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The Relationship Between Student Voice and Student Engagement in Urban High Schools

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Abstract
Drawing on student self-report survey data, this study examines student engagement across 67 urban high schools in the School District of Philadelphia. Results show that schools with higher rates of affective, behavioral, and cognitive engagement differ significantly from schools with other engagement profiles in students' average reports of teacher care and student voice. Path analyses lend support for self-determination theory and corroborate qualitative research that observes that student voice can improve student engagement. By highlighting the roles of teacher care and feelings of competence and belonging, this study identifies key means by which student voice influences student engagement.

Keywords Engagement · Student voice · Teacher care · Belonging · Competence · Self-determination theory

Introduction

In recent years, student voice has emerged as a promising strategy for engaging students in their education. Mitra (2018) defines student voice as the ways in which students influence or participate in educational decision-making. Student voice practices can include efforts by teachers or principals to seek feedback and ideas from students; partnerships between students and adults to design and implement reforms; or student-led campaigns to create school change. The central premise of student voice is that students know what is and is not working in their classrooms and schools, and therefore, it is incumbent on anyone who wants to improve students' educational experiences to attend to their perspectives, solicit their ideas, and take their feedback seriously.

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The Covid-19 pandemic has served to underscore the importance of student voice in educational improvement efforts. Students have been quick to decry the inadequacy of virtual learning, to call for enhanced safety measures in their schools, including mental health supports, and to offer fresh ideas for building and maintaining a sense of school community. Drawing on a case study of the Urban Assembly Maker Academy in New York, Alayeva (2021) found that one key to a school's successful Covid response was deeply leveraging student voice. In this school, students designed a structure and content for a weekly school-wide forum to ensure students had the opportunity to feel connected to one another during a period of considerable disruption and uncertainty. In addition to supporting students' wellbeing, student voice can help with addressing the "learning loss" brought about by Covid. Silverman (2021) has argued that if school leaders want to tackle this issue, they must begin by "really listen[ing] to their students, particularly students of color who are being left behind."

Even before the pandemic, student voice was showing evidence as a potential driver of academic outcomes. Research in Chicago Public Schools found that in schools that students rated as responsive to student voice, students had better grades and attendance than did their counterparts in schools rated as less responsive (Kahne et al., 2022). This important study, one of the first to link student voice to academic outcomes, left open the question of *how* responsiveness to student voice facilitates academic achievement; however, in qualitative studies, researchers have found that student voice practices can promote greater student engagement in learning (Baroutsis et al., 2016; Smyth, 2006; Mager & Nowalk, 2012; Mitra, 2018). Because a considerable body of research links engagement to academic outcomes, it stands to reason that student voice practices can generate desired academic outcomes by deepening student engagement. This study tests that proposition and seeks to uncover the mechanisms through which student voice may impact student engagement. Focusing on high schools in the School District of Philadelphia, we sought to understand the relationship between student voice and engagement.

Literature Review

Student Engagement and Its Antecedents: Self-Determination Theory

A robust body of research has linked engagement to three key antecedents: feelings of autonomy, relatedness, and competence (Fredricks et al., 2004; Reeve, 2002, 2012; Skinner & Pitzer, 2012). This research supports the basic tenets of self-determination theory, which, at its simplest, argues that students need to feel autonomy, belonging (or relatedness), and competence in order to feel engaged in an undertaking (Deci & Ryan, 2000; Ryan & Deci, 2017). Autonomy involves the self-initiation and self-regulation of behavior. It is often equated with feelings of choice, control, and agency. Belonging refers to affiliation, the strength of one's connections to others within a particular context; it is also sometimes called relatedness. Competence means knowing how to achieve certain results and feeling efficacious in doing so. Competence frequently involves seeking and conquering challenges. Known

informally as the ABC's of learning, the three building blocks of self-determination have been used to explain how urban students can become engaged in learning (Carver, 1998; National Research Council, 2003).

The research that draws on self-determination theory considers engagement in context. Autonomy, belonging (or relatedness), and competence are understood not just as individual psychological feelings, but also as tools for evaluating how well the learning environment addresses students' needs. Ryan and Deci (2002) write:

> The needs for competence, relatedness, and autonomy provide the basis for categorizing aspects of the environment as supportive versus antagonistic to integrated and vital human functioning. Social environments that allow satisfaction of the three basic needs are predicted to support such healthy functioning, whereas factors associated with need thwarting or conflict are predicted to be antagonistic. Thus, the concept of basic needs provides a critical linking pin within the organismic dialectic (p. 6).

