IT'S ABOUT TIME

Learning Time and Educational Opportunity in California High Schools

John Rogers & Nicole Mirra

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By: John Rogers & Nicole Mirra
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UCLA IDEA 1041 Moore Hall, Box 951521, Los Angeles, CA 90095
Phone: (310) 206-8725 Email: rogers@gseis.ucla.edu nmirra@ucla.edu

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"I'm trying to push my students toward academic excellence in the time that we have, but with so many pressures to handle, and with the combination of traumas that my students are exposed to and are constantly experiencing, sometimes the overwhelming need is overwhelming."
- *California High School Teacher*

Seeking to make a difference in their students' lives, high school teachers are constantly racing against the clock. They pursue many purposes, from providing a strong college preparatory curriculum, to promoting critical and creative thinking, to meeting students' social and emotional needs. Learning time is an essential resource for addressing these goals, yet it seems to be in short supply in many California schools.

The quote above is drawn from a survey exploring how learning time is distributed across California high schools. This survey asked a representative sample of high school teachers to report on how factors inside and outside of their schools shaped students' learning time and teachers' work. The statewide survey represents the first data to emerge from the Keeping Time project, a multi-year study of learning time in California public schools.

In this era of common standards and common assessments, we often assume that all schools have the same amount of time to accomplish their many goals. And at one level, our study confirmed this assumption. The Keeping Time teacher survey found that weekly instructional time and annual instructional days are similar across most California high schools.

However, the survey also revealed that students across different communities experience these allocated days and minutes in dramatically different ways. California students attending high-concentration poverty schools are not able to access as much instructional time as the majority of their peers. The Keeping Time survey highlights the ways that community stressors and chronic problems with school conditions lead to far higher levels of lost instructional time in these high schools. In essence, high-poverty schools experience cracks in the very foundation of educational opportunity.

The report begins with a review of existing literature on instructional time loss. This review is followed with a description of the methods used to create and distribute the Keeping Time survey. In the succeeding sections, we show that time loss is far greater in high-poverty high schools than in low- or low and mixed-poverty high schools. Our analysis highlights the ways that economic and social stressors outside of school and poor conditions within schools contribute to this time loss. We also note that teachers in high-poverty schools take on a broad set of added responsibilities in order to support their students that have important implications for how learning time is experienced in these schools. We conclude with thoughts on learning time and equal educational opportunity.

I. Research on Learning Time Loss

Our focus on instructional time loss as an indicator of educational opportunity is grounded in a long-standing body of research on the importance of learning time. A half century ago, John Carroll placed time at the center of his model for school learning. Carroll's commonsense notion was that what students learn is related to the time they spend learning.[1] A great deal of subsequent research has confirmed Carroll's central insight: learning time matters.[2] Summarizing this research, David Farbman, a researcher at the National Center on Time and Learning, notes that more time enables teachers to "cover more material and examine topics in greater depth and in greater detail, individualize and differentiate instruction, and answer students' questions." [3]

Or, more precisely, more time creates the possibility for teachers to extend their work and improve learning. Many researchers point to the importance of ***academic learning time*** – "time students are actively, successfully, and productively engaged in learning relevant academic content."[4] Academic learning time is a product of time for instruction, institutional supports for teaching and learning, and high-quality teaching. It thus not only varies widely across schools, but also across and within classrooms, depending on whether learning tasks are framed at an appropriate level of difficulty and whether students experience the subject matter as meaningful and interesting.[5]

While researchers acknowledge that students experience learning time differently, there has been a general consensus that most students in public schools experience roughly similar amounts of ***allocated time*** – the amount of time when a school is open for instruction during the school day and year. Moreover, research to date has suggested that modest differences in allocated time between schools are not associated with the race or social class of students served. In a white paper on learning time prepared for the National Academy of Education, Rowan and colleagues conclude that, while "the amount of time U.S. students spend in school varies by state, district, and grade level … instructional time seems to be equitably distributed."[6]

Yet school schedules are a crude measure of the amount of usable time at school sites. Every school invariably experiences absences, delays, disruptions, and interruptions that reduce instructional time or divert time away from instructional purposes.[7] As a result, it is important to examine ***available learning time***, or the amount of time left for teaching and learning after taking into account such time loss. Available learning time represents the possible horizon for learning at schools and hence a critical educational opportunity.

BetsAnn Smith's examination of eight high-poverty Chicago elementary schools in the 1990s offers one of the best attempts thus far to document available learning time across schools.[8] Smith identified several common causes of time loss that combined to limit available instructional time to about half of allocated time across these eight schools. Time loss did not emerge haphazardly, but rather resulted systemically from several conditions ailing the schools — a compressed schedule (with limited time for lunch and other breaks), a labor agreement that encouraged the early departure of teachers from school grounds, problems with schools' physical plant, inadequate substitutes, and testing pressures.

Research on the effects of poverty on schools also points to a relationship between concentrated poverty and available learning time. Lack of secure housing fosters high rates of student mobility that can lead to schedule changes after the beginning of the school year.[9] Homelessness, insufficient clothes, and lack of access to medical care are all associated with chronic student absenteeism.[10] High-poverty communities also have higher rates of teacher absenteeism.[11] Corey and colleagues estimate that students in their sample of elementary schools lose on average 20 days of instruction per academic year due to student and teacher absences.[12] These relatively high rates of student and teacher absenteeism can make it more difficult for schools to coordinate learning and can contribute to a less stable environment for teaching and learning.[13]

Some of the most extensive research on the availability of learning time has been done in developing countries. International development studies have focused a good deal of attention on the institutional factors shaping learning time and educational opportunity. A World Bank study found that, in some countries with relatively low average income, students often receive instruction for just a fraction of the total allocated learning time.[14] In developing nations, weak governance structures and inadequate learning conditions can lead to informal school closures or delays, teacher absenteeism, and poor use of classroom time; for example, when instructional materials are unavailable.[15] There has been little comparable research in recent decades on whether such conditions influence learning time in the United States. Yet, development studies establish the importance of attending to such factors when examining available learning time.

II. The Keeping Time Teacher Survey

We designed and administered a statewide survey on learning time to teachers across a representative sample of California high schools in November and December 2013. The survey aimed to illuminate the school and community factors that shape available learning time. The Keeping Time survey covered a variety of topics including: a) school schedule and calendar; b) time loss across the school year and during individual class periods; c) teachers' use of instructional time to address student needs; and d) demands placed on teachers' time.

The survey targeted 3-5 teachers nested within 193 high schools. The sample of schools is representative of California high schools generally in terms of student socioeconomic status, student language proficiency, school size, geographic region, and charter status. We used data from the California Longitudinal Pupil Achievement Data System (CALPADS) system from the 2012-2013 school year to identify these representative schools. In all, 783 California high school teachers completed the 30-40 minute online survey. (A detailed explanation of the sample can be found in Appendix 1.)

In reporting findings from the survey data, we generally compare the responses of teachers in high schools with different proportions of students receiving Free and Reduced Price Lunch. We report on three categories of schools:

1. *Low Concentration Poverty Schools* – schools in which **0-25%** of students receive Free and Reduced Price Lunch. These schools enrolled roughly one-fifth (19%) of all high school students in California during the 2012-2013 school year.

2. *Low and Mixed Concentration Poverty Schools* – schools in which **0-50%** of students receive Free and Reduced Price Lunch. These schools enrolled a little less than half (44%) of all high school students in California during the 2012-2013 school year.

