

Title: 2011 TELL Colorado Initiative**Author(s):** Eric Hirsch, New Teacher Center**Date of Initial Publication:** 04/10/2012**Abstract/Summary**

The Teaching, Empowering, Leading and Learning (TELL) Colorado survey is an anonymous statewide survey of licensed, school-based educators to assess teaching conditions at the school, district and state level. (Note: teachers and principals in charter schools are included and do not need to be licensed to participate.) The survey results are intended to support school and district improvement planning and to inform policy decisions.

In February 2011, the second iteration of the TELL Colorado Survey was conducted. Nearly 30,000 educators (47 percent) from across the state shared their perceptions of the teaching and learning conditions in the schools in which they work, indicating whether they have the kind of supportive teaching and learning conditions necessary for enabling teachers and students to be successful.

Both the 2009 and now the 2011 TELL Colorado Survey indicate that students perform at higher levels in schools with more positive teaching conditions. In particular, there is stronger student achievement at schools where the parents/guardians and the community at large know what is going in the school, are influential decision makers and support teachers and the school as a whole.

Subject/Keywords: Education, School Climate, teacher satisfaction survey, teaching conditions**Document Type:** Paper**Document Archive Number:** 0010cdehi2012

The Impact of Teaching Conditions On Student Performance and Teacher Attrition

In February 2011, the second iteration of the TELL Colorado Survey was conducted. Nearly 30,000 educators (47 percent) from across the state shared their perceptions of the teaching and learning conditions in the schools in which they work, indicating whether they have the kind of supportive teaching and learning conditions necessary for enabling teachers and students to be successful.

In this latest iteration, 847 schools (59 percent) across the state met or exceeded the 50 percent response rate necessary for access to detailed and summary school level reports about their teaching conditions, an increase of 11 percent (or 210 schools) from the 2009 survey. School, district and state data, as well as other research reports published on the 2011 TELL Colorado results—general trends, new teacher support, and principal support—are available electronically at www.tellcolorado.org.

Recognizing that research demonstrates clear connections between perceptions of educators about their teaching conditions and their ability to influence student learning (Hirsch et al. 2008a, b, c, d; Hirsch and Emerick, 2007, 2006; Leana and Pils, 2006; Leithwood, 2006), this brief analyzes the relationship between 2011 TELL Colorado Survey responses aggregated to the school level and schools' composite performance on the Colorado Student Assessment of Progress (CSAP) for each of the schools with a sufficient response rate. Analyses of the 2009 data demonstrated that teaching

conditions—specifically, Community Engagement and Student Learning—influence both absolute performance and growth on the state assessments, explaining as much as 11 percent of the variation in performance across schools in Colorado.

Additionally, the relationship between teaching and learning conditions and teacher attrition rates at these schools is also addressed. Key findings from the 2011 analyses suggest that:

- ♦ Positive teaching and learning conditions, particularly in the area of Community Support and Involvement, are present in Colorado schools with high student achievement. Strong, significant and positive relationships are present in 2011 between student performance and several of the assessed teaching conditions. The area with the strongest connection is Community Support and Involvement—whether parents/guardians in the community are engaged, influential and supportive of teachers and schools—across all school levels.
- ♦ Teachers wanting to remain working in their school are far more positive about aspects of School Leadership, but teaching conditions and other student, school and teacher characteristics do not collectively explain teacher retention rates. Teachers who want to remain teaching in their current school (stayers) are much more positive about aspects of School Leadership than those who want to teach, but in another school (movers): stayers are more than as twice likely as movers to report an atmosphere of trust and mutual respect, are comfortable in raising issues

and that efforts are made to empower teachers. Similar to 2009, however, statistical models examining actual teacher turnover did not yield robust results or provide much evidence on which school, teacher, student or teaching conditions characteristics drive teacher retention. The current economic climate (where jobs outside education are scarce), availability of other education jobs (where jobs inside education are scarce), and a multitude of other considerations may be influencing teacher turnover and educator’s employment plans.

