Student Engagement in High-Performing Schools: Relationships to Mental and Physical Health

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This chapter examines how the three most common types of engagement found among adolescents attending high-performing high schools relate to indicators of mental and physical health.

Student engagement in school is widely viewed as a desirable condition (Connell & Wellborn, 1991; National Research Council, 2003; Newmann, 1992). It has been called "an essential antecedent of successful achievement outcomes" (Finn & Voelkl, 1993, p. 265), and numerous studies have found links between engagement and success in school (Connell & Wellborn, 1991; Csikszentmihalyi & Larson, 1984; Hutchinson, 2003; Klem & Connell, 2004; Marks, 2000; Nystrand & Gamoran, 1991; Zimmer-Gembeck, Chipuer, Hanisch, Creed, & McGregor, 2006). Recent research, however, raises questions about the relationship between engagement and achievement (Shernoff & Schmidt, 2008; Zyngier, 2008). Some studies have found that high-achieving students may appear to be fully engaged but may just be going through the motions, "doing school" (Pope, 2001) or "doing the lesson" (Jimenez-Alexandre, Rodriguez, & Duschl, 2000). Many of these students admit to copying homework, cheating on tests,

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and only pretending to know the answers when they raise their hands in class (Galloway, Pope, & Osberg, 2007; Pope, 2001); that is, they do what they need to do to garner high grades without actually learning the intended material or engaging deeply in the process. For some students, then, particular types of "engagement" may not necessarily be antecedents to achievement and may in fact be associated with other less desirable behaviors and outcomes.

This chapter examines the relationships among engagement and mental health and physical well-being in a sample of 1,669 students attending high-performing high schools. It seeks to validate and build on the findings from Pope's (2001) ethnographic case study of five academically successful high school students, all of whom were occupied with "doing school." Although the students Pope studied worked hard to earn good grades, they did not enjoy the work, and they cared more about their grades than the material they were meant to learn. Furthermore, their attitudes and approaches toward school were associated with compromised mental and physical health. In this chapter, we investigate the prevalence of such outcomes for students in high-performing high schools in relation to their levels of engagement in schoolwork. A better understanding of the complex nature of engagement and its correlates for students in high-performing schools can help steer efforts to support student learning in these settings where the pressure to succeed can be intense.

In addition to raising contextual considerations for the study of engagement, Pope's (2001) work also yielded conceptual considerations. The "doing school" approach Pope identified represents a qualitatively different kind of engagement with one's schoolwork than an approach driven by deep or meaningful engagement with classroom content, and it is important to distinguish these various types of engagement from one another. The conceptualization of engagement we propose in this study is rooted in an understanding of engagement as a multidimensional construct, with affective, behavioral, and cognitive components (Fredricks, Blumenfeld, & Paris, 2004; Jimerson, Campos, & Greif, 2003; Libbey, 2004). We measure these three dimensions of engagement separately and then synthesize across them, using cluster analysis techniques, to identify different types or profiles of engagement and thereby distinguish meaningful engagement from "doing school" forms of engagement. This approach has the advantage of using categories or types that are recognizable to teachers and administrators, while enabling close examination of both the interplay among and the unique contributions of each dimension of engagement.

RELEVANT LITERATURE

STUDENTS IN HIGH-PERFORMING SCHOOLS

High-performing high schools represent a unique educational context. They are often rich in resources, including well-educated teachers, shining new facilities, and the latest technological tools; however, many students in these schools report feeling at a loss when it comes to managing their school-related stress. A small but growing body of research has found that young people in high-achieving, well-resourced communities may experience significant academic stress, depression, and physical health problems (Ansary & Luthar, 2009; Levine, 2006; Luthar & Becker, 2002; Pope, 2001; Yates, Tracy, & Luthar, 2008). Elevated levels of perceived stress have been linked with maladaptive outcomes, including heightened anxiety (Byrne, Davenport, & Mazanov, 2007; Schmeelk-Cone & Zimmerman, 2003), depression (Galaif, Sussman, Chou, & Wills, 2003; Martin, Kazarian, & Breiter, 1995), sleep disturbance and difficulty concentrating (Albano, Chorpita, & Barlow, 2003), and decreased life satisfaction (Mayberry & Graham, 2001). Reports of stress and anxiety among affluent youth who attend well-resourced schools have been associated with high rates of substance use (Luthar & D'Avanzo, 1999; Way, Stauber, & Nakkula, 1994) and other mental health problems (J. Carter, Garber, Ciesla, & Cole, 2006). Other research has found that youth from high-achieving communities who feel emotionally distressed may turn to self-mutilation to relieve their stress (Plante, 2007; Yates et al., 2008; Whitlock, 2009).

Despite their high rates of academic achievement, students in high-performing high schools also appear to have lower levels of engagement than we might expect. In her year-long ethnographic study of five successful students at a high-performing suburban high school, Pope (2001) saw what she would characterize as deep engagement only on "rare occasions at the school" and most typically in extracurricular contexts (p. 172). Similarly, in a quantitative study of an urban high school singled out for its students' exceptionally high performance on state tests, researchers found only moderate or minimal levels of self-reported academic engagement (Lambert, 2007). Many studies have found that deep and sustained academic engagement is rare among secondary school students in a variety of school contexts, not just high-performing schools (Marks, 1995; Shernoff, Csikszentmihalyi, Schneider, & Shernoff, 2003; Yazzie-Mintz, 2010); however, given the well-known links between engagement and academic achievement, the apparent lack of full engagement among students in high-performing schools raises questions about what, if any, role engagement might play in these contexts.