3. *High Concentration Poverty Schools* – schools in which **75-100%** of students receive Free and Reduced Price Lunch. These schools enrolled roughly one quarter (25%) of all high school students in California during the 2012-2013 school year.

We refer to these schools in the report as 'Low Poverty,' 'Low and Mixed Poverty,' and 'High Poverty' schools. We found it important to illustrate learning time experiences in high schools in which 75-100% of students receive Free or Reduced Price Lunch because they differ from other schools in both the concentration and the intensity of student poverty. Students attending these High Poverty Schools are most likely to come from families with income levels below the federal poverty line ($23,550 annual income for a family of four), or substantially less than the income threshold for Free and Reduced Price Lunch eligibility (which is $43,568 for a family of four).[16] 23.5% of California children and youth live in families earning below the federal poverty line[17], whereas 58.0% of California K-12 students are eligible for Free and Reduced Price Lunch[18]. Due to patterns of residential segregation, students from families with incomes below the federal poverty line tend to be concentrated in particular schools.

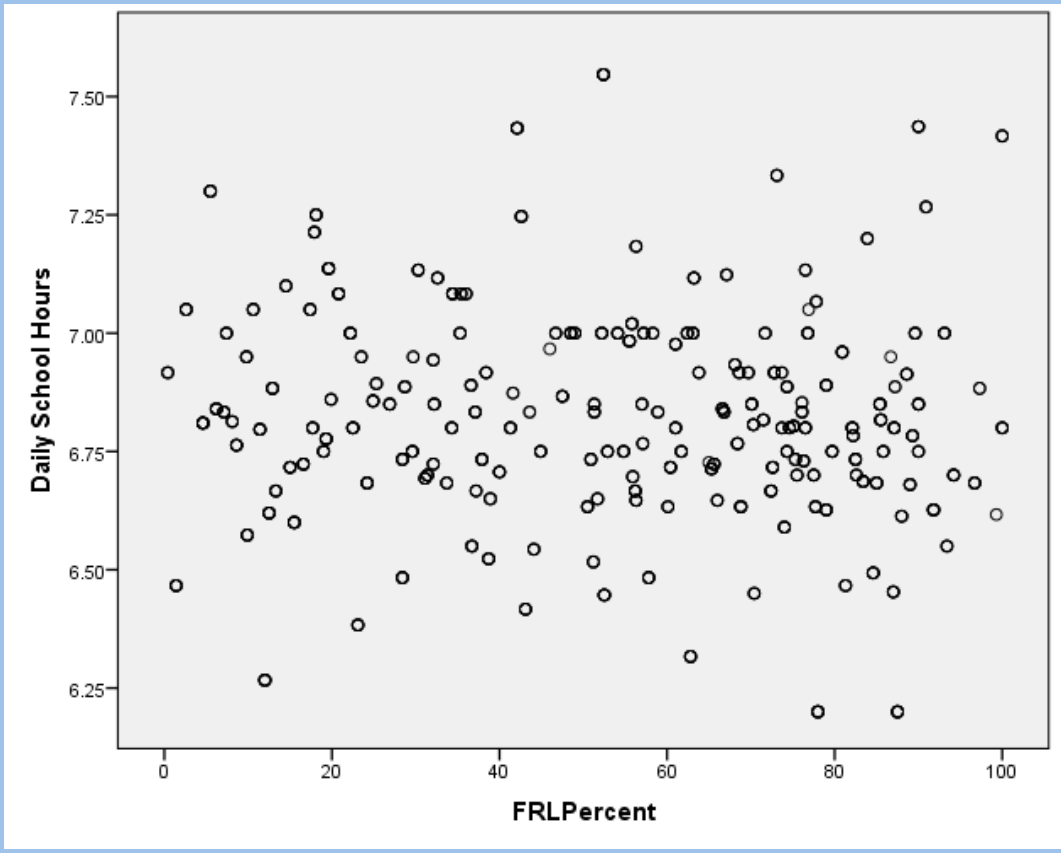
Our sample of Low Poverty, Low and Mixed Poverty, and High Poverty schools is diverse in other ways. There is a range of school size across all three categories of schools and each category includes schools from almost every region in the state. High Poverty Schools enroll a higher proportion of students in charter schools than Low Poverty or Low and Mixed Poverty schools. Due to the strong association of English Learners with low-income status, most of the Low Poverty Schools enroll relatively few English Learners while all of the High Poverty Schools enroll relatively high proportions of English Learners.

While the charts in this report offer learning time data for Low Poverty, Low and Mixed Poverty, and High Poverty schools, much of our discussion focuses on the disparities between Low Poverty and High Poverty schools in order to highlight the very different amounts of available learning time that students attending the lowest poverty and highest poverty schools in California can access. This discussion throws into stark relief the unequal amounts of educational opportunity in different communities across the state.

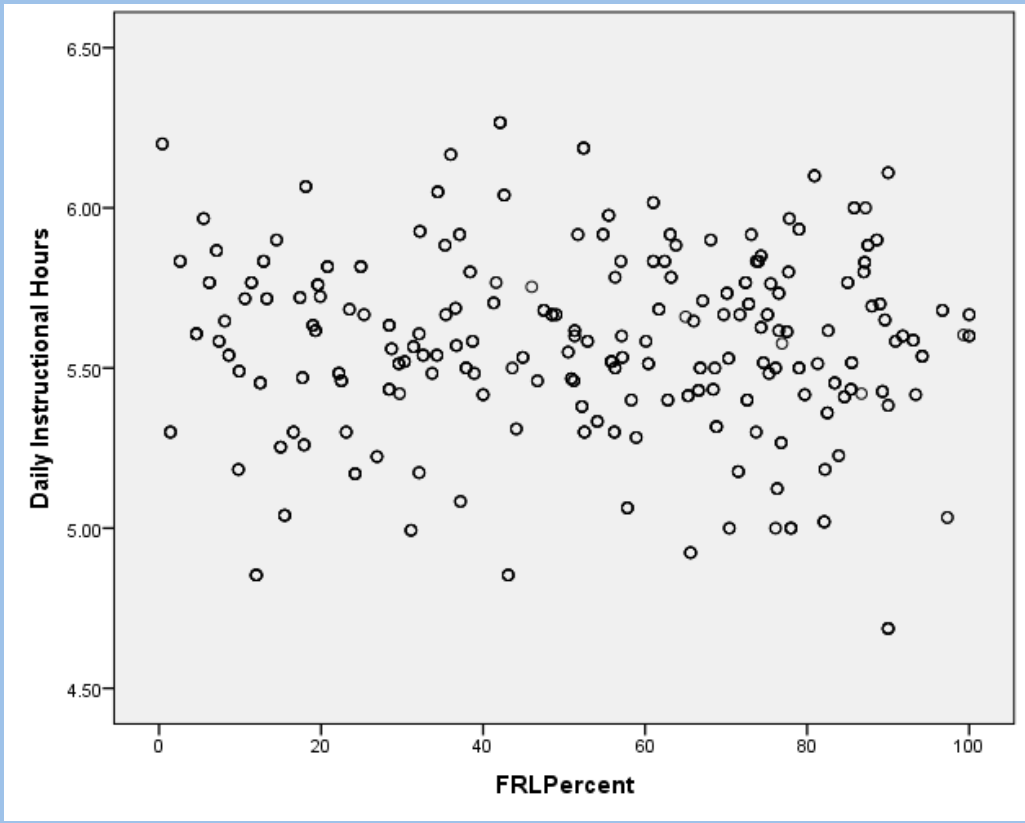
Snapshot: Allocated Time in California Public High Schools

The California Education Code mandates that all public high schools across the state provide students with a minimum of 360 minutes of instruction in a typical school day and a minimum of 175 instructional days in a school year. Beyond these baseline requirements, however, Local Education Agencies (LEAs) can choose to organize instructional time in any way they see fit. Nevertheless, most high schools offer roughly similar amounts of total instructional time.