These results demonstrate that the conditions educators face in their schools can catalyze or constrain teacher effectiveness. The state has made substantial efforts over the past few years to improve teaching quality, and has worked to integrate the TELL Colorado Survey into aspects of school improvement planning and principal evaluation. As the state continues to survey biennially under the auspices of HB 08-1384, additional policies and practices could enhance school conditions in Colorado, including: creating teaching conditions standards, and providing additional professional support opportunities for school and teacher leaders to improve school conditions.

About the Survey

The TELL Colorado Survey assesses eight teaching conditions areas: Time, Facilities and Resources, Community Support and Involvement, Managing Student Conduct, Teacher Leadership, School Leadership, Professional Development, and Instructional Practices and Support. These areas—referred to in this brief as constructs—are research-based with analyses of past surveys assessing these same constructs by the New Teacher Center having shown that they strongly influence student achievement and teacher retention. Additionally, teachers in their first three years in the profession were asked questions in a ninth area about “New Teacher Support.” As those results were only answered by a subset of teachers, NTC published a separate brief that assesses the duration and systematic implementation of mentoring and other supports (see www.tellcolorado.org).

The 2011 TELL Colorado Survey was made available to all school-based, licensed educators including teachers, principals, vice principals, and other education professionals (e.g., school counselors, psychologists, social workers, library media specialists, etc.) in the state. Most of the questions were asked

2011 TELL Colorado Survey Constructs

Time—Available time to plan, collaborate, provide instruction, and eliminate barriers in order to maximize instructional time during the school day

Facilities and Resources—Availability of instructional, technology, office, communication, and school resources to teachers

Community Support and Involvement—Community and parent/guardian communication and influence in the school

Managing Student Conduct—Policies and practices to address student conduct issues and ensure a safe school environment

Teacher Leadership—Teacher involvement in decisions that impact classroom and school practices

School Leadership—The ability of school leadership to create trusting, supportive environments and address teacher concerns

Professional Development—Availability and quality of learning opportunities for educators to enhance their teaching

Instructional Practices and Support—Data and support available to teachers to improve instruction and student learning

of all respondents, although some were asked only of specific groups. For example, only teachers in their first three years and those indicating that they served as mentors were asked about induction. Further, a set of questions about district support in creating positive teaching conditions was asked specifically of principals and a set of questions concerning supports for new administrators was asked of administrators in their first three years. There were also a few questions covering basic demographics of respondents, such as position held and years of experience.

About the Respondents

Nearly 30,000 educators (47 percent) from across Colorado shared their perceptions of the teaching and learning conditions in which they work, indicating whether they have the kind of supportive school environments necessary for enabling teachers and students to be successful. At the state level, this represents an 11 percent increase in participation from Colorado educators since the first survey was conducted in 2009. In 2011, 847 schools across the state met or exceeded

the 50 percent response rate necessary for access to detailed and summary school level reports about their teaching and learning conditions.

To better understand whether the 847 schools included in these achievement and retention analyses are comparable to schools across the state as a whole, mean values, by quartiles (listed as low, middle and high on each of the variables), were calculated for a variety of important measures such as percent of students scoring proficient or above on the CSAP, percent students receiving free or reduced price lunch, percent student mobility, percent minority students, and percent teacher turnover (Table 1).

As can be seen, the schools included in our analyses tended to have slightly higher performing students and slightly higher proportion of students qualifying for free or reduced lunches. Given these small differences between schools with TELL Survey data and other Colorado schools on key data points there is good reason to have confidence in extrapolating the findings from analyses of the Survey to the state as a whole.