Ryan and Deci use the term "organismic dialectic" to refer to the interdependent relationship between human nature and the social context. Numerous studies have linked each of the three individual needs highlighted by self-determination theory (the need for autonomy, the need for belonging, and the need for competence) to student engagement and motivation to learn.

Autonomy

Researchers have found connections between feelings of autonomy and affective engagement or intrinsic motivation (Patrick, et al., 1993; Reeve et al., 2004; Ryan et al., 1985). Shernoff and colleagues (2003) showed that when students feel high control over a classroom situation, they are more likely to be highly affectively and behaviorally engaged. In her comparative study of students' experiences in traditional and non-traditional schools, Johnson (2004) found positive and strong associations between student engagement and measures of autonomy as well as measures of belonging. Anderson (2018) also found a highly significant correlation between measures of choice, often considered a proxy for autonomy-support, and affective engagement, while Phillips (2019) found autonomy-support to be conducive to higher levels of behavioral engagement among the Black and Latinx math students in her study. Similarly, Schmidt et al. (2018) showed that when students' felt they had a choice about how to frame the learning activity, they were more likely to report optimal engagement.

Belonging

Sometimes referred to as feelings of connectedness or relatedness, belonging has also been positively linked to engagement (Korpershoek et al, 2019; Murray, 2009; Wang & Holcombe, 2010). For example, The National Research Council's (2003) *Engaging Schools* portrays social connectedness to peers and adults in school as a psychological mediator of school contexts and academic engagement. Blum (2005)

identified connectedness as an important factor in students' cognitive engagement. Goodneow and Grady (1993) found a sense of belonging correlates with a student's behavioral engagement or effort. In addition to being associated with cognitive and behavioral engagement, belonging has been linked to affective engagement (Cooper, 2012; Roeser et al., 1996). Some of this research suggests that a sense of belonging is a particularly salient driver of behavioral and affective engagement for minoritized youth (Singh et al., 2010).

Competence

A decade before Deci and Ryan introduced self-determination theory, competence was established as a fundamental building block of motivation and engagement. Csikszentmihalyi (1975) identified "optimal challenge" as a pre-requisite for individuals to experience "flow," an ultimate state of engagement in which one loses track of time and self-consciousness and becomes completely absorbed in an activity. Csikszentmihalyi argued that the challenge of the activity needed to be balanced with the individual's skill level. In other words, the individual needed to feel competent. Since then, associations have been found between feelings of competence and general academic engagement (Connell, 1990; Covington, 1984; Marks, 1995; Ryan et al., 1985). Research by Newmann and his colleagues has shown that when students feel that they can be successful in a task, they will show greater effort and interest in completing that task (Newmann, 1989; Newmann et al., 1992). Similarly, in the field of motivation, students' expectancy beliefs (their expectations of success) have been found to predict use of deeper cognitive strategies (Pintrich & De Groot, 1990; Pintrich & Garcia, 1991; Wigfield & Eccles, 2000). In a qualitative study, Fredricks et al. (2016) found that students were more likely to feel engaged in math and science classes when they felt competent.

Self-Systems Model

Drawing on self-determination theory, Connell and Wellborn (1991) presented a "self-system model" in which autonomy, belonging, and competence mediate the relationship between contextual factors and student engagement or disaffection. They validated this model using path analysis methods. The results demonstrated that students' perceptions of their contexts were related to their feelings of autonomy, competence, and relatedness. In addition, each of these feelings was associated with higher levels of engagement. Students who reported that they did not feel autonomous, competent, or related in school were more likely than their counterparts to show patterns of disaffection.

Other researchers have applied Connell and Wellborn's model (e.g., Fredricks et al., 2019; Phillips, 2019; Skinner et al., 2009). For example, in a study of classroom engagement among students in fourth, sixth, and ninth grades Skinner and colleagues (2008) found links between classroom competence and behavioral engagement for students in grades four and six, as well as links between both classroom autonomy and classroom belonging and disengagement for this same group of students. They did not administer measures of competence and autonomy to the

ninth-grade students. Dincer and colleagues (2019) found that students' perceptions of autonomy-support in the classroom were associated with greater feelings of autonomy, competence, and relatedness, and that the satisfaction of these needs in turn were associated with higher behavioral, cognitive, affective, and agentic engagement.