ENGAGEMENT AND INDIVIDUAL STUDENT DIFFERENCES

In addition to the possibility that engagement may look different and operate differently in various school contexts, there is also the possibility that different students in the same context may experience engagement in different ways. Ample literature has shown that students of the same age learn and respond to educational stimuli in a wide variety of ways (see Woolfolk, 2010). The literature on engagement also points to salient individual differences. Researchers consistently have found that females are more engaged in school than males (Lewis, Heubner, Malone, & Valois, 2011; Woolley & Bowen, 2007; Yazzie-Mintz, 2010) and that younger students are more engaged than older students (Marks, 1995; Skinner, Furrer, Marchand, & Kinderman, 2008). The research that considers ethnicity in relation to engagement is less consistent. Whereas some studies found no racial differences (Marks, 2000; Smerdon, 1999), others found higher engagement levels among students of color than among White students (Johnson, Crosnoe, & Elder, 2001; Shernoff & Schmidt, 2008; Uekawa, Borman, & Lee, 2007). Conversely, still other researchers found lower levels of engagement among African American students, as compared with White students (Kao & Tienda, 1998; Yair, 2000). Given these discrepant findings, studies that employ cultural models of learning (J. Li, 2002) to interpret students' experiences of engagement could provide valuable insight.

ENGAGEMENT AND HEALTH

A limited body of work has explored the connection between academic or school engagement and health. Research has found that engaged students are less likely to participate in unhealthy behaviors, such as substance abuse (Guo, Hawkins, Hill, & Abbott, 2001; Shochet, Dadds, Ham, & Montague, 2006) and are more likely to embrace health-promoting behaviors, such as eating well and practicing safe sex (M. Carter, McGee, Taylor, & Williams, 2007; Chen, 2005, as cited in Griffiths, Sharkey, & Furlong, 2009). Deep engagement, known as flow, has also been found to have an indirect effect on the promotion of physical health and a direct effect on psychological well-being (Steele & Fullagar, 2009), and cognitive engagement has been found to predict life satisfaction (Lewis et al., 2011). Several studies have found that engagement reduces the risk of depression for adolescents (Y. Li, Bebiroglu, Phelps, Lerner, & Lerner, 2008; Y. Li & Lerner, 2011; Mylant, Ide, Cuevas, & Meehan, 2002; Shochet et al., 2006). In general, engagement is hailed in the research literature as a protective factor, a facilitator of positive development, and a valuable outcome in its own right (Furlong et al., 2003; Willms, 2003).

Given this research base, this chapter addresses three central research questions: (1) What are the most common types of engagement experienced by students in high-performing high schools? (2) What individual demographic factors are related to each type of engagement? (3) What is the relationship between the type of engagement the student experiences and his or her self-reported mental health and physical well-being?

METHODS

PARTICIPANTS

Our sample was drawn from three high-performing high schools in the greater San Francisco Bay Area. Two of these schools were elite private schools, and the third was a top-tier public school that consistently ranks among the highest in the state on No Child Left Behind benchmarks. The public school's "academic performance index" of over 950 during the 2011–2012 school year makes it one of the top schools in the state, and it has earned accolades at local, state, national, and international levels for its academic excellence. The two private schools have upper school populations of approximately 200 and 375 students, respectively, and the public school student population exceeds 2,000. White students constituted 67% of the respondents at each of the two private schools, and Asian students made up 15% and 17% of the respondents at each school, respectively. By contrast, at the public school, White students made up only 11% of the respondents, whereas Asian students constituted 75%. At the two private schools, 100% of the graduates go on to four-year colleges, whereas at the public school, 99% of students graduate, and 82% go on to attend a four-year college. Tuition ranges from $26,000 to $34,000 at the two private schools, with 22% of the students at the higher cost school receiving financial aid. No financial aid information was available for the lower cost school. At the public school, 3% of the students qualify for the free or reduced price lunch program.

Overall, the sample included 1,669 students, with a mean age of 15.5 (SD = 1.23) and a grade distribution of 29% 9th graders, 24% 10th graders, 25% 11th graders, and 22% 12th graders. The sample was 55% female and 55% Asian, with the remainder of students reporting their ethnicity as White (30%) or another minority (African American, Hispanic, Native American, or multiethnic; 15%). Among the Asian students, 68% identified as Chinese, 5% as Japanese, 1% as Vietnamese, 6% as Filipino, 4% as Korean, and 16% as other. The majority of high school students reported that their parents were married (86.4%). Seventy percent of the students

also reported a grade point average (GPA) of 3.5 or higher and the mean GPA was 3.59 (*SD* = .45). Thirty-one percent of the sample reported taking no advanced placement (AP) or honors courses, 33% reported one or two AP or honors courses, 22% reported taking three such courses, and 14% reported four or more.

PROCEDURE

Participating schools were part of a larger research and intervention project designed to provide schools with support to improve student health, school engagement, and academic integrity. All schools taking part in the intervention project applied to participate because they were concerned about the effects of high levels of student stress within their schools and were interested in gathering baseline data on students' experiences in and perspectives on school in order to tailor reform efforts to their students' particular needs and challenges. Although some school leaders learned about the intervention and the opportunity to apply through word of mouth, letters inviting schools to participate were also sent to every high school principal (public and private) in three local counties.

The three schools asked parents for active consent for their students to participate in the study. The two private schools had over 75% of parents consenting, and the public school had approximately 60% of parents consenting. Students with active parent consent completed a 40-minute online survey during the school day. Staff at the school sites administered the survey. They were given a common script to read to students before the survey administration, and project researchers were available to answer student questions during this time.

MEASURES

Participants completed the Stanford Survey of Adolescent School Experiences, which examined students' outcomes related to school engagement, health, and academic integrity. Most items were Likert type, rated from 1 to 5. (See Table 1 for scale descriptions, means, ranges, and standard deviations.) The majority of scales on the survey were selected based on their common use and high reliability in numerous research studies. We also gathered demographic data and course-taking data.