TABLE 1. COMPARISON BETWEEN SCHOOLS INCLUDED IN ANALYSES AND ALL SCHOOLS IN COLORADO						
	Quartiles	Percent Proficient or Above on CSAP	Percent FRL Eligible	Percent Student Mobility	Percent Minority Students	Percent Teacher Turnover
All Colorado Schools	Total Schools (N)	1,426	1,539	1,533	1,556	1,556
	Bottom	36.83%	21.31%	20.40%	37.65%	10.98%
	Middle	57.02%	42.93%	27.40%	65.26%	12.88%
	High	72.67%	72.67%	37.55%	79.70%	16.63%
TELL Colorado Analyzed Schools	Total Schools (N)	749	812	809	820	820
	Bottom	40.51%	21.32%	19.60%	40.71%	9.35%
	Middle	59.52%	40.95%	26.20%	64.76%	12.01%
	High	73.45%	64.35%	35.95%	79.44%	15.43%

Teaching and Learning Conditions Positively Impact Student Performance

Teachers are clear about which teaching condition(s) they perceive makes the greatest difference to their efficacy with students (Figure 1). Teachers were almost twice as likely to indicate that Instructional Practices and Supports make the greatest difference in their ability to get their students to achieve over any condition. One-fifth of teachers reported the time they have—to teach, plan, collaborate, etc.—was most important in influencing student gains. In 2009, teachers were most likely to indicate that time was the most essential condition, but that is because instructional practices was not included as an option on that first TELL Colorado Survey.

As a first step to understanding the influence of teaching conditions in Colorado schools on student performance, multiple correlations were calculated between the TELL Colorado Survey constructs and student performance in reading and math on the CSAP, as a composite variable as designated by the Colorado Department of Education. A correlation measures the strength of the relationship between two variables with values ranging from -1 (a strong, but

negative relationship) to 1 (a strong positive and relationship). The closer the correlation is to zero, the weaker the relationship. In the social sciences a .3 correlation coefficient is generally accepted as a strong enough association to merit further analyses and research.

Strong Correlations Exist between Some Constructs and Student Performance

Strong, statistically significant, and positive relationships exist between several of the teaching conditions documented in the TELL Colorado Survey and student performance (Table 2).

- ♦ Very strong positive relationships exist between student performance and Community Support and Involvement across all school levels (.607, .719, and .475, respectively). In schools where educators report there is clear, two-way communication and the support of parents/guardians and the community at large for teachers and the school, students are performing at higher levels.
- ♦ At the middle school level strong correlations exist across nearly all teaching conditions areas, specifically, Time,