Certainly, scholars have examined other individual and contextual factors that facilitate student engagement, beyond those that generate feelings of autonomy, belonging, and competence, including school size, school condition, disciplinary policies, classroom structure, task characteristics, school conditions, peer influence, curricular relevance, and student–teacher relationships (Borrero & Yeh, 2016; Greer et al., 2018). While this research has identified key practices and policies that can promote student engagement, such as giving students a choice in how to frame problems and tasks (Schmidt et al., 2018), it has largely side-stepped the question of whether and how *student voice* might matter either to engagement or to its psychological antecedents. Nonetheless, the phrase "voice and choice" is regularly used in research and writings on student engagement (e.g., Hastie et al., 2013; Pope et al., 2015; Sahin & Top, 2015; Seiler, 2013).

Student Voice, Engagement, and Achievement

Understood as the ways in which youth share their views on their experiences as students in order to promote meaningful change in educational practice or policy and influence educational decision making, student voice has become seen as a powerful driver of desired student outcomes (Conner, 2015; Conner et al., 2015). When students share their views on what is and is not working in their school and classrooms, educators can come to a better understanding of how their students learn and how their needs as learners can be better met (Conner, 2021). Such understanding is essential for responsive teaching. A growing body of qualitative research has demonstrated that student voice efforts can improve instructional practices as well as curricular design (Cook-Sather, 2009; Mitra, 2008; Rudduck, 2007). Student voice can result in changes to practice and policy that are more attuned to student needs and therefore more engaging and effective for student learning. Indeed, greater engagement in school has been heralded as a key outcome of student voice initiatives and programs (Baroutsis et al., 2016; Fielding, 2001, 2004; Levin, 2000; Smyth, 2006; Taines, 2012), and even the simple acts of making students feel heard and taken seriously in the classroom can help promote student engagement (Wallace & Chhuon, 2014). Dunleavy and Milton's (2009) list of conditions necessary for the promotion of students' intellectual engagement include the exhortation: "invite students to be co-designers of their learning in classrooms; support student voice and autonomy" (p. 14).

Little quantitative research on student voice exists; however, researchers in Australia found that measures of student voice correlate strongly with affective engagement and moderately with cognitive engagement (Anderson, 2018).

In a mixed methods study focused on student engagement in urban schools, voice emerged as a salient theme in interviews, as many students described the

opportunity to give feedback on class content and assignments as engaging; however, in the quantitative results, voice and choice at school were not associated with engagement, and in fact, predicted disengagement for students with low GPAs (Fredricks et al., 2019). This finding led the authors to argue that "future research should examine different dimensions of autonomy support [which they operationalized as voice and choice in school] to understand what facets help, versus undermine, engagement" (Fredricks et al., 2019, p. 516). By focusing on student voice and its relationship with student engagement, this study responds to their call.

Student Voice and Student–Teacher Relationships

In addition to promoting engagement, research shows that student voice can serve as a conduit for improving student–teacher relationships (Baroutsis et al., 2016; Conner, 2021; Rudduck, 2007). In her study of a reform initiative at Whitman High School that centered student voice, Mitra (2008) explains how "partnering with teachers to examine practice … helped students develop positive relationships with teachers where none had existed previously." As teachers and students worked together in common cause, they built mutual trust and respect. Of course, the development of such relational trust can be affected by sociocultural differences between students and teachers as well as institutional constraints (Phillippo, 2012; Rolon-Dow, 2005). In a context in which students have little trust in school and in which student voice is counter-normative, teachers' attempts to build relationships can be perceived as invasive and unwanted (Phillippo, 2012).

Highlighting the centrality of the relationships that students and their teachers negotiate as they learn to work together on a joint undertaking and share power in student voice initiatives, several scholars frame student voice work as youth-adult partnerships (Bolstad, 2011; Beattie & Rich, 2018; Camino, 2005; Mitra, 2009), thereby blurring the lines between student voice and student–teacher relationships. This conceptual overlap was also found in a recent study of survey scales that have been used to measure student–teacher relationships (Phillippo et al., 2017). The researchers observed that 57% of the 49 student–teacher relationship scales they studied included at least one item that pertained to teachers listening to their students, such as "My teachers really listen to what I have to say." Furthermore, four scales included items that reported on teacher soliciting student voice, such as "My opinion matters to my math teacher." Whether student voice is indicative of positive student–teacher relationships or a necessary foundation on which these relationships are built requires further conceptual attention from researchers.