Table 1. Summary of Dependent Variables with Descriptive Statistics

Variable	Description	Mean	SD
Achievement	Self-reported grade point average	3.59	.45
Academic Worry [a]	How often student worries about such things as grades and test performance	3.61	.78
Stress from Schoolwork [a]	How often student feels stressed from schoolwork	3.99	.86
Internalizing Symptoms [a]	How frequently student has felt sad, depressed, or hopeless in the last month	2.63	1.06
Externalizing Symptoms [a]	How frequently student has felt angry or violent in the last month	2.11	1.01
Physical Health [b]	How many physical symptoms of stress (headaches, sweating, exhaustion) student has experienced in the last month	2.13	1.66

Note. Ranges: [a] = 1–5, [b] =1–7

Engagement

The affective, behavioral, and cognitive dimensions of engagement were each measured separately. The affective scale ($a = .72$) included three items designed to tap students' levels of interest and enjoyment of schoolwork. Students were asked, for example, how often they found their schoolwork interesting. The behavioral scale ($a = .78$) consisted of four items relating to effort, hard work, and the completion of assignments. Sample items included, "How often do you try as hard as you can in school?" and "How often do you pay attention in your classes?" The cognitive scale ($a = .86$) included four items measuring students' attitudes toward their schoolwork and its value and importance. For example, students were asked, "How often do you find your schoolwork meaningful?" All items were adapted from previously validated scales of engagement (Marks, 2000) and intrinsic motivation (McAuley, Duncan, & Tammen, 1989).

Achievement

Achievement was measured by students' self-reported grade point averages. Although some studies have raised questions about the reliability of student self-reports (Kuncel, Crede, & Thomas, 2005), other research has demonstrated that students' self-reports can provide accurate and valid indicators of their performance (Wigfield & Wagner, 2005).

Academic Worry

The academic worries scale comprised nine items developed by West and Wood (1970) that asked students to report how much they worry about academic-related issues, such as completing school assignments. For example, students were asked, "How often do you worry about taking tests?" and "How much do you worry about getting into the college of your choice?" Reliability analysis yielded an alpha of .85 for these 9 items.

Stress From Schoolwork

A single item was used to measure the frequency with which students experience academic stress. They were asked to respond to the following question: "How often do you feel stressed by your schoolwork or academic experiences?" Answer choices ranged from *never* (1) to *always* (5).

Mental Health

Mental health was measured by eight items asking students to report how often they had experienced symptoms of externalizing and internalizing problems in the month prior to the survey. Externalizing problems (a = .81) included feelings of anger and an uncontrollable temper, and internalizing problems (a = .88) included feelings of hopelessness, sadness, and despondency. Sample items include: "During the last month, how often have you felt like you couldn't control your temper?" and "During the last month, how often have you felt very sad?" Items were drawn from the SCL-90-R (Derogatis, Rickels, & Rock, 1976).

Physical Health

We asked students to report whether they had experienced a set of stress-related physical symptoms in the 30 days before the survey, including headaches, exhaustion, weight loss, weight gain, sweating, difficulty sleeping, and stomach problems. The prompt for this question was, "In the last month, have you experienced any of the following stress-related reactions?" We then summed each student's responses to get a total physical health score. In addition, we asked two separate questions (not included in the physical health scale) about the students' use of stimulants to help them stay up, study, or perform on a test in the month before the survey's administration. One question asked how often students used prescription or illegal stimulants (e.g., Ritalin, Adderall, uppers), and the other asked

about the use of legal drugs such as caffeine and No-Doz. Answer choices ranged on a 5-point scale, from never to almost every day. Using the same answer choices, we also asked students how often in the past month they felt so upset or angry that they had cut themselves.

ANALYTIC PLAN

Using a clustering-by-cases procedure, we performed a hierarchical cluster analysis using Ward's method with Euclidean squared difference. After examining the resultant dendrogram to determine the ideal number of subgroups (Aldenderfer & Blashfield, 1984), we ran a quick cluster analysis, with a three-cluster solution, allowing for 10 iterations. We also ran descriptive and inferential statistical analyses—including analyses of variance (ANOVAs), multivariate analyses of variance (MANOVAs) and chi-square tests—to identify trends and determine significant results in the data.

RESULTS

In this group of high-achieving students, our results show high rates of academic stress, with 74% reporting that they were often or always stressed by their schoolwork. Close to half of the respondents (49%) reported that they had difficulty sleeping in the month before the survey due to their school-related stress, and just over half (55%) experienced exhaustion due to academic stress. Mean scores for academic worries, physical health, internalizing symptoms, and externalizing symptoms are presented in Table 1. We did not find significant differences between the White and Asian students on any of these outcomes; however, we did find that White students experienced externalizing symptoms significantly less often than Native American students ($F = 3.83$, $p < .00$; mean scores of 1.97 vs. 2.77), and Asian students experienced more academic worry than their African American peers ($F = 13.25$, $p < .000$; mean scores of 3.7 vs. 2.96). As can be seen in Table 2, each of the three dimensions of engagement correlates significantly and negatively with each of our outcomes of interest (school stress, academic worries, physical health issues, internalizing problems, and externalizing symptoms), with one exception: Behavioral engagement was not significantly linked to physical health. These correlations suggest that the more of any dimension of engagement a student reported experiencing, the less often he or she experienced mental health issues, and the more affective and cognitive engagement a student reported, the less often he or she experienced physical health issues. These results highlight the particular importance

of the affective and cognitive dimensions of engagement in relation to health outcomes.

Table 2 also shows strong positive correlations between our single academic outcome, self-reported GPA, and each dimension of engagement. In addition, GPA correlated negatively and significantly with each mental and physical health outcome of interest. Based on our data, we cannot say which input drove which result. (Do healthier students have greater capacity to engage, and therefore achieve, or do students who earn higher grades worry less and therefore experience better health and heightened engagement?). Nonetheless, it seems clear that in these schools, the three dimensions of engagement, achievement, and various mental and physical health indicators were all closely connected.