FIGURE 1. ASPECT OF TEACHING CONDITIONS MOST INFLUENCING STUDENT LEARNING

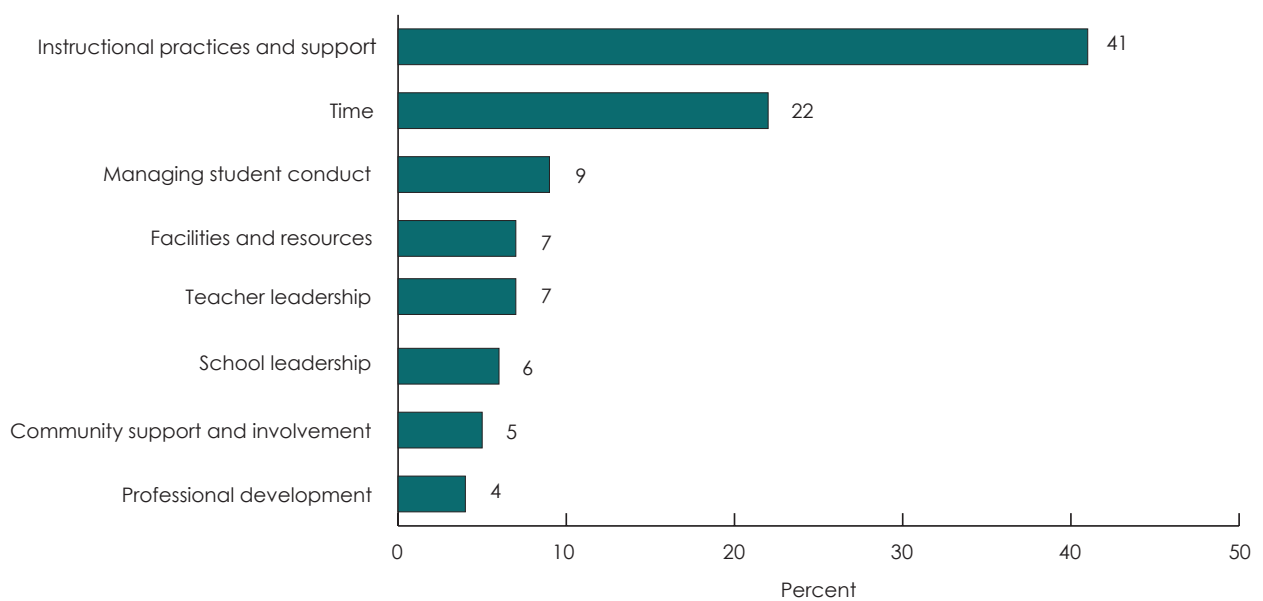


TABLE 2. CORRELATION COEFFICIENTS BETWEEN TEACHING CONDITIONS AND STUDENT PERFORMANCE

Math/Read Percent Proficient or Above	Time	Facilities and Resources	Student Conduct	Teacher Leadership	School Leadership	Professional Development	Community Support and Involvement	Instructional Practices and Support
Elementary (n=454)	-0.046	0.266**	0.293**	0.167**	0.125**	0.027	0.607**	0.217**
Middle (n+130)	0.302**	0.457**	0.470**	0.287**	0.280**	0.194*	0.719**	0.337**
High (n+165)	-0.011	0.288**	0.084	-0.017	-0.016	-0.049	0.475**	-0.021

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Facilities and Resources, Managing Student Conduct, and Instructional Practices and Support (.302, .457, .470, and .337, respectively). It appears that teaching conditions may be more strongly related to performance in middle schools. Conversely, only two conditions—Facilities and Resources and Community Support and Involvement—have statistically significant correlations at the high school level.

- ◆ Perceptions of professional development conditions appear to have the weakest connection to student achievement results. This does not imply that professional development is not important to getting better student outcomes, but rather is an indication that: a. the type and quality of supports received across schools and districts is similar, b. that it may take time to see learning gains based on professional development received, and c. that professional development resources are most often targeted at the lowest performing schools.

To better assess the relationship between teaching conditions and achievement on individual questions within and across these teaching conditions, schools were broken down into quartiles based on their performance on the CSAP composite and

the percent of educators who agree or strongly agree that the condition is in place in their school was compiled (Table 3).

As would be expected based on the correlations, the three questions with the greatest disparity between high and low performing elementary schools are in the area of Community Support and Involvement. Only half of educators in the lowest performing schools compared to nine out of 10 in the highest performers agree that parents/guardians are influential decision makers in their school. Educators in schools with lower performance are significantly less likely to agree that parents/guardians support teachers and know what is going on in their school.

When examining Managing Student Conduct, significantly correlated at the elementary and middle school levels, results differ significantly across school performance quartiles. Six out of ten (63 percent) educators in low performing schools compared to nine out of ten (91 percent) in high performing schools agree that students follow rules of conduct. Implementation of student conduct rules also varies, with two-thirds of educators in the lowest performers agreeing that teachers consistently enforce rules compared to nine out of ten (88 percent) in the highest performing schools.

TABLE 3. TEACHING CONDITIONS QUESTIONS ACROSS PERFORMANCE QUARTILES

Questions with the Greatest Response Rate Differences Between Highest and Lowest Student Achievement Quartiles	Lowest Quartile 1	Quartile 2	Quartile 3	Highest Quartile 4	Highest minus Lowest
Parents/guardians are influential decision makers in this school.	50.6%	58.2%	73.5%	91.1%	40.5%
Parents/guardians support teachers, contributing to their success with students.	57.6%	63.2%	74.3%	90.4%	32.8%
Parents/guardians know what is going on in this school.	62.6%	71.3%	82.5%	92.6%	30.0%
Students in this school follow rules of conduct.	63.0%	69.9%	82.4%	90.7%	27.7%
Community members support teachers, contributing to their success with students.	61.8%	64.6%	74.6%	88.5%	26.6%
The community we serve is supportive of this school.	69.8%	77.1%	86.6%	95.3%	25.5%
Teachers consistently enforce rules for student conduct.	67.7%	74.6%	83.5%	88.2%	20.5%
This school does a good job of encouraging parent/guardian involvement.	73.7%	77.9%	86.6%	94.1%	20.4%