Student Voice and Agency, Belonging, and Competence

Along with student engagement and student–teacher relationships, research has linked student voice to key developmental outcomes, such as those highlighted by self-determination theory. Mitra (2004, 2008) found that participation in student voice initiatives can promote student agency, belonging, and competence. Other researchers report similar findings. Drawing on their more than ten-year experience

leading and studying student voice programs, Beattie and Rich (2018) concluded that youth-adult partnerships meet the basic human need for agency. Similarly, Toshalis and Nakkula (2012) argued, "student voice programs demonstrate a commitment to the facilitation of student agency" (p. 23). Focusing on the concept of belonging, Dureau (2016) found statistically significant increases in students' sense of school connectedness after one year of a "Teach the Teacher" program, in which students led professional development sessions for their teachers. Rudduck (2007), too, found that students involved in pedagogical consultation work with their teachers routinely reported enhanced feelings of membership in their school community and agency as benefits of this work. Feelings of belonging and connectedness were also highlighted as key elements of student wellbeing, outcomes which Anderson (2018) found were predicted by experiences in which students felt they had an impact on decisions at school and authentic voice with school leaders. This body of evidence suggests that soliciting student voice may be a practice teachers can use to satisfy students' needs for autonomy, belonging, and competence, thereby facilitating deeper engagement in classroom learning activities; however, more quantitative research is needed to test these theoretical links.

Understanding the relationships among student voice practices and desirable student outcomes in the context of urban schools is particularly important. While it is the case that studies of student voice have found developmental, academic, and civic benefits for students across racial and socioeconomic groups, low-income students of color appear to encounter fewer opportunities for student voice in their classrooms and schools than their wealthier, white counterparts (Alonso et al., 2009; McFarland & Starmann, 2009). As Rodriguez and Brown (2009) have observed, "Examples of the disproportionate silencing of low-income students of color are replete in the educational literature" (p. 22). Often this silencing has been tied to strict disciplinary policies and highly controlled teaching, which offer little room for students to shape the curriculum, pedagogy, or classroom norms. Fredricks et al. (2019) found that although the urban students in their study valued opportunities to have a say in decision-making at the classroom level, several participants struggled to identify opportunities to have a voice and participate in decision making at the school level. To date, no studies that we know of have attempted to measure how often students encounter opportunities for voice in urban schools. Combined with the absence of quantitative research on student voice and its effects, this lack of knowledge limits our understanding of how student voice might work in urban schools to benefit students.

Theoretical Framework

In addition to drawing on self-determination theory, this study relies on a conceptualization of engagement as a multi-dimensional construct, with affective, behavioral, and cognitive components. Fredricks and colleagues (2004) argued that these dimensions pertain to how students behave, feel, and think respectively. Though they acknowledged that the three domains overlap and interact, they insisted each can be

distinguished and studied separately. Over the last 15 years, scholars have heeded their call, and research on the differing dimensions of engagement has flourished.

In person-centered studies of engagement, which focus on individuals rather than average levels of engagement in a classroom or school, researchers have found full engagement (that is, high levels of affective, behavioral, *and* cognitive engagement) to be relatively rare among adolescents. In their study of students' momentary engagement in science classes, Schmidt and colleagues (2018) found full engagement occurring in only 11% of their 4,136 observations of individual students. Low levels of engagement across all three dimensions, meanwhile, occurred twice as often. Similarly, in their study of 6,294 students in high-performing schools, Conner and Pope (2013) found that fewer than one-third (31%) of the students reported full engagement in their schoolwork. In both studies, the means for behavioral engagement were higher than those for cognitive and affective engagement. Although the mean for behavioral engagement was lower than the means of affective and cognitive engagement in Wang and Peck's (2013) study of 1025 9th graders, only 17% of their sample posted engagement scores above the mean on all three dimensions. This person-centered research on engagement profiles or types, which account for affective, behavioral, and cognitive engagement, has ushered in important new understandings about the nature of engagement.