The chart below plots the daily number of total hours that each high school in our sample is open, from the official start time to the official dismissal time. We determined the number of hours through a combination of teacher reporting and analysis of school bell schedules. While individual schools differ in their daily school hours, the range is similar regardless of the percentage of students receiving Free or Reduced Price Lunch.



This pattern holds when considering the daily number of instructional hours that each high school in our sample offers, which we determined by subtracting non-classroom minutes (for example, passing time between classes and nutrition and lunch periods) from the total weekly school hours.



While most schools offer similar amounts of instructional time, they often organize this time differently. Learning time varies according to different bell schedules. Almost two-thirds of schools in our sample utilize a 'traditional' schedule consisting of a set of classes that meet daily for identical lengths of time usually around 55 minutes). The remaining third employ some form of a 'block' schedule involving alternating sets of classes that meet for longer amounts of time (often more than 90 minutes).

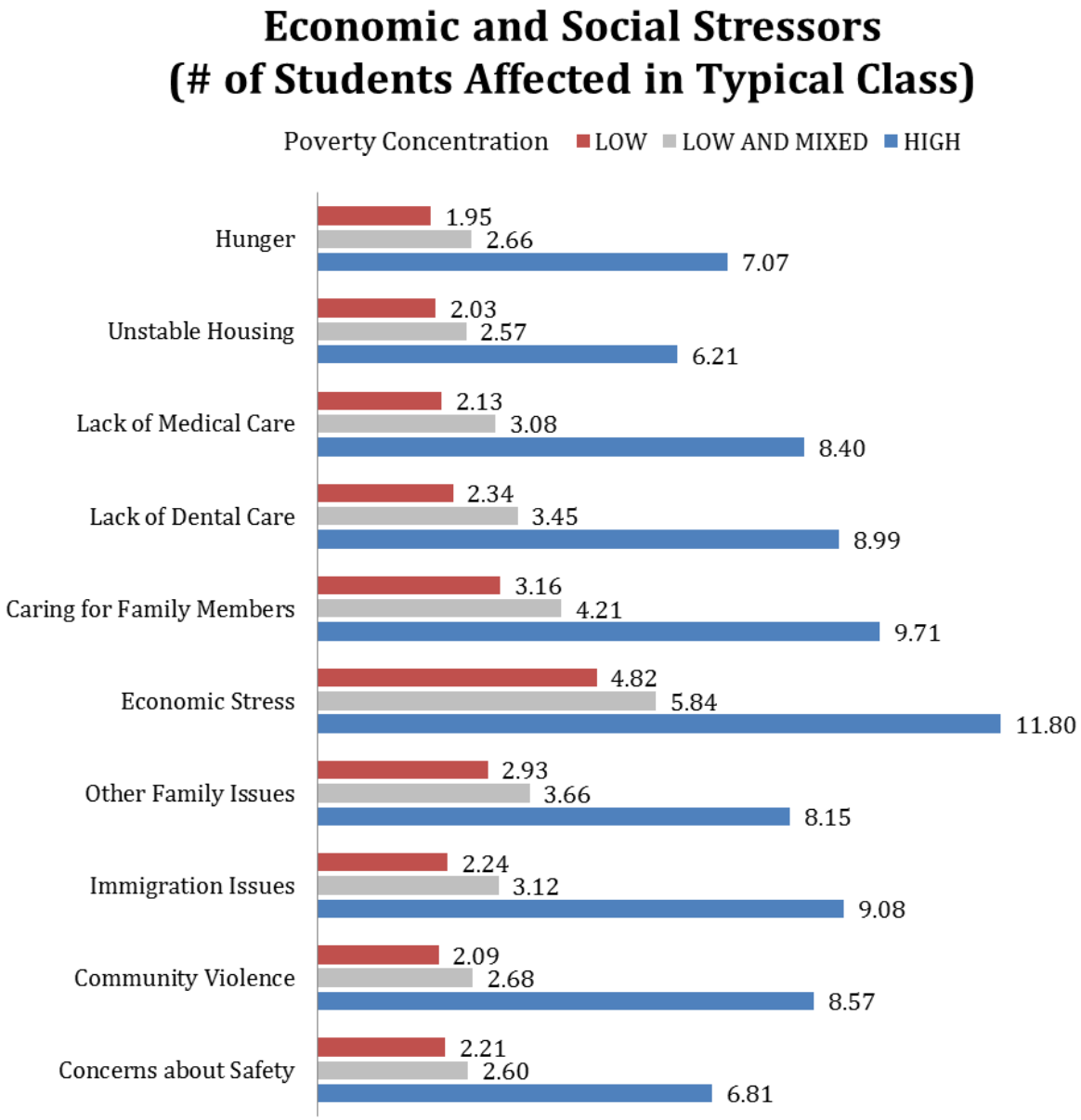
Traditional Bell Schedule		
Period	**Time**	**Minutes**
Period 1	8:16-9:11	55
Period 2	9:17-10:12	55
Nutrition	10:12-10:32	20
Period 3	10:38-11:33	55
Period 4	11:39-12:34	55
Lunch	12:34-1:04	30
Period 5	1:10-2:05	55
Period 6	2:11-3:06	55

Block Bell Schedule		
Period	**Time**	**Minutes**
Period 1/2	8:30-10:10	100
Nutrition	10:10-10:25	15
Period 3/4	10:30-12:20	110
Lunch	12:20-12:50	30
Period 5/6	12:55-2:35	100

Another way that students experience time differently across their schools is through scheduled enrichment or intervention periods that do not fit into the traditional set of core academic classes or electives. 39% of the schools in our sample dedicate time on a daily or weekly basis to accomplish various purposes – some schedule blocks of time for Sustained Silent Reading, while others offer Advisory or Tutorial classes geared toward community building, and still others give students Study Hall or Office Hour periods to complete homework or visit teachers for extra help. Despite the wide variety of ways in which schools organize allocated time, they almost universally spend an identical proportion of time on instruction – approximately 82% of weekly school time.