The cluster analyses revealed three different types of overall engagement within the sample (see Table 3). We labeled these groups "disengaged," "behaviorally engaged," and "fully engaged." The disengaged students, who posted low scores on all three dimensions of engagement, constitute 20% of the sample (n = 337). The behaviorally engaged, who scored high on the behavioral factor but low on the affective and cognitive dimensions, make up 47% of the sample (n = 781). These students worked hard in school, but they did not enjoy the work, and they rarely found it

Table 2. Correlations Among Variables

		2	3	4	5	6	7	8	9
1.	Affective Engagement	.37**	.63**	.23**	-.18**	-.20**	-.11**	-.26**	-.25**
2.	Behavioral Engagement		.43**	.29**	.17**	.14**	.02	-.08**	-.15**
3.	Cognitive Engagement			.19**	-.05*	-.11**	-.13**	-.22**	-.24**
4.	Grade Point Average				-.11**	-.09**	-.10**	-.21**	-.18**
5.	Academic Worry					.62**	.39**	.50**	.34**
6.	Stress from Schoolwork						.43**	.45**	.30**
7.	Physical Health							.50**	.37**
8.	Internalizing Symptoms								.63**
9.	Externalizing Symptoms								

meaningful or important. The remaining 1/3 of the sample (33%, n = 530) can be considered fully engaged, with high scores on all three factors. These students regularly enjoyed schoolwork, exerted effort, and valued the assignments they were given. They were different from the behaviorally engaged students in their affect and attitudes toward their schoolwork, but both groups worked hard and exerted effort. Although the largest share of the participants tended to be behaviorally engaged, the fully engaged and the disengaged groups also claimed large numbers of students.

Consistent with previous research (Lewis et al., 2011; Woolley & Bowen, 2007; Yazzie-Mintz, 2010), we found that females tended to be more engaged than males. Chi-square analyses showed that fewer females than expected fell into the disengaged category, whereas more than expected reported behavioral and full engagement. These trends were reversed for males, $X^2(2, 1669) = 31.34$, $p < .000$. Also mirroring extant research (Marks, 1995; Skinner et al., 2008), we found that the percentage of students who reported low levels of engagement increased between 9th and 12th grade, from 16.3% to 25.2%, whereas the percent of students experiencing full engagement dropped from 36.4% of 9th graders to 26.4% of 12th graders. Finally, in our sample, the largest share of White students (43.6%) can be considered fully engaged, whereas the largest proportion of Asian students (50.9%) and students from mixed or other ethnic minority backgrounds (50%) can be classified as behaviorally engaged. Chi-square analyses found more White students but fewer Asian and non-Asian minority students than expected were fully engaged, $X^2(2, 1584) = 35.37$, $p < .000$, and these trends were reversed for behavioral engagement, with fewer White students and more Asian and non-Asian minority students than expected falling into the behavioral engagement cluster, $X^2(2, 1584) = 18.30$, $p < .000$. We did not, however, find any significant differences along racial or ethnic lines among the disengaged students. Perhaps not surprising given these results and the ethnic composition of the schools in our study, we found more fully engaged students than expected in the

Table 3. Mean Scores on Three Dimensions of Engagement by Clusters

	Cluster 1: Disengaged (n = 337)	Cluster 2: Behaviorally engaged (n = 781)	Cluster 3: Fully engaged (n = 538)
Affective mean	1.87 (.51)	2.57 (.49)	3.49 (.51)
Behavioral mean	3.35 (.73)	4.02 (.51)	4.38 (.42)
Cognitive mean	2.14 (.52)	3.09 (.42)	3.99 (.46)

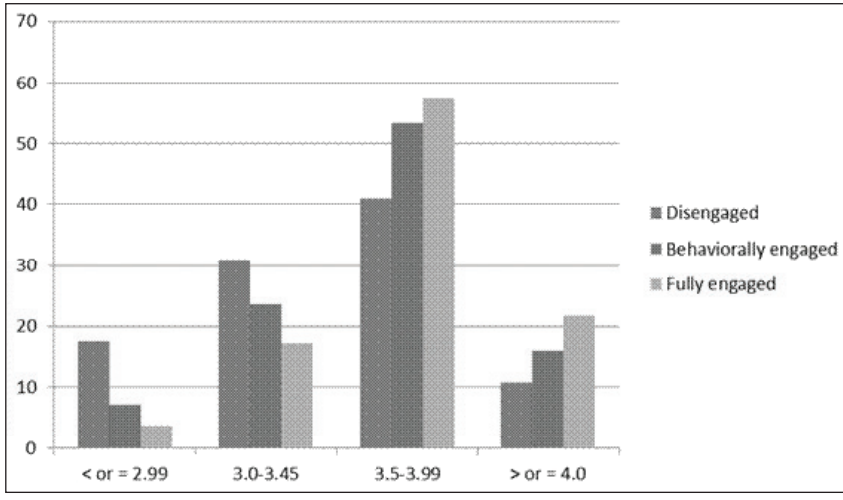
private schools, and fewer than expected in the public school, $X^2(1, 1656) = 106.74$, $p < .000$, with the opposite trends emerging for behavioral engagement $X^2(1, 1656) = 30.72$, $p < .000$ and disengagement, $X^2(1, 1656) = 26.48$, $p < .000$.

Examining the relationship between engagement type and achievement, we found a strong positive association between cluster membership (or engagement type) and GPA ($r = .24$, $p < .01$), and the mean GPA scores for each cluster did differ significantly from one another, F (2, 869) = 27.23, $p = .000$, with fully engaged students reporting significantly higher GPAs than the behaviorally engaged students, whose GPAs also significantly exceeded those of the disengaged students (see Figure 1). These differences held, covarying ethnicity.

Despite the strong relationship we found between engagement and achievement, results show that even among the disengaged students, more than half (52%) reported GPAs of 3.5 or higher, and 70% of the behaviorally engaged students reported GPAs at or above 3.5. As can be seen in Table 4, the mean GPAs for each of the engagement groups ranged from 3.4 to 3.7. In other words, whereas greater engagement across all three dimensions was associated with a higher GPA, a considerable number of students in our sample demonstrated that it is still possible to achieve high grades on schoolwork with fairly low affective, behavioral, and cognitive engagement.