Methods

This study draws on publicly available data, published by the School District of Philadelphia, collected from students who completed the 2017–2018 District-wide Student Survey, which is disseminated toward the end of the academic school year. Data are aggregated at the school level and report the frequency for each response category for each item on the survey. According to the district's technical report, the items and scales were derived from extant research and refined through focus groups, cognitive interviewing, and expert analysis, and then subjected to exploratory factor analysis and reliability analyses.

Participants

The data for this study come from a large urban school district, the School District of Philadelphia (SDP) where the four-year graduation rate in 2019–2020 was 76%. Of the district's students, 52% identify as Black or African-American, 21% as Latinx, 14% as White, 7% as Asian, and 6% as Multiracial or other. Approximately 10% are English language learners, 16% qualify for services under IDEA, and 100% qualify for the free or reduced-price lunch program.

This analysis focused strictly on the 67 high schools included in the district's data file. These schools included 6 charter schools, 51 district-run high school, and ten schools that were run by a provider who had a contracted with the district to manage the school. "Alternative" schools, which served students who had dropped out or been expelled from traditional schools, constituted 22% of the school sample,

and of these 38% were run by the district and 62% by contractors. Neighborhood schools, open to any student in district, accounted for 28% of the sample, highly selective special admission schools made up 24%, and less selective special admission schools represented 25%. School level response rates ranged from 21 to 92%. For the dataset, the district set as its response threshold either 50 students or 25% of the students at a school completing the survey. The total number of respondents across the 67 high schools was 19,328.

Measures

Student engagement is the dependent variable of interest in this study. Four measures serve as the independent variables: teacher care, belonging, competence, and student voice. School condition is also included as a control variable. All items included in this analysis offered Likert-style response scales, ranging from 1 to 4, with the prompts including, "How often are these things true," and "How much do you agree with the following statements." We used the frequency data to calculate mean scores for each item at the school level. Then, when possible, items were combined into constructs in order to produce more reliable measures of student perceptions.

Teacher Care

The teacher care scale was derived from the mean scores across seven items, which included such statements as "My teachers want me to succeed;" "My teachers have high expectations for me;" "My teachers treat me with respect;" "My teachers really care about me;" and "I can talk with teachers or other school staff about problems." Reliability analysis produced an alpha of 0.97 for this scale.

Belonging

The belonging measure consisted of four items: "When I am in school, I feel like I belong;" "I feel welcome in my school;" "Other students treat me with respect;" "There is at least one adult at school I trust." Again, these items yielded a high alpha score of 0.95.

Competence

Four items were used to make up a competence measure, including "I believe I can learn whatever is taught in my classes;" "I can learn the things taught in school;" "I can figure out difficult homework;" and "I can do even the hardest homework if I try." An alpha of 0.96 suggested that students tended to respond consistently to these items.

Student Voice

Students' responses to the question of how often their "teachers really listen to what I have to say" stood as the indicator of student voice. While the broad purview of "what I have to say," may not align perfectly with the idea of students sharing their perspectives on how their learning experiences might be improved—the standard conceptualization of student voice–, it does capture an important component of that process: feeling heard, which previous research has positioned as a key ingredient of student engagement in urban school contexts (Wallace & Chhuon, 2014).

School Condition

The single question asking how often "the school building is in good condition" supplied the data for the school condition measure. It is not ideal to use a single item measure; however, in this case, the survey contained no other items that conceptually related to the school's physical condition, and given the research on the ways in which school conditions send messages to students that can affect their engagement and sense of belonging (Taines, 2014), it was important to include this indicator.

Engagement

Because previous literature has suggested that affective engagement pertains to interest and enjoyment (Jack et al., 2014), an affective engagement construct ($\alpha = 0.94$) was developed based on the mean of students' responses to two items: "I learn interesting things in my classes" and "I enjoy being in school." A behavioral engagement measure included three items pertaining to how often students work hard at school, concentrate on schoolwork, and complete their schoolwork ($\alpha = 0.98$). Finally, a cognitive engagement measure was derived from students' responses to three items that asked them to evaluate how much they agree with statements regarding the value and use of what they are learning in school: "I am learning skills in school that will help me when I am older;" "My school is helping to prepare me for college;" "I am learning skills in school that can help me to make my community better." Though these three items pertain to different ways in which school learning might be useful, they again yielded high reliability rates, with an alpha of 0.94. Of course, a stronger measure of cognitive engagement would have taken into account how much each student personally valued each use: preparing for college, bettering their community, and learning skills that would help them when they are older.