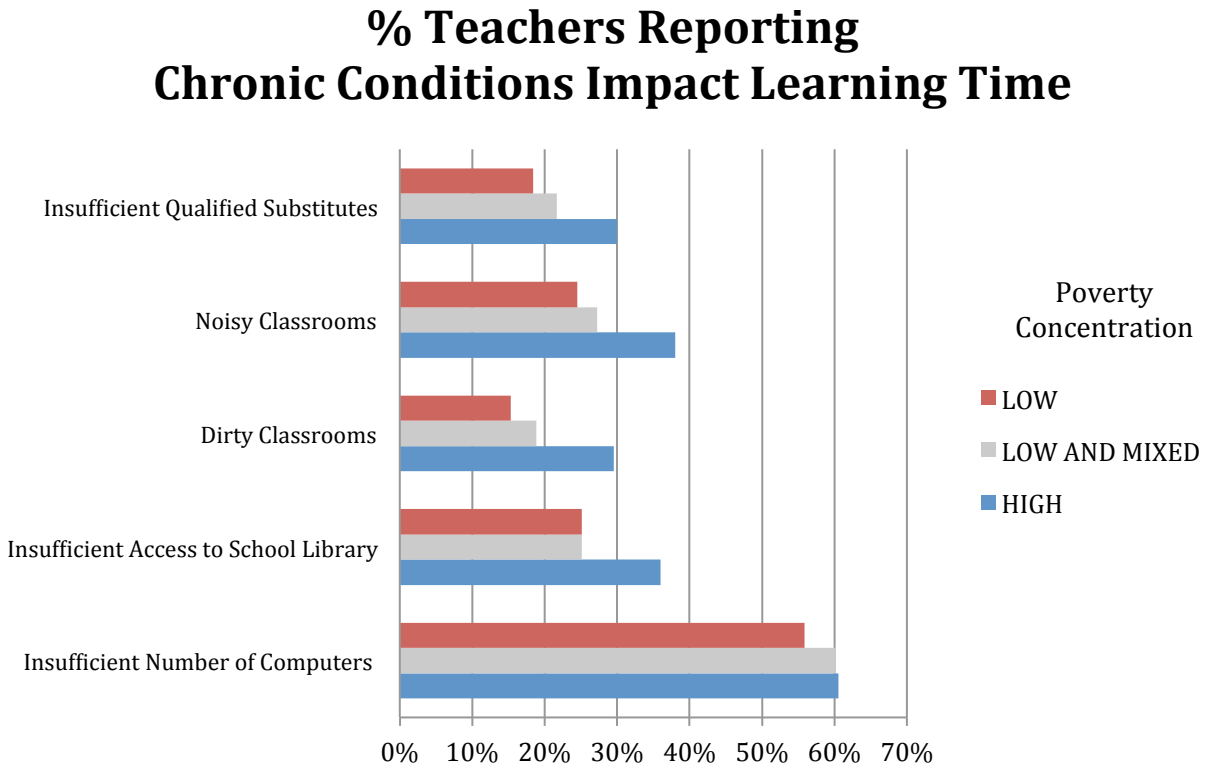
III. Community Stressors and School Conditions Impact Learning Time

The Keeping Time survey illuminates the ways that conditions of poverty and inequality outside of schools affect California classrooms, particularly in High Poverty Schools. We asked teachers to report how many students in a typical class are currently affected by a set of economic and social stressors such as hunger or lack of medical or dental care. Across all ten stressors, teachers in High Poverty Schools reported that far more of their students are impacted than did teachers in Low Poverty and Low and Mixed Poverty Schools.



In addition to asking teachers to report on the number of their students dealing with community stressors, we also asked them to report on how frequently these stressors impact learning time in their classes. Teachers in all schools acknowledged that these stressors have impacted learning time by making it difficult for some students to focus in class or causing students to miss class. Nonetheless, the stressors impact learning time in High Poverty Schools' classrooms three times as often as in Low Poverty Schools' classrooms. On any given day, there is a 39% chance that at least one of these stressors affected learning time in a High Poverty School classroom compared to a 13% chance in a Low Poverty School classroom.

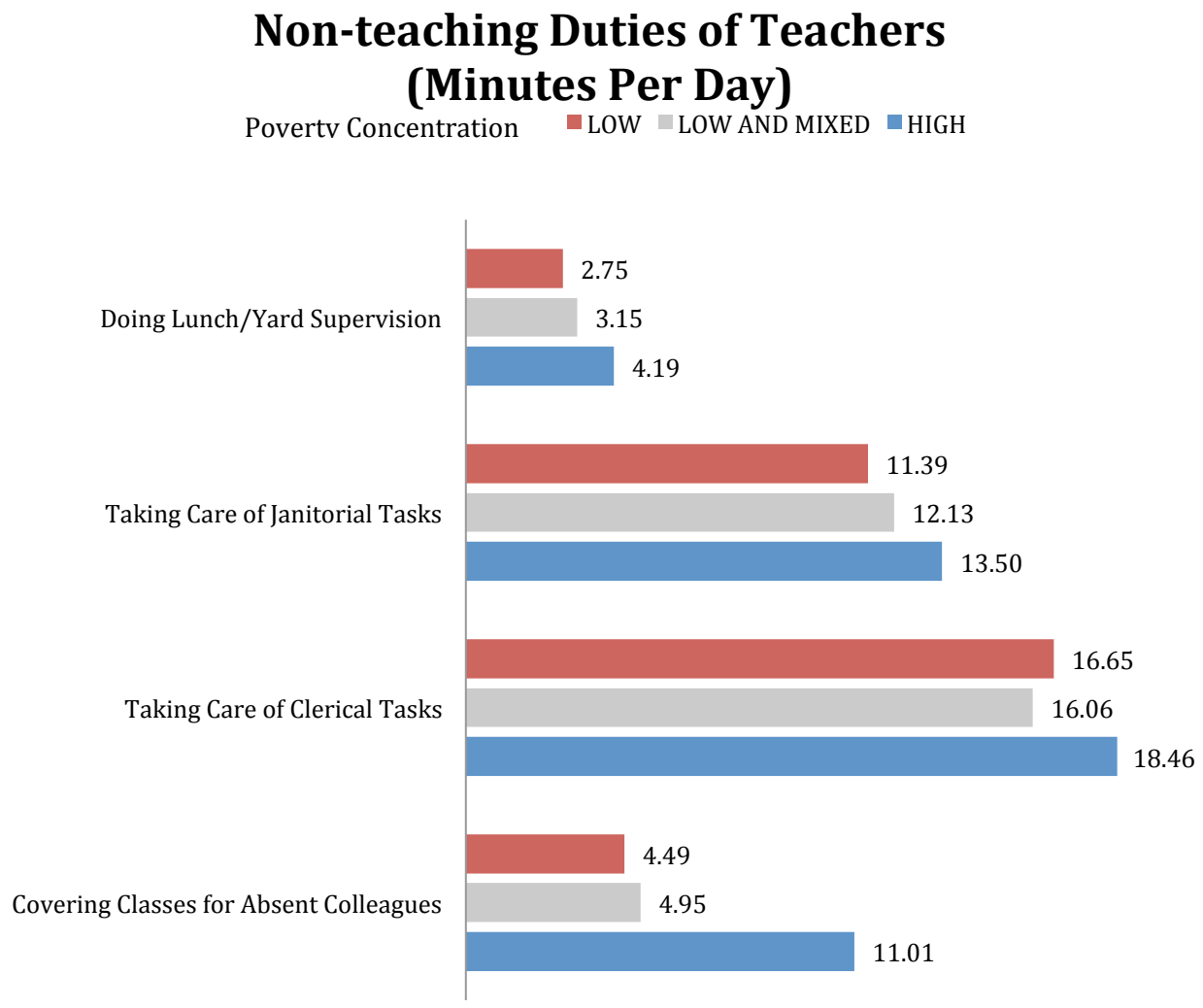
Housing instability in high-poverty communities can cause greater student mobility that in turn can affect a school's schedule. On average, teachers in High Poverty Schools reported that their class enrollment becomes stable a half week later than teachers in Low Poverty Schools. In addition, students experiencing multiple stressors are likely to need health and social services that can lead them to miss class. Teachers in High Poverty Schools reported that slightly more of their students miss class once a week to see a counselor (1.8 vs. 1.3) or a nurse (1.1 vs. .9) compared to teachers in Low Poverty Schools.