In general, not only did fully engaged students achieve more than students with the other two engagement profiles, but they also experienced

Figure 1. Percent of students in each GPA range by engagement type



better mental health outcomes. They reported fewer internalizing and externalizing symptoms, less academic worry, and less frequent stress over schoolwork than students who were disengaged or behaviorally engaged (see Table 4). Again, these results held when controlling for ethnic differences. The behaviorally engaged students reported the highest levels of academic worry and the most frequent experiences of school stress; however, they did not differ significantly from the disengaged students on these two fronts. Meanwhile, the disengaged students experienced the greatest number of internalizing and externalizing symptoms. They felt sad and angry significantly more often than their more engaged counterparts.

Although they experienced slightly less stress from schoolwork than the behaviorally engaged students did, the disengaged students reported significantly more physical symptoms of stress than did the other two groups of students, $F(2, 1653) = 12.36$, $p = .000$. These differences remained significant when ethnicity was included as a covariate. The mean number of symptoms experienced in the last month for the disengaged students was 2.49 ($SD = 1.84$), compared with 2.11 ($SD = 1.58$) for the behaviorally engaged, and 1.93 ($SD = 1.59$) for the fully engaged. The difference between the behaviorally and fully engaged students' reports of physical stress was not significant, $MD = .18$, $p = .13$; however, more fully engaged students than expected reported experiencing no physical symptoms due to stress. Overall, 53.1% of the disengaged students reported experiencing headaches, 59.1% reported difficulty sleeping, and 57.6% reported exhaustion due to academic stress in the last month.

Disengaged students also reported cutting themselves significantly more frequently than the two other groups of students, $F(2, 1622) = 29.78$, $p =$

Figure 1. Percent of students in each GPA range by engagement type

	Disengaged	Behaviorally engaged	Fully engaged	F-values
Achievement	3.4 [c]	3.6 [b]	3.7 [a]	F(2, 869) = 27.23***
Internalizing	2.98 [c]	2.68 [b]	2.32 [a]	F(2, 1637) = 44.02***
Externalizing	2.49 [c]	2.15 [b]	1.81 [a]	F(2, 1637) = 52.83***
Academic worry	3.65 [b]	3.67 [b]	3.51 [a]	F(2, 1652) = 7.51***
Academic stress	4.05 [b]	4.06 [b]	3.84 [a]	F(2, 1633) = 11.51***

Note. The superscript letters, a, b, and c reflect the groupings that emerge when Tukey's post-hoc analysis is conducted. Within each row, an engagement grouping differs significantly from the other groups with which it does not share a superscript letter. A group does not differ significantly from any group with which it shares a letter.

***$p \leq .001$.

.000, and their use of illegal and legal substances to help them stay up and focus on schoolwork significantly exceeded that of the behaviorally and fully engaged students, $F(2, 1617) = 26.98$, $p = .000$ for illegal substances and $F(2, 1630) = 14.77$, $p = .000$ for legal substances.

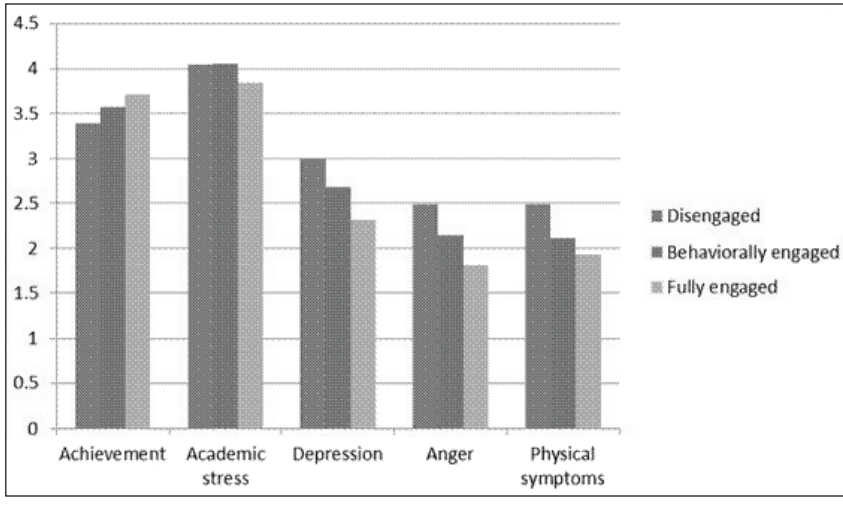
Finally, fully engaged students reported significantly more hours of sleep than the other two groups, with behaviorally engaged students also reporting significantly more than their disengaged peers, $F(2, 1634) = 19.55$, $p = .000$.

In summary, students who were fully engaged not only achieved more but also worried less, experienced less school stress, and became depressed and angry less often than their peers who may have worked hard but did not enjoy or find value in their schoolwork (see Figure 2). Students who were disengaged achieved at comparatively lower levels and suffered the most adverse mental and physical health outcomes in comparison with their more engaged peers.

DISCUSSION AND CONCLUSION

The results of this study suggest that full engagement is a protective factor for mental and physical health outcomes for students in high-achieving schools. Full engagement—that is, high engagement levels across all three dimensions of engagement—is associated with lower levels of stress, academic worry, internalizing symptoms, and externalizing symptoms. Students who are fully engaged also report better physical health: fewer

Figure 2. Student engagement type by outcomes of interest



physical symptoms due to stress, such as headaches and sweating, more sleep, and fewer incidences of self-harm and substance use.

Despite the benefits associated with full engagement, we find that at these high-performing schools, only 1/3 of students are regularly, deeply, and meaningfully engaged in their academic work. This result illustrates the prevalence of "doing school" behavior and attitudes in these contexts. Even though nearly 3/4 of the sample reports GPAs over 3.5, the vast majority (66%) rarely finds the schoolwork they do to be enjoyable, interesting, or meaningful.

Furthermore, we find that this lack of full engagement is associated with frequent worry and compromised mental and physical health outcomes. Although the students who are disengaged appear to be in the worst shape on indicators of mental and physical health, the behaviorally engaged students fare only marginally better, and actually experience more stress and academic worry in spite of their higher GPAs. These results further validate Pope's (2001) findings about academically successful students, who "do school." Although these students work hard in school, they suffer great stress and anxiety because of the pressure they feel to earn top grades.