Analytical Approach

To make sense of engagement patterns across schools, we first ran a k-means cluster analysis, using the three engagement variables and allowing for 10 iterations (Grzegorek et al., 2004). The goal of a k-means cluster analysis is to group similar data points and uncover hidden patterns. In order to meet this objective, k-means searches for a fixed number (k) of clusters in a dataset (Garbade, 2018). K-means clustering

was used because it allows the clusters of greatest possible difference to be built on a decision made prior about the number of clusters (Mäkinen et al., 2004). After running clusters of three, four, five, six and seven, we determined that the solutions above four did not yield additional robust clusters that indicated conceptually different types of engagement. Based on the results, we labeled each cluster according to the engagement profile represented by the relative levels of affective, behavioral, and cognitive engagement. Comparing the clusters that emerged from the four-cluster solution, we ran analysis of variance tests to explore mean differences in the independent variables of interest and chi-square analyses to explore differences by school type. We then conducted multiple linear regression analyses, following the conventions of path analysis to determine the relationships of these variables to one another (Stage et al., 2004). Path analysis gives estimates of the magnitude and significance of hypothesized causal connections between sets of variables. The results are best demonstrated by a path diagram, as shown in Fig. 1.

Results

Overall engagement scores among high schools in this urban district were low during the 2017–18 school year. Where an answer of three represents "occasionally," the mean for affective engagement was 2.94 ($sd = 0.28$), the mean for behavioral engagement was 3.25 ($sd = 0.13$), and the mean for cognitive engagement was 3.01 ($sd = 0.20$). Similarly, the average for student voice across the district's high schools was low: 3.15 ($sd = 0.25$). Only 37% of the high school student respondents reported that their teachers "really listen to what I have to say" on a regular basis.

Cluster analysis results identified four school engagement profiles. Reflected in Table 1 and Fig. 2, these profiles can be categorized as "Disengaged," "Barely engaged," "Moderately engaged," and "Fully engaged." The "disengaged schools," which constituted the largest share of the sample (43%) posted the lowest average

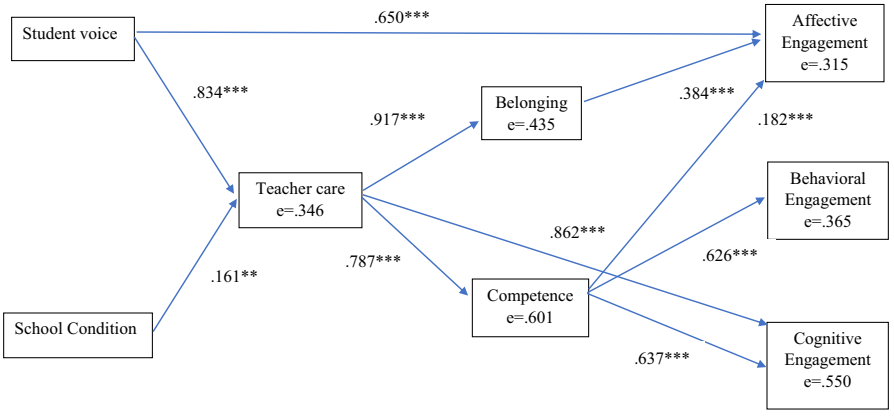

Fig. 1 Path analysis

Fig. 2 Cluster results for engagement profiles by school. *Note* To view the data in an interactive html format, please contact the authors

Table 1 Engagement means (and SDs) of school engagement profiles (Clusters)

	Disengaged (N = 29)	Barely engaged (N = 19)	Moderately engaged (N = 11)	Fully engaged (N = 8)
Affective	2.72 (0.12)	2.93 (0.10)	3.11 (0.08)	3.50 (0.15)
Behavioral	3.17 (0.08)	3.24 (0.07)	3.36 (0.09)	3.51 (0.06)
Cognitive	2.84 (0.09)	3.00 (0.09)	3.20 (0.11)	3.36 (0.11)

affective, behavioral, and cognitive engagement scores. Although the next cluster (28%) also posted average behavioral and cognitive engagement scores that were below the overall sample's mean scores for these dimensions, the scores were slightly higher than those in the disengaged cluster. For this reason, they are considered "barely engaged." The eleven schools (16%) in the "moderately engaged" cluster posted mean scores higher than the overall sample's mean scores for each dimension of engagement, while the eight schools in the "fully engaged" cluster, representing 12% of the sample, had the highest average levels across all three dimensions.