Learning time is also shaped by the quality of school conditions. Substantial proportions of teachers in High Poverty Schools reported that inadequate infrastructure negatively impacted learning. They were far more likely than their peers in Low Poverty Schools to report that dirty or noisy classrooms undermined learning, and they also highlighted the lack of essential learning conditions—access to the school library and computers. Concern with substitute teachers was a recurring theme for teachers in High Poverty Schools. In addition to noting a lack of qualified

substitutes, teachers from High Poverty Schools reported that their schools employ substantially more long-term substitutes (3.0 vs. 1.8) than Low Poverty Schools.

One of the results of inadequate school conditions is an increase in the amount of non-teaching responsibilities that teachers take on in order to meet the needs of their students and their schools. Teachers in High Poverty Schools were more likely than teachers in Low Poverty Schools to spend time attending to a variety of non-instructional duties, from supervising students during lunch to taking care of janitorial and clerical tasks to covering classes for absent colleagues. On an average day, teachers in High Poverty Schools devote about 47 minutes to these duties, compared to 35 minutes for teachers in Low Poverty Schools. This difference adds up: over the course of an average week, teachers in High Poverty Schools spend an extra hour more than their counterparts in Low Poverty Schools on these non-teaching responsibilities.



How do these different factors—the economic and social stressors and the chronic problems with school conditions—affect the amount of available time in High Poverty Schools compared with other schools in the state? In the following sections, we answer this question by quantifying time loss over the course of the school year and then time loss within a typical class period.

IV. Quantifying Learning Time Loss throughout the School Year

This section analyzes how much learning time is lost over the school year in Low Poverty, Low and Mixed Poverty, and High Poverty schools. We are concerned with time loss because available learning time sets the parameters for what is possible, and in that sense is a critical educational opportunity. Yet, even as we focus attention on available learning time, we recognize that such time can be used in more or less powerful ways. Data from the Keeping Time survey does not address whether students are productively engaged in relevant content instruction – academic learning time - during available learning time. We thus cannot speak to the quality or depth of learning time across schools, but only to whether time as a fundamental resource is available for learning.

To quantify time loss across the school year, we totaled the number of days in which teachers reported that academic instruction did not occur due to a number of institutional factors (many of which are beyond any individual teacher's control), including: teacher absences, special days throughout the school year, planned and unplanned disruptions, and days of testing or test preparation. Subtracting these lost instructional days from the total allocated time of the school year indicates the amount of available days left for academic instruction.

Teacher Absences

We asked teachers to report on two sorts of absences—days that they miss for professional development or other school purposes and then days missed due to illness or personal reasons. We found that teachers from High Poverty Schools reported more absences than teachers from Low Poverty Schools. Further, teachers from High Poverty Schools reported that, on average, they lost a higher proportion of the instructional day when substitutes covered their classes — presumably because, as we have noted, High Poverty Schools do not have access to sufficient quality substitutes. When we account for how many days of instruction are lost annually due to teacher absences, we see that High Poverty Schools lose four more days than Low Poverty Schools.[19]

Special Days

A second way that instructional days are lost is through what we term "special days." These days occur throughout the school year. For example, most teachers report that they begin their formal instruction a few days into the school year. Teachers from High Poverty Schools started instruction a little more than a day after teachers at Low Poverty schools. Less time is lost on many other special days—including days after semester final exams, days before winter

and spring breaks, the day of the prom, and the last day of instruction. But consistently, teachers from High Poverty Schools average more lost time than teachers from Low Poverty Schools.

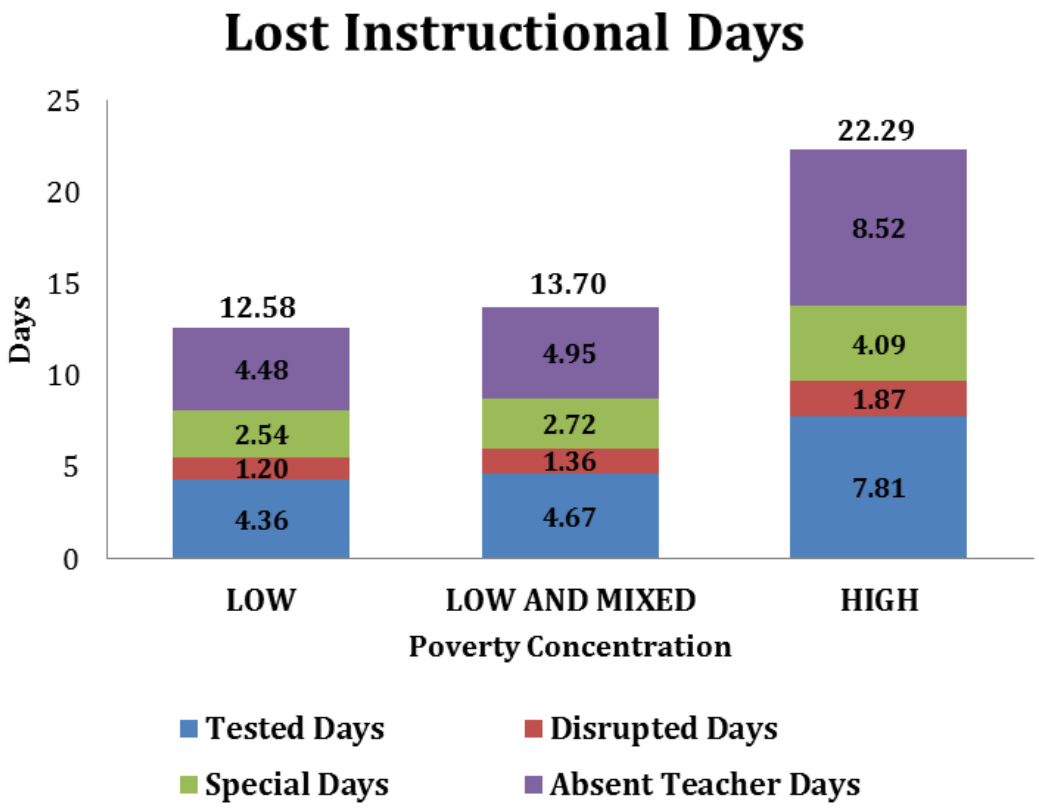
Disrupted Days

Planned and unplanned disruptions also contribute to time loss. Teachers in High Poverty Schools reported that more time was used for non-instructional assemblies than teachers in Low Poverty Schools. And, High Poverty Schools experienced emergency lockdowns (in which students and teachers remain in classes until a safety threat is determined to be over) twice as often as Low Poverty Schools. These disruptions add up to almost two days a year in High Poverty Schools.

Testing

One of the most powerful influences on instructional time is testing. Teachers in High Poverty Schools reported that they spent almost twice as many days, on average, with instruction devoted fully to district- or Charter Management Organization mandated tests—such as benchmarks – than teachers in Low Poverty Schools. An argument might be made that time spent on such tests can be part of an overall instructional program, though that would not explain the stark difference across schools serving different student populations. It is harder to justify the instructional purpose of school days used exclusively for test preparation in the two weeks before state testing. On an annualized basis, High Poverty Schools lose almost eight days to testing while teachers in Low Poverty Schools lose a little more than four such days. (These figures do *not* include official state test days.) There is further evidence that these "tested days" skew instructional practice. Teachers in High Poverty Schools were three times more likely than teachers in Low Poverty schools (24.5% to 8.3%) to report that their instruction changes significantly after state standardized tests are held.