The disengaged students who are not earning the highest grades in these schools appear to suffer the greatest health tolls. Whether the adverse mental and physical health outcomes they report is due to their disengagement, their comparatively lower (though still strong) grades, or something else entirely, it is difficult to say from our cross-sectional data; nonetheless, it seems clear that while some students are thriving in the high-performing school context—earning top grades, experiencing full engagement, and reporting comparatively few mental and physical health outcomes—others are struggling, and these struggling students, who tend to be less engaged, constitute the majority of the sample.

Because 2/3 of our sample was not fully engaged, and therefore not experiencing the positive developmental outcomes associated with full engagement, we are left to wonder why this is the case. Of course, we do not know to what extent full engagement is a result of individual factors (values, parenting, cultural background), contextual classroom or school-level factors, or the interactions among all these variables. The fully engaged students may well have important insights to offer their less engaged peers about how they navigate the learning environment and its demands. Cultural models of learning (J. Li, 2002) may also help us to understand who these fully engaged students are and what, if anything, they can teach their peers. After all, students from different cultural backgrounds may respond to academic stress in different ways. Although we do not find any differences in stress levels by ethnicity in our sample, we do find that the fully engaged students tend to be disproportionately White, and the

behaviorally engaged students tend to be disproportionately Asian and non-Asian minority. Nonetheless, the associations between the engagement types and the mental and physical health outcomes hold, above and beyond ethnicity.

Although there is much we still do not know about what (apart from their engagement scores) differentiates these fully engaged students from their peers, we do know that engagement is not simply an attitude or approach that students either have or do not have; engagement is shaped by conditions and is sensitive to changes in the educational environment (Fredricks et al., 2004). It is noteworthy that we find more fully engaged students than expected in the two private schools in our sample, where the curricula are more progressive and less driven by standardized testing concerns and where the class sizes are smaller, affording more of an opportunity for teachers and students to develop relationships. However, we are cautious about making generalizations based on public–private differences because our data are limited to only one public school and therefore do not allow robust comparisons.

In addition to the small sample size of schools, our study is limited by a number of other factors. School type and students' ethnicity are conflated in our data, making comparisons within either category problematic. We also lack measures of students' socioeconomic status, which might provide further insight into how students in high-performing schools differ with respect to patterns of engagement.

Despite the limitations of our study, our findings raise implications for school reform. Though we cannot distinguish the "chicken and egg" relationship between engagement and achievement, we believe that given the positive correlations associated with full engagement, teachers and administrators may want to employ specific classroom practices to encourage greater affective, behavioral, and cognitive engagement for their students. In our intervention at Stanford University, we encourage educators to attend workshops on "teaching for engagement." In these workshops, teachers learn to promote cognitive engagement by being more explicit about the value of each assignment and the intended outcomes and to foster affective engagement by allowing for more student voice and choice over classroom tasks. Though assessing individual student interest may be difficult, even seemingly small changes—such as regularly soliciting student opinions and frequently giving students a choice regarding which problems to do for homework, which essay to write, or which book the class will read next—may yield higher results on all three dimensions of engagement by appealing to students' sense of autonomy and deepening their investment in the learning (Reeve & Halusic, 2009). Additionally, as several of the chapters in this handbook demonstrate (Furlong,

Froh, Muller, & Gonzalez, 2014, this Yearbook; Furrer & Skinner, 2014, this Yearbook; Jones et al., 2014, this Yearbook; Rathunde et al., 2014, this Yearbook), teachers may want to promote more collaborative learning and focus on creating a climate of care in their classrooms, given that engagement levels tend to rise when students feel a sense of belonging and connectedness.

Our results also highlight the importance of attending to the three dimensions of engagement simultaneously, especially as they relate to other outcomes of interest, such as student health and well-being. When engagement is measured as a singular construct, we lose the important distinctions between students who are only "doing school" and those who are fully engaged. Future research can build on this study by identifying and comparing different types of engagement with the three types identified in this chapter. Because of the nature of our sample, our cluster analysis techniques yielded only two types of engagement (behavioral engagement and full engagement); however, it seems likely that other types of engagement (behavioral *plus* cognitive, for example) might be present in other academic (and nonacademic) settings. As more engagement types are identified, questions can be asked about how behavioral engagement might compare to affective-only engagement or to cognitive-only engagement. How do various two-part engagement combinations (affective plus behavioral or cognitive plus behavioral) compare with full engagement? Are there indeed qualitative differences among all these types, as we suggest in this and other studies (Conner, 2007, 2009), or are the different results due simply to quantitative differences in the overall dosage of engagement across the three dimensions?

Another area of inquiry concerns the influence of parents, home culture, and school culture on student engagement types. Qualitative studies that explore the engagement types in depth, as well as quantitative studies that compare engagement types across school contexts—not just on the basis of public or private, but on size, structure, culture, and curriculum—can also add to our understanding of how these types differ from one another and what conditions foster each type.

Finally, our study raises new questions about the relationship between engagement and achievement. Because so many of the students in our sample had high grades despite low scores on certain dimensions of engagement, researchers may want to explore how other measures of learning and achievement relate to the different engagement dimensions for both high- and low-achieving students. Researchers might also consider how students who are disengaged, behaviorally engaged, or fully engaged vary in their use of higher order thinking skills, their rates of academic integrity infractions, or their social and emotional skill levels. Such research

may corroborate the findings in this chapter: that although engaging students fully in learning may not be an easy task, it may yield significant dividends not only in the academic realm but also in nonacademic domains, protecting and promoting students' health and well-being.

References

Albano, A., Chorpita, B. & Barlow, D. (2003). Childhood anxiety disorders. In E. J. Mash & R. A. Barkley (Eds.), *Child psychopathology* (2nd ed., pp. 279–329). New York, NY: Guilford Press.

Aldenderfer, L., & Blashfield, R. (1984). *Cluster analysis.* Newbury Park, CA: Sage.