Chi-square analyses revealed that there were significantly more contract schools in the fully engaged cluster and fewer in the disengaged cluster than expected, while the reverse was the case for district and charter schools (X^2 [6, $N = 67$] = 19.61, $p < 0.001$.) The fully engaged schools included four district-run schools and four contract schools–all eight of which are "alternative" schools.

As shown in Table 2, the mean values for the independent variables of student voice, teacher care, competence, and belonging were significantly different across the clusters, with increasing values as the level of engagement increased. The disengaged schools posted the lowest averages for these four measures, and the fully engaged schools posted the highest averages. For school condition, adjacent school engagement clusters were not significantly different from one another, but significant differences in mean school condition did emerge between clusters that were non-adjacent. As was the case for all independent variables of interest, the average

Table 2 Differences by school engagement cluster

	Disengaged	Barely engaged	Moderately engaged	Fully engaged
Voice	2.96[a]	3.15[b]	3.33[c]	3.61[d]
Teacher care	3.21[a]	3.36[b]	3.55[c]	3.71[d]
Belonging	2.97[a]	3.13[b]	3.32[c]	3.55[d]
Competence	3.08[a]	3.17[b]	3.30[c]	3.43[d]
School Condition	2.61[a]	2.76[ab]	3.06[bc]	3.45[c]

Mean scores differ significantly from those with which they do not share a superscript letter

school condition score across the eight schools in the fully engaged cluster was higher than the other three clusters' scores were.

Path analyses, represented in Fig. 1, revealed the following relationships: Student voice is directly associated with affective engagement, and it is positively linked to teacher care. The more often they feel that their teachers listen to what they have to say, the more often students believe their teachers care for them and respect them, and the more often they find their schoolwork interesting and enjoyable.

Teacher care is directly linked to cognitive engagement. The more often they report that their teachers care about them, the more strongly they endorse statements about learning skills that will benefit them or their communities. Cognitive engagement is also affected by students' sense of competence, which itself is associated with teacher care. Because competence is linked positively to behavioral and affective engagement as well, teacher care plays an indirect role in behavioral and affective engagement (through competence), just as it does to affective engagement through sense of belonging.

Discussion

This study makes important empirical and theoretical contributions, lending further support and nuance to the literature on self-determination theory and student voice by braiding the two in a novel way.

The finding that full engagement at the school level is rare within this large, urban district may be disappointing, but it is consistent with research in other contexts—urban and suburban—which similarly turn up low rates of full engagement (Schmidt et al., 2018; Wang & Peck, 2013). A lack of regular full engagement in high school is a widespread phenomenon, not limited to urban schools. According to the National Research Council (2003), "40 to 60 percent of high school students are chronically disengaged; they are inattentive, exert little effort, do not complete tasks, and claim to be bored. This figure does not include those who already have dropped out" (p. 18). More recent research conducted by Gallup in 2016 found that only one-third of high school students report being engaged (Calderon & Yu, 2017).

The finding that all eight of the "full engagement" schools are alternative schools demands further research. What might be happening in these school settings to promote student engagement, stronger feelings of belonging and competence, and positive perceptions of teacher care? How might these schools be approaching students and their learning differently? Extant research offers some answers. One study of an alternative school in Brooklyn found that teachers and administrators took special care to build a strong culture of belonging among students (Borck, 2020). A study of an alternative school in Australia may offer further insight. In this qualitative study, the researchers found that this school's embrace of student voice was key to its ability to promote student engagement and investment in learning:

> ECC operates on the margins of the education system; it is rarely a school of first choice for students, and many of the young people end up at the school after all other avenues have been exhausted. However, for many, once they arrive, they indicate that this is the first time in a very long period when they have actively become engaged in their learning. Ironically, the vast majority of these young people had been deemed unteachable by former schools, yet we witnessed them actively engaged in their own learning and in supporting others' learning. There are perhaps lessons here for mainstream schools. ... This was a school where students indicated that they felt safe and respected, and importantly heard. (Baroutsis et al., 2016, p. 20–21)

These researchers credited the school's efforts to involve students in negotiating and facilitating the curriculum, what they called "pedagogic voice," with yielding these positive results. The ECC study aligns with the findings in this study that highlight the significance of teacher care and student voice in promoting student engagement. Certainly, not all the alternative high schools in this district posted high rates of student engagement, but those that did are worthy of further study, especially since they, like ECC, are engaging students who have faced formidable barriers to success in traditional public schools.