Statistical Models Show Strong Connections between Teaching and Learning Conditions and Student Performance

To better understand the connections between teaching and learning conditions and student performance, statistical models were created for elementary, middle, and high schools to examine the relationship between student performance and four sets of influences: teaching and learning conditions, student background, teacher background, and school characteristics (see Appendix).

The models presented isolate and examine the connection between performance and teaching and learning conditions to determine the condition’s predicted impact. Whereas these models do not allow for a direct, causal link between teaching conditions and student performance to be established, they ensure that documented relationships are due to perceptions reported on the TELL Colorado Survey and are not due to poverty, school size, etc. as could be the case with correlation coefficients.

Results of each of the statistical models, by level, are summarized and discussed. To understand the relative influence of teaching conditions controlling for other variables,

standardized coefficients are compared. For example, for every one standard deviation increase in the rate of agreement within a survey construct (so moving up), an estimated increase in the percentage of students performing at or above proficiency is used to help understand the relative impact of improving teaching conditions compared to other factors that influence performance.

Elementary School Performance

The statistical model for elementary performance was fairly robust, explaining 59 percent of the variance in performance across elementary schools with sufficient response on TELL Colorado, with an estimated 6.2 percent of this variance attributable specifically to the presence of positive teaching and learning conditions. *Facilities & Resources, School Leadership, and Community Support and Involvement all have a statistically significant and positive effect on elementary school students’ performance while controlling for student, teacher, and school characteristics.*

- ♦ Community Support and Involvement had the strongest positive impact of the teaching and learning condition factors at the elementary level. For every one standard deviation increase in agreement on this factor, the percent

of students at or above proficiency can be expected to increase by 4.3 percentage points.

- ♦ School Leadership also had a positive effect on student performance, supporting findings from correlations shown earlier. For every one standard deviation increase in agreement for this factor, the percent of students at or above proficiency can be expected to increase by approximately 3.1 percentage points.
- ♦ Time and Teacher Leadership, though statistically significant, were negatively associated with student performance based on the final model. This finding echoes results from 2009, when issues of teacher leaders and decision making were negatively associated in some, but not all models on CSAP performance. As was the case in 2009, we believe these findings may be specific to the design of the model or likely indicate: 1. An unmet need for additional professional development to support teachers in making the best instructional decisions, or 2. That policies that have been put in place in low-performing schools to empower teachers have yet to take full effect and have impact.
- ♦ The variable with the strongest and most significant impact on school level performance was the percent students receiving free and reduced price lunch, a finding that transcends subjects and levels across districts and states in nearly all TELL Survey findings. Percent student mobility, Percent English Language Learners and Percent Minority Students were also negatively related to student performance at the elementary school level.

Middle School Performance

The model for middle school student performance was most robust, explaining 79.8 percent of the variance in students scoring proficient or above. **Community Involvement and Support had a statistically significant and positive impact on achievement results at the middle school level.** Teaching and learning conditions accounted for approximately 3.2 percent of total variance explained.

- ♦ Community Support and Involvement was positively related to student performance. For every standard deviation increase in the Community Support and Involvement factor, student performance will have a corresponding increase of four percentage points.
- ♦ Instructional Practices and Support had the similar strength as Community Support and Involvement in this model, but was negatively related to student performance (2.8 percent decrease per standard deviation). This finding may reflect that not enough time has passed for positive changes in instructional practices and support to lead to impacts on student performance or, more likely is an aberration specific to the model as this trend was not found at other levels or in previous analyses from 2009.
- ♦ Similar results were found for Free and Reduced Price Lunch, again in the negative direction, meaning, for every one standard deviation increase in the percent of students receiving free and reduced price lunch, school performance falls 11.6 percentage points.
- ♦ Percent Student Mobility was negatively related to student performance.