Ansary, N.S., & Luthar, S.S. (2009). Distress and academic achievement among adolescents of affluence: A study of externalizing and internalizing problem behaviors and school performance. *Development and Psychopathology, 21*(1), 319–341.

Byrne, D., Davenport, S., & Mazanov, J. (2007). Profiles of adolescent stress: The development of the Adolescent Stress Questionnaire. *Journal of Adolescence, 30,* 393–416.

Carter, J., Garber, J., Ciesla, J., & Cole, D. (2006). Modeling relations between hassles and internalizing and externalizing symptoms in adolescents: A four-year prospective study. *Journal of Abnormal Psychology, 115,* 428–442.

Carter, M., McGee, R., Taylor, B., & Williams, S. (2007). Health outcomes in adolescence: Associations with family, friends and school engagement. *Journal of Adolescence, 30,* 51–62.

Connell, J., & Wellborn, J. (1991). Competence, autonomy, and relatedness: A motivational analysis of self-system processes. In M. R. Gunnar & L. A. Sroufe (Eds.), *Minnesota Symposium on Child Psychology* (Vol. 23, pp. 43–77). Hillsdale, NJ: Erlbaum.

Conner, J. O. (2007). *Student engagement during the senior year: Experiences with the International Baccalaureate Program's Extended Essay* (Unpublished doctoral dissertation). Stanford University School of Education, Stanford, CA.

Conner, J. O. (2009). Student engagement in an independent research project: The influence of cohort culture. *Journal of Advanced Academics, 21*(1), 8–38.

Csikszentmihalyi, M., & Larson, R. (1984). *Being adolescent: Conflict and growth in the teenage years.* New York, NY: Basic Books.

Derogatis, L. R., Rickels, K., & Rock, A. F. (1976). The SCL-90 and the MMPI: A step in the validation of a new self-report scale. *British Journal of Psychiatry, 128,* 280–289.

Finn, J., & Voelkl, K. (1993). School characteristics related to student engagement. *Journal of Negro Education, 62*(3), 249–268.

Fredricks, J. A., Blumenfeld, P. C., & Paris, A. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research, 74,* 59–109.

Furlong, M. J., Whipple, A. D., St. Jean, G., Simental, J., Soliz, A., & Punthuna, S. (2003). Multiple contexts of school engagement: Moving toward a unifying framework for educational research and practice. *California School Psychologist, 8,* 99–114.

Galaif, E., Sussman, S., Chou, C., & Wills, T. (2003). Longitudinal relations among depression, stress, and coping in high risk youth. *Journal of Youth and Adolescence, 32,* 243–258.

Galloway, M., Pope, D., & Osberg, J. (2007). Stressed-out Students-SOS: Youth perspectives on changing school climates. In D. Thiessen & A. Cook-Sather (Eds.), *International handbook on student experience in elementary and secondary schools* (pp. 611–634). Dordrecht, Netherlands: Springer.

Griffiths, A., Sharkey, J. D., & Furlong, M. J. (2009). Student engagement and positive school adaptation. In R. Gilman, E. S. Huebner, & M. J. Furlong (Eds.), *Positive psychology in school* (pp. 197–212). New York, NY: Routledge.

Guo, J., Hawkins, J. D., Hill, K. G., & Abbott, R. D. (2001). Childhood and adolescent predictors of alcohol abuse and dependence in young adulthood. *Journal of Studies on Alcohol, 62,* 754–762.

Hutchinson, L. (2003). ABC of learning and teaching: Educational environment. *British Medical Journal, 326*(7393): 810–812.

Jimenez-Alexandre, M., Rodriguez, A., & Duschl, R. (2000). "Doing the lesson" or "doing science": Argument in high school genetics. *Science Education, 84*, 757–792.

Jimerson, S., Campos, E., Greif, J. (2003). Toward an understanding of definitions and measures of school engagement and related terms. *California School Psychologist, 8,* 7–28.

Johnson, M. K., Crosnoe, R., & Elder, G. H. (2001). Students' attachment and engagement: The role of race and ethnicity. *Sociology of Education, 74*(4), 318–340.

Kao, G., & Tienda, M. (1998). Educational aspirations of minority youth. *American Journal of Education, 106*(3), 349–384.

Klem, A., & Connell, J. (2004). Relationships matter: Linking teacher support to student engagement and achievement. *Journal of School Health, 74*(7), 262–273.

Kuncel, N. R., Crede, M., & Thomas, L. L. (2005). The validity of self-reported grade point averages, class ranks, and test scores: A meta-analysis and review of the literature. *Review of Educational Research, 75*, 63–82.

Lambert, A. (2007). *Student engagement in high-performing urban high schools* (Unpublished doctoral dissertation). University of Southern California, Los Angeles, CA.

Levine, M. (2006). *The price of privilege: How parental pressure and material advantage are creating a generation of disconnected and unhappy kids.* New York, NY: HarperCollins.

Lewis, A., Huebner, E., Malone, P., & Valois, R. (2011). Satisfaction and student engagement in adolescents. *Journal of Youth and Adolescence, 40*(3), 249–262.

Li, J. (2002). A cultural model of learning: Chinese "heart and mind for wanting to learn." *Journal of Cross-Cultural Psychology, 33*(3), 248–269.

Li, Y., Bebiroglu, N., Phelps, E., Lerner, J. V., & Lerner, R. M. (2008). Out-of-school time activity participation, school engagement and positive youth development: Findings from the 4-H Study of Positive Youth Development. *Journal of Youth Development, 3*(3). doi:080303FA001

Li, Y., & Lerner, R. M. (2011). Trajectories of school engagement during adolescence: Implications for grades, depression, delinquency & substance use. *Developmental Psychology, 47*(1), 233–247.

Libbey, H. P. (2004). Measuring student relationships to school: Attachment, bonding, connectedness, and engagement. *Journal of School Health, 74*(7), 274–283.

Luthar, S. S., & Becker, B. E. (2002) Privileged but pressured: A study of affluent youth. *Child Development.73,*1593–1610.