When we sum up the total of lost days across the calendar, we see a difference of almost ten days between High Poverty and Low Poverty schools. Looked at as a proportion of the standard 180-day calendar, High Poverty Schools lose 12.4% of their total instructional days, compared with 7.0% for Low Poverty schools.



V. Zeroing in on Daily Learning Time Loss in Classrooms

In addition to looking at time loss across the calendar, it is important to examine time loss within the context of individual classrooms. Much as a frictionless surface is a theoretical ideal, of course, it is not possible for teachers to use every moment in a class period to advance instruction. The process of learning within complex organizations like schools requires that teachers spend some time taking attendance or distributing materials to students. From the perspective of equal educational opportunity, what is important is whether available learning time during typical class periods is substantially different for students attending Low Poverty, Low and Mixed Poverty, and High Poverty schools.

Delayed Start

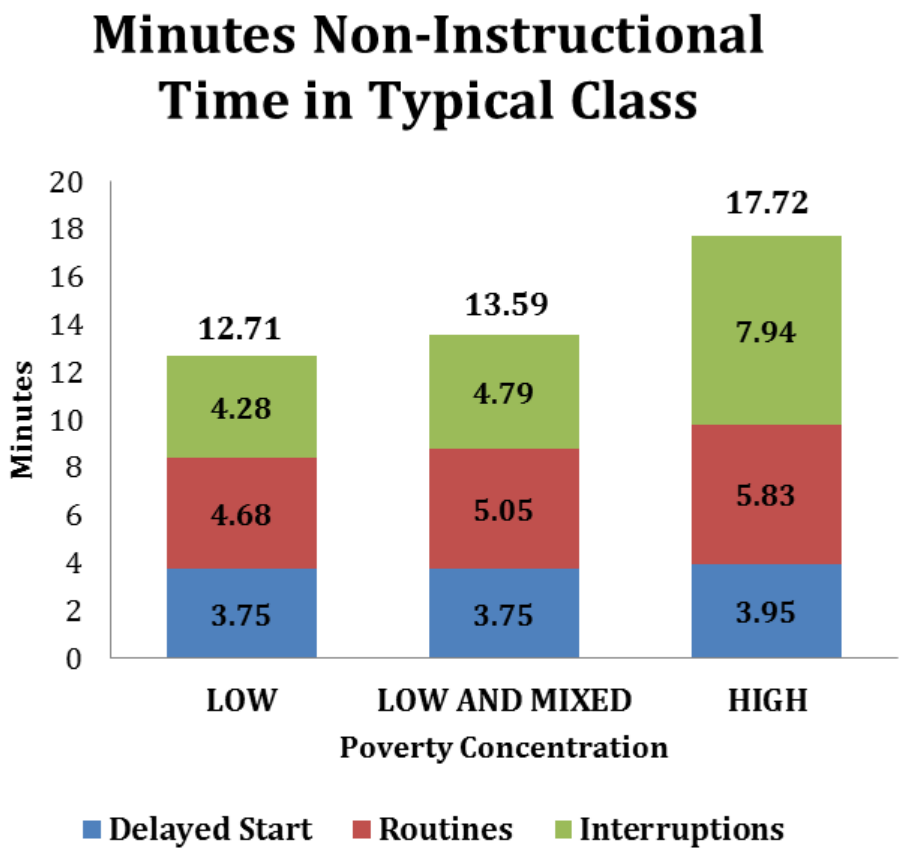
One way that time is lost is at the beginning of class periods. Teachers in High Poverty schools report that they begin instruction more than a half minute later than teachers in Low Poverty schools. Importantly, this difference is far greater for the first period of the day. The large delay in first period start time may be related to the lack of steady and reliable public transportation in many high-poverty communities.

Routines

Another way that instructional minutes are lost is through daily routines, including taking attendance, settling the class down, distributing materials, and preparing the classroom for the next period. Certainly, all teachers use some time for routine activities. Yet it is striking that teachers in High Poverty Schools consistently spend more time on each activity. While the amount of time on any one activity is small (sometimes less than a minute), the routines add up to several minutes of class time, with teachers in High Poverty schools using two minutes more than their peers in Low Poverty schools.

Interruptions

Finally, instructional time is lost through a series of interruptions that occur in many classes. In addition to stopping the class (and hence losing instructional minutes), these interruptions also break up the flow of a lesson and may undermine student concentration and engagement. Some of the stark differences in average interrupted time between High Poverty and Low Poverty schools are likely related to conditions outside of the school (such as lack of housing that leads to greater mobility and the need to incorporate more new students into classes). Other interruptions, for example, phone calls to classrooms, may speak to broader instability at the school site that may be tied to relatively high rates of absent teachers and insufficient numbers of quality substitutes.



Instructional time lost due to delays, routines, or interruptions adds up. In High Poverty Schools, almost 18 minutes in a typical period are lost. This represents about five minutes more of lost time per period in High Poverty versus Low Poverty schools. Over the course of a school day, this difference would translate into around a half hour less instruction for students in High Poverty Schools. Looked at as a proportion of weekly class time, High Poverty schools lose 28% of instructional minutes, while Low Poverty schools lose only 19%.

The disproportionate amount of typical class time loss that occurs in High Poverty Schools may raise questions about the extent to which teachers in these schools commit themselves to careful preparation, assessment, and student support in their instructional practice. The evidence from the Keeping Time survey indicates that teachers in High Poverty Schools spend as much time as their counterparts in Low Poverty and Low and Mixed Poverty Schools in organizing instructional time. In every school, some teachers spend more minutes planning lessons, providing feedback on student work, and offering academic support than other, but on average, teachers across school categories spend equal amounts of time planning and implementing learning opportunities for their students and offering them individual attention and support. Teachers report spending more than an hour per day on planning and grading and more than 20 minutes per day providing extra academic support to students before or after school.

VI. How Teachers Use Available Learning Time

Thus far, we have demonstrated that students attending High Poverty Schools have access to substantially less available learning time than their peers in Low Poverty and Low and Mixed Poverty School. We have pointed to the ways that economic and social stressors outside of school and poor conditions within schools influence the amount of available learning time students experience. But the question remains: after time loss is taken into account, how are teachers across California schools using the available learning time? More pointedly, are they using instructional time well?

Evaluating the quality of instructional time is a complex task that requires extensive classroom observations and review of student work (as well as a clear vision of what constitutes quality). While a teacher survey is not the right tool to assess the quality of instructional time use, it can illuminate the beliefs, constraints, and actions of teachers. The Keeping Time survey highlights three major findings about the ways that teachers use available learning time. First, teachers across schools share a broad vision of quality learning that they seek to advance in their classrooms. Second, teachers in High Poverty Schools encounter more obstacles than their peers in their attempts to promote such learning. Third, teachers in High Poverty Schools frequently attempt to do more with the learning time they have in order to meet a wide variety of student needs than their counterparts in Low Poverty Schools whose students do not demonstrate as much hardship getting their basic needs fulfilled.