High School Performance

The model for school level performance was also fairly robust, explaining 65.9 percent of the variance in the percent of students scoring proficient or above at the high school level. **Teaching and learning conditions accounted for nearly 5.6 percent of this variance, with Community Support and Involvement having a strong positive impact on student performance.**

- ♦ For every standard deviation increase in rate of agreement for Community Support and Involvement, overall student performance could be expected to increase by 7.6 percentage points.
- ♦ Free and Reduced Price Lunch has the largest impact such that for every one standard deviation increase in the

number of students receiving free and reduced price lunch, school performance could be expected to decrease by 11.3 percentage points.

- ✦ The only other student characteristics that showed strong and significant relationships were Percent Student Mobility which is negatively associated with student performance.

As expected across the models, the strongest influence on student achievement is the poverty of students served and other student characteristics. This finding suggests that efforts need to be made to help support teachers and principals working in schools where there is high poverty and mobility among students, including developing policies that might reduce within-district mobility.

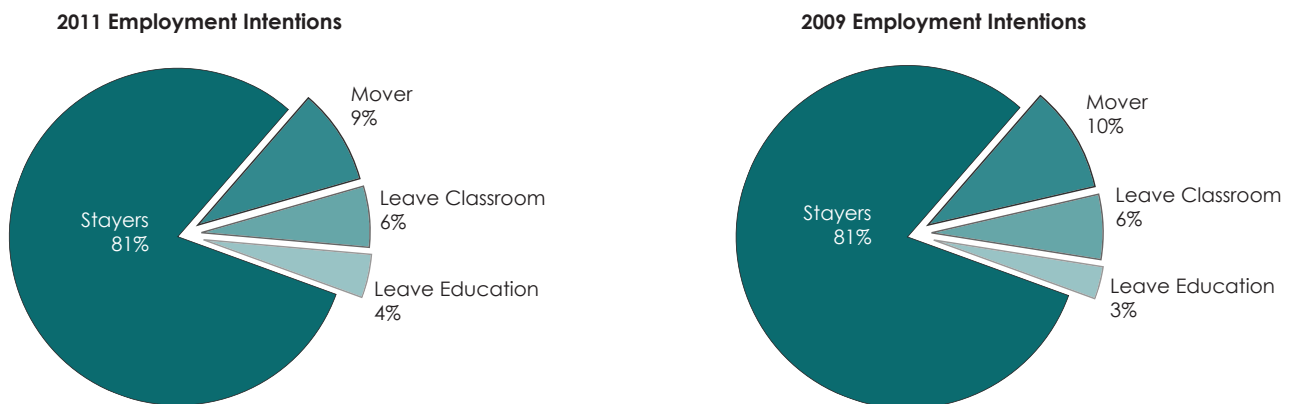
Teaching conditions, particularly Community Support and Involvement, are important elements of schools with strong student performance. Along with school and student characteristics, teaching conditions can explain a significant amount of the variance in performance seen across schools.

As schools continue in their efforts to support students and teachers, assessing the engagement, communication, supports and involvement by parents/guardians and the community at large should be assessed and discussed.

Teaching Conditions Influence Decisions About Where and Whether to Teach

The TELL Colorado Survey asks teachers about their immediate employment plans in addition to questions to all school-based licensed educators about the teaching conditions in their school (Figure 2). As was the case in 2009, four out of five (81 percent) of teachers indicate that they want to continue teaching at their current school (referred to as stayers). About one out of 10 (nine percent) want to stay in the classroom, but work at another school (referred to as movers), and another one out of 10 want to leave teaching either to become an administrator, retire or work outside of education (referred to as leavers). Despite changes in the economy and policies influencing teachers in Colorado, employment intentions remained stable between 2009 and 2011.