Luthar, S. S., & D'Avanzo, K. (1999). Contextual factors in substance use: A study of suburban and inner-city adolescents. *Development and Psychopathology, 11,* 845–867.

Marks, H. (1995). *Student engagement in the classrooms of restructuring schools.* Washington, DC: Office of Educational Research and Improvement.

Marks, H. (2000). Student engagement in instructional activity: Patterns in the elementary, middle, and high school years. *American Educational Research Journal, 37*(1), 153–184.

Martin, R., Kazarian, S., & Breiter, J. (1995). Perceived stress, life events, dysfunctional attitudes, and depression in adolescent psychiatric inpatients. *Journal of Psychopathology & Behavioral Assessment, 17*, 81–95.

Mayberry, D. J., & Graham, D. (2001). Hassles and uplifts: Including interpersonal events. *Stress and Health, 17*, 91–104.

McAuley, E., Duncan, T., & Tammen, V. V. (1989). Psychometric properties of the Intrinsic Motivation Inventory in a competitive sport setting: A confirmatory factor analysis. *Research Quarterly for Exercise and Sport, 60,* 48–58.

Mylant, M., Ide, B., Cuevas, E., & Meehan, M. (2002). Adolescent children of alcoholics: Vulnerable or resilient? *Journal of the American Psychiatric Nurses Association, 8*, 57–64.

National Research Council. (2003). *Engaging schools: Fostering high school students' motivation to learn*. Washington, DC: National Academies Press.

Newmann, F. M. (Ed.). (1992). *Student engagement and achievement in American secondary schools*. New York, NY: Teachers College Press.

Nystrand, M., & Gamoran, A. (1991). Instructional discourse, student engagement, and literature achievement. *Research in the Teaching of English, 25*(3), 261–290.

Plante, L. G. (2007). *Bleeding to ease the pain: Cutting, self-injury and the adolescent search for self*. Westport, CT: Praeger.

Pope, D. C. (2001). *"Doing school": How we are creating a generation of stressed out, materialistic, and miseducated students*. New Haven, CT: Yale University Press.

Reeve, J., & Halusic, M. (2009). How k-12 teachers can put self-determination theory principles into practice. *Theory and Research in Education, 7*, 145–154.

Schmeelk-Cone, K., & Zimmerman, M. (2003). A longitudinal analysis of stress in African American youth: Predictors and outcomes of stress trajectories. *Journal of Youth and Adolescence, 32,* 419–430.

Shernoff, D. J., Csikzentmihalyi, M., Schneider, B., & Shernoff, E. S. (2003). Student engagement in high school classrooms from the perspective of flow theory. *School Psychology Quarterly, 18*(2), 158–176.

Shernoff, D., & Schmidt, J. (2008). Further evidence of an engagement-achievement paradox among U.S. high school students. *Journal of Youth and Adolescence, 37*, 564–580.

Shochet, I. M., Dadds, M. R., Ham, D., & Montague, R. (2006). School connectedness is an underemphasized parameter in adolescent mental health: Results of a community prediction study. *Journal of Clinical Child and Adolescent Psychology, 35*(2), 170–179.

Skinner, E., Furrer, C., Marchand, G., & Kinderman, T. (2008). Engagement and disaffection in the classroom: Part of a larger motivational dynamic? *Journal of Educational Psychology, 100*(4), 765–781.

Smerdon, B. A. (1999). Engagement and achievement: Differences between African American and White high school students. *Research in Sociology of Education and Socialization, 12*, 103–134.

Steele, J. P., & Fullagar, C. J. (2009). Facilitators and outcomes of student engagement in a college setting. *Journal of Psychology, 143*(1), 5–27.

Uekawa, K., Borman, K. M., & Lee, R. (2007). Student engagement in America's urban high school mathematics and science classrooms: Findings on social organization, race, and ethnicity. *The Urban Review, 39*(1), 1–106.

Way, N., Stauber, H. Y., & Nakkula, M. J. (1994). Depression and substance use in two divergent high school cultures: A quantitative and qualitative analysis. *Journal of Youth and Adolescence, 23,* 331–357.

West, C. K., & Wood, E. S. (1970). Academic pressures on public school students. *Educational Leadership, 3,* 585–589.

Whitlock, J. (2009, May/June). Self-injuring adolescents on the rise. *Psychotherapy Networker,* 13–14.

Wigfield, A., & Wagner, A. L. (2005). Competence, motivation, and identity development during adolescence. In A. Elliott & C. Dweck (Eds.), *Handbook of competence and motivation* (pp. 222–239). New York, NY: Guilford Press.

Willms, J. D. (2003). *Student engagement at school: A sense of belonging and participation. Results from PISA 2000*. Paris, France: Organisation for Economic Co-operation and Development.

Woolfolk, A. (2010). *Educational psychology* (11th ed.). Upper Saddle River, NJ: Merrill.

Woolley, M. E., & Bowen, G. L. (2007). In the context of risk: Social capital and the school engagement of middle school students. *Family Relations, 56,* 92–104.

Yair, G. (2000). Educational battlefields in America: The tug-of-war over students' engagement with instruction. *Sociology of Education, 73*, 247–269.

Yates, T. M., Tracy, A. J., & Luthar, S. S. (2008). Nonsuicidal self-injury among "privileged" youths: Longitudinal and cross-sectional approaches to developmental process. *Journal of Consulting and Clinical Psychology, 76*(1), 52–62.

Yazzie-Mintz, E. (2010). *Charting the path from engagement to achievement.* Bloomington, IN: Center for Evaluation and Education Policy.

Zimmer-Gembeck, M., Chipuer, H., Hanisch, M., Creed, P., & McGregor, L. (2006). Relationships at school and stage-environment fit as resources for adolescent engagement and achievement. *Journal of Adolescence, 29*, 911–933.

Zyngier, D. (2008). (Re)conceptualizing student engagement: Doing education not doing time. *Teaching and Teacher Education, 24*, 1765–1776.

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