Similar Commitment to Valued Learning Time

All time use must be viewed relative to some desired outcome – for example, mastery of the state content standards or developing students' creative and civic capacities. The Keeping Time survey included an open-ended question that invited teachers to report on instances of ***valued learning time*** – times when their students were particularly engaged and when both they and their students valued what students were learning.[20] Teachers offered an array of different examples in response to this question. Yet, almost all teachers spoke about the importance of rigorous, hands-on, and creative learning opportunities that engage students in higher-order thinking about complex academic and social issues. In general, teachers in High Poverty Schools conceptualized valued learning time in very similar ways to teachers in Low Poverty Schools.

Different Barriers to Using Valued Learning Time

While teachers across different categories of schools shared a common vision of valued learning time, teachers from High Poverty Schools were more likely than their counterparts at Low Poverty Schools to report facing barriers to implementing such learning experiences into their instructional practice. Many of the barriers highlighted by teachers from High Poverty Schools illustrate the findings that we reported above about how learning time is undermined by pressures from test-based accountability and community stressors.

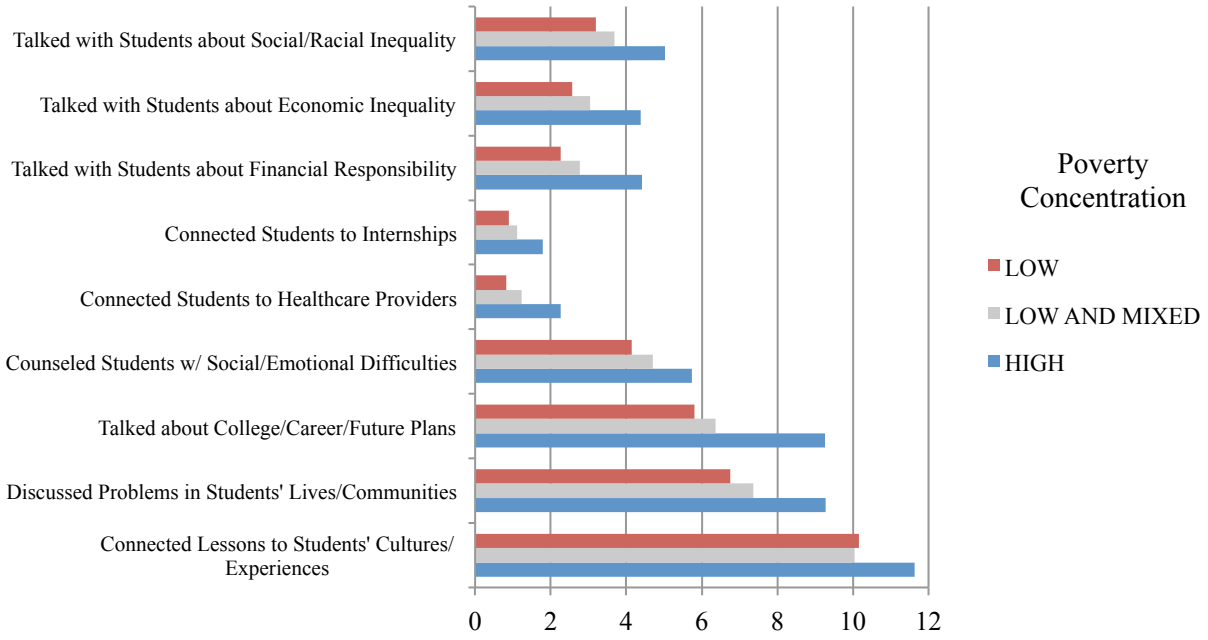
As a teacher from one of the High Poverty Schools reported, "Because of the mandates for standardized testing, classroom and curricular values such as relevancy are valued less. The focus goes from what kids need to what is going to be on the test." Another teacher noted, "[My school] has the largest number of EL students in the district. It has a high transient rate, perhaps the highest in the district as well. The staff here makes themselves available at all hours, yet due to uncontrollable outside influences, not as many students as there should be can utilize the resources."

Finally, another teacher spoke to the lack of educational resources at High Poverty Schools that put additional pressure on teachers to provide basic supplies: "I buy all of the supplies and materials that are used in my classroom. None are supplied by the school except a minimum amount of paper, which I use to produce and copy the multitude of reports I am required to create. I feed my students even though they are eligible for free breakfast and lunch because they are often hungry."

Doing More with Learning Time in High Poverty Schools

Teachers in High Poverty Schools also report addressing a variety of important academic, social, and long-term planning issues with their students more frequently than teachers in Low Poverty schools. Teachers in High Poverty Schools spend substantially more time than their peers discussing community problems and various forms of societal inequality, providing social/emotional counseling, and offering college and career guidance. In essence, inequality takes up more instructional time in High Poverty schools—as a subject of study, as a set of needs that must be ameliorated, and as a challenge to be navigated.

Frequency of Teachers Playing Multiple Roles (Days per month)



While addressing these forms of inequality is arguably a very valuable use of learning time, such efforts raise difficult questions. Does this use of time, particularly when combined with differential patterns of time loss, mean that students in High Poverty Schools receive less time for standards-based instruction? If so, are students in High Poverty Schools disadvantaged on standards-based tests? Will that putative disadvantage, amidst continued accountability pressures, lead to even more instructional time being set aside for test preparation? Will it place students in High Poverty Schools behind their peers as they compete for limited spots in higher education? The purpose of these questions is not to challenge teaching that addresses students' concerns and needs. Rather, it is to highlight the problems created when learning time is treated as a finite resource and distributed unequally.

VII. Learning Time and Equal Educational Opportunity

This study highlights the need for renewed attention to questions about learning time and equal educational opportunity. Because allocated time is distributed roughly equally across public schools, many have ignored time as a policy variable with implications for equity. The Keeping Time survey reminds us that allocated time is not the same as time available for learning. It points to the ways that economic and social stressors and inadequate learning conditions undermine the amount of available learning time schools can provide.

California holds students to a common set of assessment standards and requirements for university admission. Yet students have access to markedly different amounts of instructional time depending on the neighborhood in which they live. It is true that schools can use available learning time in more or less effective ways. But the amount of available learning time creates a ceiling, limiting the capacity of the school to promote student achievement and development.

No one could or would defend a system of public education that required students attending High Poverty Schools to finish their school year two weeks before their peers in Low Poverty Schools. Nor would anyone defend sending students from High Poverty Schools home a half hour early each day. Yet, in effect, California now supports an educational system that produces these effects, though it does so in a manner that obscures the underlying inequity.

For all California students to succeed, policymakers and educators will need to think about time in new ways. It will be important to recognize, grapple with, and redress inequalities in available learning time across public schools. It also will be necessary to account for the well-documented fact that students in high-poverty communities experience less organized learning time after school and during summer than their more affluent peers.[21]

But, more than that, we will need to look with fresh eyes at learning time as a potential driver of equity reform. As president of the Carnegie Foundation for the Advancement of Teaching, Lee Shulman noted, "we treat time as a constant and permit achievement to vary" and what is needed now is "to treat achievement as a constant while we design time to be variable." That would mean extending the school day and calendar year for students with the greatest needs, and ensuring that this time is well spent and enriching. The Keeping Time survey reveals that learning time currently varies in a direction that favors those already advantaged. Through new and targeted investment, this inequality can be transformed. It's about time.