FIGURE 2. DISTRIBUTION OF TEACHER EMPLOYMENT INTENTIONS OVER TIME



When asked which teaching condition was the most important influence on future employment plans, teachers were most likely to say School Leadership (which includes any individual, group or team that makes decisions about the direction of the school). About one-quarter (28 percent) reported School Leadership, twice as many as any teaching condition other than Instructional Practices and Support (18 percent) (Figure 3).

Teachers who plan to stay teaching at their school have significantly more positive perceptions of the conditions in their building than the movers who want to remain in the classroom but work in another school (Table 4). Leavers—of the classroom and the profession—are more likely to view their conditions in similar ways to stayers as they are likely leaving not due to dissatisfaction, but to pursue other opportunities or for a variety of non-teaching factors such as retirement, personal reasons, etc.

Teachers who want to move to another school appear to be doing so, at least in part, due to the presence of teaching conditions, particularly School Leadership.

- ♦ Teachers who want to stay at their school are more than twice as likely as those who want to teach in another building to indicate that there is an atmosphere of trust and mutual respect and that teachers feel comfortable raising issues.
- ♦ Empowerment and teacher leadership also appear to be important factors in teachers’ future employment plans with stayers more than twice as likely as movers to indicate that school leadership addresses teacher concerns about empowerment and that teachers have an appropriate level of influence on decision making in the school.
- ♦ Stayers were nearly three times as likely as movers to indicate that they had used the TELL Colorado Survey as a school improvement tool, likely demonstrating teachers’ desire to work in schools with leaders who engage them in data-driven decision making about issues and concerns that may impede their abilities to teach effectively.

