3.18	0.14*	0.28
Emotional	2.92	3.05	0.13*	0.21
Behavioral	3.01	3.14	0.13*	0.23
Cognitive	3.07	3.17	0.10*	0.18

**Significant at p<0.01, paired samples t-test*

School-Level Differences

Data were also analyzed to explore differences in the degree of change in student engagement between students in elementary, middle, and high school. At the first administration of the assessment, a higher percentage of high school students (13.60%) exhibited "low" or "sliding" global engagement scores than middle (11.17%) and elementary school students (7.24%) (see Table 5). Although fewer students were found to be low or sliding at post-assessment across all three school levels, a higher percentage of high school students were classified as demonstrating "low" or "sliding" engagement (10.59%) compared to middle (5.22%) and elementary school (3.10%) students. Paired sample t-tests were conducted to examine the differences in scores on each domain from pre to post for each school level. Results of these analyses indicated statistically significant improvement from pre to post in all engagement survey domains for students at all school levels (see Table 6). However, small to medium effect sizes were observed amongst elementary and middle school students for all engagement domains, whereas effect sizes for high school students were small to negligible.

To further examine school level differences, a multivariate analysis of variance (MANOVA) test was conducted using pre- to post-change scores for all engagement domains[11]. Results indicated significant differences in degree of change across school levels. Post hoc Tukey's tests were subsequently conducted to examine the differences between the three school levels within each engagement domain. Results indicated that elementary and high school students differed significantly (0.08-0.13 points, $p < .01$) in the amount of change exhibited from pre to post across all engagement domains, including global engagement. Additionally, elementary and middle school students differed significantly in change shown within the social and behavioral engagement domains (0.06-0.09 points, $p < .05$). Finally, middle and high school students differed significantly in change shown within the behavioral, cognitive, and global engagement domains (0.06-0.08 points, $p < .01$). In all circumstances, high school students exhibited less change from pre to post than elementary and/or middle school students in the domains.

Table 5. Global Engagement Score Breakdown

Domain	Elementary School Students (%) *(n = 1,645)*	Middle School Students (%) *(n = 825)*	High School Students (%) *(n = 1,229)*
Global Engagement - Pre			
Low	0.91%	1.70%	2.04%
Sliding	6.33%	9.47%	11.56%
Moderate	36.01%	32.40%	34.53%
High	56.75%	56.43%	51.87%
Global Engagement - Post			
Low	0.30%	0.85%	1.47%
Sliding	2.80%	4.37%	9.12%
Moderate	21.90%	25.12%	29.89%
High	75.00%	69.66%	59.53%

11. A MANOVA yielded significant variation among school levels, $F(2, 3687) = 5.61$, $p < .001$.

Table 6. Average scores by domain at pre and post, disaggregated by school level

Engagement Domain	Elementary (*n* = 1,645)	Middle (*n* = 825)	High (*n* = 1,229)
Global			
Pre	3.05	3.01	2.97
Post	3.21	3.13	3.03
Change	0.17	0.12	0.06
Effect Size (Cohen's D)	0.39	0.28	0.14
Social			
Pre	3.02	3.09	3.04
Post	3.21	3.20	3.14
Change	0.19	0.11	0.10
Effect Size (Cohen's D)	0.38	0.21	0.18
Emotional			
Pre	2.94	2.95	2.89
Post	3.10	3.07	2.95
Change	0.16	0.12	0.06
Effect Size (Cohen's D)	0.29	0.22	0.11
Behavioral			
Pre	3.09	2.99	2.94
Post	3.27	3.12	3.00
Change	0.18	0.13	0.06
Effect Size (Cohen's D)	0.36	0.23	0.09
Cognitive			
Pre	3.15	3.02	3.00
Post	3.28	3.15	3.05
Change	0.13	0.13	0.05
Effect Size (Cohen's D)	0.25	0.24	0.09

All results significant at $p < 0.01$

Conclusion

Student engagement in school is a construct comprised of behavioral, social, emotional, and cognitive elements that has implications not only for students' academic successes but also for later life outcomes. While student engagement has been a priority in education for the last several decades, the COVID-19 pandemic and the associated shift to virtual learning brought student engagement to the forefront of education research and initiatives when an estimated 3 million students went missing from both online and in-person learning environments. This brief describes findings from a newly developed assessment of student engagement for students receiving CIS case management services in the 2021-2022 school year. Overall, findings indicated that CIS students experienced significant improvements across all domains of engagement (cognitive, social, emotional, behavioral, and global engagement). Small to medium effect sizes were observed for all domains except Cognitive Engagement, in which the effect sizes were small.

Examinations of school level differences indicated significant improvement across all domains for students at all school levels (i.e., elementary, middle, and high). Effect sizes were small to medium among elementary and middle school students, while effects for high school students were small to negligible. Moreover, additional analyses indicated that elementary and middle school students differed significantly from high school students in the degree of change on several engagement domains.