Endnotes:

[1] Carroll, 1963

[2] See Berliner, 1990 and 2007 for general reviews

[3] Farbman, 2012

[4] Berliner, 2007

[5] Brodhagen & Gettinger, 2012; Gettinger & Walter, 2012; Yair, 2000

[6] Rowan et al, 2009

[7] Fisher, 2009; Lowe & Gervais, 1988; Behar-Hoernstein et al., 2006; Partin, 1988

[8] Smith, 2000

[9] Torre & Gwynne, 2009; Kubitschek et al. 2005

[10] Banfanz & Byrnes, 2012; Ready 2010

[11] Clotfelter, Ladd, & Vigdor, 2007

[12] Corey et al, 2012

[13] Goodman, 2014

[14] Abadzi, 2007; Abadzi, 2009

[15] Schuh et al., 2011

[16] http://www.fns.usda.gov/sites/default/files/IEG_Table-032913.pdf. Figures for 2013-2014.

[17] http://thenextgeneration.org/publications/prosperity-threatened

[18] Poverty rate based on 2012 data from http://thenextgeneration.org/publications/prosperity-threatened; FRL participants based on CBEDS data for 2012-2013.

[19] Our analysis extrapolates an annualized teacher absence rate based on absences when the teacher took the survey.

[20] "Valued learning time" is similar to the idea of "academic learning time" which we introduced earlier in the report, but it encompasses a broader set of developmental goals that include, but extend beyond, academic content specified in the official curriculum.

[21] For discussion of these advantages see: Covay & Carbonaro, 2010; Dearing et al. 2009; Putnam et al. 2012; Alexander et al. 2007; Borman et al. 2005; Gershensen, 2013.

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Appendix: Methodology

Sample Construction

1,916,294 students attended California high schools in the 2012-2013 school year. We sorted California's public high schools into five equal groups of 383,259 students according to three criteria: a) the proportion of students receiving Free or Reduced Price Lunch; b) the proportion of students designated as English Language Learners, and c) school enrollment. Table 1 highlights the cut points for each of the five groups (or quintiles) across each demographic category.

Table 1a: Quintile Cut Points for Free or Reduced Price Lunch Percentage

	Quintile 1	*Quintile 2*	*Quintile 3*	*Quintile 4*	*Quintile 5*
% FRL	0-26.02%	26.1-46.7%	46.8-64.3%	64.4-78.0%	78.1-100%

Table 1b: Quintile Cut Points for English Language Learner Percentage

	Quintile 1	*Quintile 2*	*Quintile 3*	*Quintile 4*	*Quintile 5*
% EL	0-3.7%	3.8-7.5%	7.6--12.4%	12.5-19.3%	19.4-100%

Table 1c: Quintile Cut Points for School Enrollment

	Quintile 1	*Quintile 2*	*Quintile 3*	*Quintile 4*	*Quintile 5*
Enrollment	0-1106	1107-1804	1805-2187	2188-2648	2649-4989

To identify the schools in our sample, we began by arraying all high schools by the percentage of students enrolled that receive Free and Reduced Price Lunch. We selected roughly every 12 schools. After this initial selection, we checked to see whether our sample was representative by school size and ELL status. We made substitutions to ensure that schools from all five quintiles (representing % FRL, % ELL, school size) were equally represented in the sample. We then examined the sample to see if it was representative by geographic region and by charter status and made substitutions where necessary to achieve rough representation in the sample. Finally, we reviewed historical data for each selected school, to ensure that the FRL percentage for 2012-13 was not anomalous.

Survey Protocol Development

In order to develop our survey instrument, we conducted an extensive literature review that identified a variety of ways that family poverty and family wealth might shape learning time inside and outside of schools, as well as an array of important school-based resources that enable quality learning time such as access to well-trained teachers and support staff, adequate learning

materials, and other school conditions. We examined several national teacher surveys, looking for items related to learning time. In addition, we conducted interviews with experienced California public school administrators and teachers about conditions, practices, and policies that can influence the amount and quality of learning time in schools.

The survey protocol was uploaded to Qualtrics, an online survey software platform. We tested the survey protocol with several individual teachers and then with a focus group of high school teachers. Feedback from these tests led us to adapt language on several questions. During these tests, teachers spent 25-45 minutes completing the survey.

Survey Administration

We purchased email lists for teachers at the 187 high schools in our initial sample from Market Data Retrieval, a firm that maintains the most comprehensive list of contact information for teachers in the United States. On November 12, 2013, we sent emails to 12,272 teachers via Qualtrics. Through the subject line and substance of the email we communicated that as UCLA researchers we were inviting the teacher to participate in an online survey on learning time. We promised confidentiality and offered teachers an Amazon gift card as an incentive for participating. Teachers who did not respond to the initial email received follow-up reminders every other week until the middle of December.

Of the 12,272 initial emails, 2701 (22.0%) were eventually opened and 2189 (17.8%) were completed by December 16, 2013. Eight hundred seventy-six (7.1%) of the emails bounced back or otherwise failed to be delivered. We identified a survey as completed if a) initial screening questions determined that the teacher was not eligible; b) Qualtrics determined that the school's quota (of three, four, or five teachers depending on school size) had been reached prior to the teacher's attempt to respond to the survey; or, c) the teacher finished the entire survey.

We received no responses from teachers in 19 of the 187 high schools in our initial sample. Six other schools had only one or two respondents.[11] We replaced the 19 schools with no respondents and added an additional six schools to bring our total to 193. In each instance of replacement, we sought to identify a substitution school with the identical characteristics as the school being replaced—the quintile for Free and Reduced Price Lunch, English Learner status, and school size; the geographic region; and charter status. After identifying potential substitution schools, we determined whether it was possible to obtain teacher email lists from the school's website. In those cases where schools did not post teacher emails online, we looked for another substitution school. Eventually, we added 25 schools to our sample and sent out 1,235 replacement emails. Teachers opened 258 (20.9%) of these emails and 169 (13.7%) were completed by December 16, 2013.

Sample Characteristics

Table 2 shows that the sample schools are evenly distributed across the quintiles representing the percentage of students receiving Free and Reduced Price Lunch, percentage designated English Learner, and school enrollment. Table 3 shows student enrollment in the sample schools and the

state by the 11 regions recognized by the California Department of Education. For a description of the regions, see: http://www.cde.ca.gov/sp/sw/t1/sig09.asp.

Table 2: High Schools in Sample by School Characteristics			
	FRL	*EL*	*Enrollment*
Quintile 1	38	37	37
Quintile 2	38	37	38
Quintile 3	37	39	39
Quintile 4	37	38	36
Quintile 5	38	37	38

Table 3: High School Enrollment in Sample by Geographic Region											
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*
% Sample Enroll in Region	**1.41%**	**1.45 %**	**5.88 %**	**9.70%**	**7.01 %**	**3.54 %**	**6.31 %**	**6.98 %**	**18.84 %**	**10.31 %**	**28.57 %**
% State Enroll in Region	***1.75%***	***1.49%***	***6.51%***	***10.40 %***	***6.07%***	***3.96%***	***6.00%***	***6.62%***	***17.16%***	***13.71%***	***26.34%***

The sample enrolls a smaller proportion of students attending charter schools than the state as a whole (4.24% in the sample compared with 6.04% of students in all California high schools). We experienced problems with the email addresses for a few of the charter schools in our initial sample and, since charter schools are less likely than traditional public schools to post teacher emails online, it proved difficult to find appropriate substitution schools that are charter schools.

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For further information, contact UCLA IDEA
1041 Moore Hall, Box 951521
Los Angeles, CA 90095
Phone: (310) 206-8725 Email rogers@gseis.ucla.edu nmirra@ucla.edu