From a theoretical standpoint, our findings offer support for the central tenets of self-determination theory and highlight the importance of creating learning environments that foster a sense of belonging and competence. Each dimension of engagement—affective, behavioral, and cognitive—was found to be related to feelings of competence. In addition, affective engagement was associated with feelings of belonging. These findings in part validate the claim that in order to be fully engaged in an undertaking, one's basic needs for belonging and competence must be satisfied. Of course, the lack of a measure of autonomy—the third basic human need identified in self-determination theory—limits the extent to which this study can fully validate the theory; however, because autonomy-support is often operationalized as choice and voice (Fredricks et al., 2019; Reeve, 2016), our inclusion of a measure of student voice may stand as a proxy for autonomy, thereby validating the general claims of self-determination theory.

While theories like self-determination theory can offer a valuable blueprint to guide practice, educators often want more concrete recommendations about what they can do to promote students' feelings of autonomy, belonging, and competence. This study helps identify some of those specific practices by finding that students in

schools with full engagement report higher average levels of teacher care and student voice. Path analyses show teacher care to be a driver of both belonging and competence as well as cognitive engagement. Teacher care, therefore, can facilitate engagement indirectly by satisfying students' needs for belonging and competence and directly by enhancing students' cognitive engagement in learning. It appears that when students believe that their teachers care about and respect them, they are more likely to see the work they are asked to do as useful to their futures (and therefore cognitively engaging).

But what else can teachers do to convey care for students? What does it look like when teachers respect and support their students? Our results suggest that a considerable amount of the variance in teacher care can be explained by two items: student voice and school condition. While teachers may not be able to control the physical state of disrepair or cleanliness in their schools, they can control how often students feel heard by them. Because student voice also affects affective engagement directly, the results of this study show this practice to be of great importance to engagement. Not only do students who feel heard more often by their teachers, find school interesting and enjoyable more often, but also they feel cared for and respected by their teachers more often, which in turn leads them work hard more regularly and to find schoolwork meaningful more frequently. Especially in the context of poor school conditions then, student voice—that is, really listening to what students have to say—appears to be a powerful and simple intervention that can yield dividends. This finding is in line with qualitative research, which highlights the importance of feeling heard, supported, and taken seriously by teachers to urban students' engagement in school (Fredricks et al., 2019; Wallace & Chhuon, 2014). This study makes a significant contribution to the literature on student voice then by offering some of the first large-scale quantitative evidence linking student voice to student engagement, both directly (to affective engagement) and indirectly (to behavioral and cognitive engagement) through the perception of teacher care. When large-scale quantitative findings comport with the findings from smaller-scale qualitative research, the base of support for a particular intervention becomes all the more sound.

That said, our study does have limitations. One limitation was our reliance on a single item measure of student voice and of school condition. Although multi-item measures are seen as more detailed, reliable, and robust than single-item measures, research in psychology has found that "the single item question can provide valuable information, has the advantage of simplicity, and can be reliable and valid" (Bowling, 2005, p. 343). Other research using publicly available district panel data has relied on single items to measure students' perception of student voice (e.g., Kahne et al., 2022). Until a psychometrically validated measure of student voice is available and either adopted by districts for use in their student surveys or used by independent researchers in large-scale survey research, single items such as the one used in this study offer the best opportunity to examine the relationship of student voice to desired academic outcomes in large, multi-site samples. Another limitation of this study is its use of average school-level, rather than individual level student reports. These averages may mask the substantial variation that exists among students within a school; nonetheless, they are still helpful for identifying broad patterns across schools. Finally, the cross-sectional data in this study prevent any causal claims.

Future research can build on this study by using person-centered analyses, developing stronger measures of student voice, and studying the relationships longitudinally.

In addition to suggesting avenues for future research, this study raises implications for practitioners. Soliciting and listening to student voice may seem like relatively simple adjustments to make to instructional practice; however, these practices remain rare. In light of the finding that only 37% of the high school students in this large urban district felt truly heard by their teachers on a regular basis, programs that help teachers learn how to facilitate student voice represent a promising new direction for professional development and teacher education.

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Declaration

Conflict of interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

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