We observed a statistically significant increase in all facets of student engagement, suggesting that participation in CIS case management services may improve engagement for students at risk of disengaging from school.

These findings have several key implications. First, in this sample of CIS case managed students, we observed a statistically significant increase in all facets of student engagement, suggesting that participation in CIS case management services may improve engagement for students at risk of disengaging from school. Future comparative studies examining differences in engagement between CIS and non-CIS students would be beneficial in determining the impact of CIS on student engagement. Second, these findings highlight both the importance and benefits of regularly measuring student engagement to identify those students that are disengaged or at risk of disengaging, as the percentage of students identified as demonstrating “low” or “sliding” engagement decreased over the school year. This suggests that using student engagement survey data to identify and prioritize needs early in the support planning process can increase students’ engagement with the school and learning environment. Finally, the differences in outcomes between elementary and middle school students compared to high school students may indicate a need for differentiated supports for students of different ages. Future research should explore the possible differences in addressing engagement with students at the elementary, middle, and high school levels and the usefulness of providing supports that target the needs of students of different ages.

Appendix I

Average scores by domain at pre and post, disaggregated by race/ethnicity

Engagement Domain	AI/AN *(n = 25)*	Asian *(n = 34)*	Black/African American *(n = 2,218)*	HI/PI *(n = 10)*	Hispanic *(n = 600)*	Multi-Racial *(n = 162)*	Other *(n = 25)*	White *(n = 623)*
Global								
Pre	2.95	3.06	3.01	2.74	3.01	2.96	2.91	3.05
Post	3.21	3.20	3.14	2.95	3.12	3.06	3.02	3.13
Change	0.26	0.14*	0.13**	0.21	0.11**	0.10**	0.11	0.08**
Effect Size (Cohen's D)	0.52	0.31	0.21	0.51	0.27	0.22	0.31	0.19
Social								
Pre	3.06	3.13	3.02	2.90	3.04	3.03	2.90	3.11
Post	3.23	3.26	3.18	3.13	3.17	3.17	3.13	3.21
Change	0.17	0.13	0.16**	0.23	0.13**	0.14**	0.23	0.10
Effect Size (Cohen's D)	0.31	0.25	0.30	0.57	0.26	0.25	0.49	0.20
Emotional								
Pre	2.72	2.91	2.93	2.70	2.93	2.89	2.88	2.93
Post	3.18	3.13	3.07	2.70	3.05	2.97	2.97	2.99
Change	0.46	0.22*	0.14**	0.00	0.12	0.08	0.09	0.06*
Effect Size (Cohen's D)	0.63	0.41	0.24	0.00	0.22	0.13	0.17	0.10
Behavioral								
Pre	3.05	3.08	3.03	2.65	3.00	2.91	2.93	3.04
Post	3.24	3.18	3.16	3.05	3.11	3.03	3.08	3.15
Change	0.19	0.10	0.13**	0.40	0.11**	0.12	0.13	0.11**
Effect Size (Cohen's D)	0.38	0.19	0.24	0.84	0.23	0.22	0.40	0.18
Cognitive								
Pre	2.99	3.11	3.07	2.70	3.07	3.00	2.98	3.11
Post	3.19	3.23	3.18	2.93	3.18	3.08	2.84	3.19
Change	0.20	0.12	0.11**	0.23	0.11**	0.08	-0.14	0.08**
Effect Size (Cohen's D)	0.32	0.18	0.19	0.42	0.22	0.15	0.19	0.14

**Significant at p<0.05, paired sample t-test*
***Significant at p<0.01, paired sample t-test*

Average scores by domain at pre and post, disaggregated by gender

Engagement Domain	Female (*n* = 1,962)	Male (*n* = 1,715)	Transgender/Non-Binary (*n* = 20)
Global			
Pre	3.02	3.00	2.85
Post	3.14	3.13	2.96
Change	0.12*	0.13*	0.11
Effect Size (Cohen's D)	0.27	0.29	0.26
Social			
Pre	3.05	3.03	3.01
Post	3.19	3.18	3.18
Change	0.14*	0.15*	0.17
Effect Size (Cohen's D)	0.27	0.29	0.33
Emotional			
Pre	2.92	2.92	2.80
Post	3.04	3.06	2.78
Change	0.12*	0.14*	-0.02
Effect Size (Cohen's D)	0.21	0.24	0.04
Behavioral			
Pre	3.03	3.00	2.81
Post	3.16	3.13	2.94
Change	0.13*	0.13*	0.13
Effect Size (Cohen's D)	0.25	0.25	0.24
Cognitive			
Pre	3.08	3.06	2.80
Post	3.18	3.17	2.97
Change	0.10*	0.11*	0.17
Effect Size (Cohen's D)	0.18	0.20	0.27

**Significant at p<0.01, paired sample t-test*

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