FIGURE 3. ASPECT OF TEACHING CONDITIONS AFFECTING TEACHERS' WILLINGNESS TO KEEP TEACHING

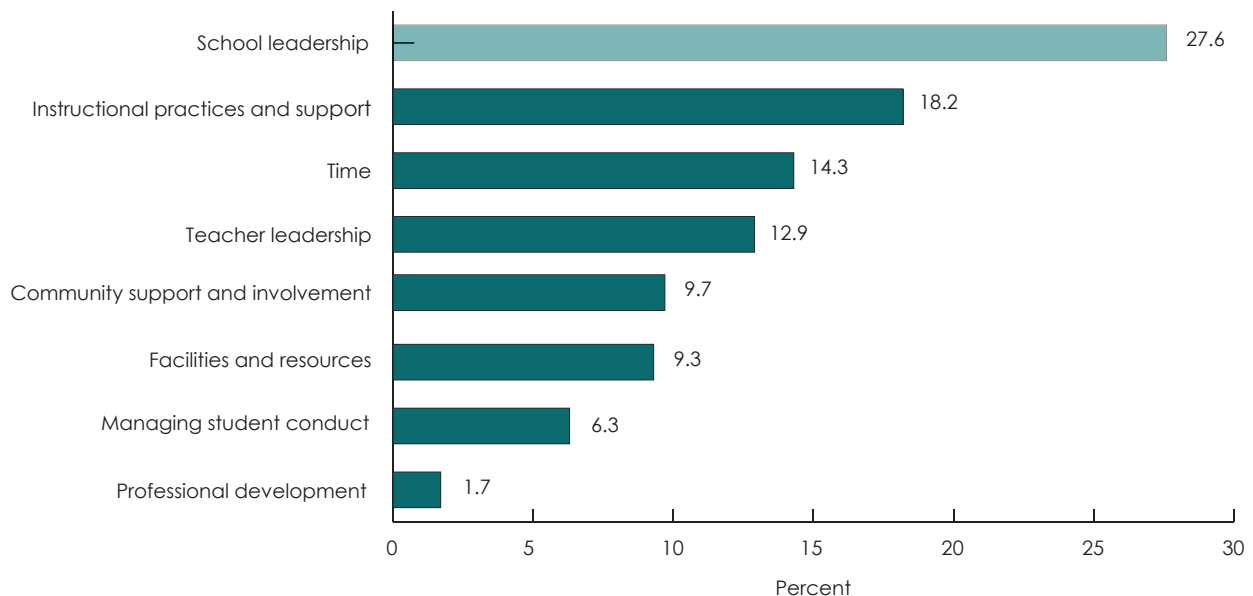


TABLE 4. PERCEPTIONS OF TEACHING CONDITIONS BY FUTURE EMPLOYMENT PLANS

Survey Questions with Greatest Response Rate Differences Between Stayers and Movers	Stayer	Mover	Leave Classroom	Leave Education	Stayers minus Movers
Overall, my school is a good place to work and learn.	88.7%	47.1%	81.7%	63.1%	41.6%
There is an atmosphere of trust and mutual respect within this school.	72.1%	31.3%	61.1%	47.7%	40.8%
The school leadership makes a sustained effort to address teacher concerns about empowering teachers.	71.7%	33.6%	60.5%	43.2%	38.2%
The school leadership consistently supports teachers.	79.1%	40.9%	68.3%	52.1%	38.1%
At this school we utilize the results from the TELS survey as a tool for school improvement.	59.9%	22.3%	45.0%	32.8%	37.7%
Teachers feel comfortable raising issues and concerns that are important to them.	65.6%	28.3%	56.6%	40.4%	37.3%
The school leadership makes a sustained effort to address teacher concerns about leadership issues.	70.8%	35.2%	56.2%	46.7%	35.6%
Teachers have an appropriate level of influence on decision making in this school.	64.0%	28.6%	54.9%	36.9%	35.5%
The faculty and leadership have a shared vision.	72.7%	37.8%	59.3%	46.3%	34.9%

Examination of Correlations between Constructs and Teacher Attrition

While future employment plans are important—as these perceptions ultimately they drive efficacy and those who want to leave but do not can have a detrimental effect on morale—analyzing actual attrition rates is critical. As a first step to assessing the impact of teaching conditions in Colorado schools on teacher retention, multiple correlations were calculated between TELL Colorado Survey constructs and teacher attrition rates at the elementary, middle, and high school levels (Table 5).

- At the middle school level there is a statistically significant and negative relationship between Community Support and Involvement and actual teacher attrition. *Increases in Community Support and Involvement are significantly*

related to decreases in teacher attrition at the elementary, and especially the middle school levels.

- There is a small, positive correlation (.205) between the construct of Time and teacher attrition for elementary educators in Colorado. This suggests that teachers are significantly more likely to leave schools where they have positive perceptions of time, albeit weakly. This was not the case in analyses of 2009 data, nor has it occurred in other states where TELL Surveys have been conducted. As the correlation is weak and not significant at the middle or high school level, we believe the finding is most likely explained by the consistent and non-varying challenges reported by elementary educators about the time they have to plan and collaborate (see the general trends report at www.tellcolorado.org). As elementary schools so uniformly indicated challenges with time, small differences in schools could lead to statistically significant correlations.

TABLE 5. CORRELATION COEFFICIENTS BETWEEN SURVEY FACTORS AND TEACHER ATTRITION

Calculated Teacher Attention	Time	Facilities and Resources	Student Conduct	Teacher Leadership	School Leadership	Professional Development	Community Support and Involvement	Instructional Practices and Support
Elementary (n=454)	-0.205**	-0.068	-0.091*	-0.026	0.11	-0.047	-0.177**	-0.077
Middle (n+130)	-0.053	-0.067	-0.093	-0.058	-0.034	-0.089	-0.306**	-0.124
High (n+165)	-0.012	-0.078	0.023	0.01	0.003	-0.012	-0.102	-0.006

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Statistical Models Show Connections Between Teaching and Learning Conditions and Teacher Attrition

To better understand these correlations and teachers’ desire to leave their schools, statistical models were created for teacher attrition rates in elementary, middle, and high schools while examining the influence of teaching and learning conditions, student background, teacher background, and school characteristics.

As might be expected given the weak correlations documented between actual attrition rates and teaching conditions, the models were not particularly robust. While teaching conditions issues explained between 10 to 15 percent of variance in attrition rates across schools, no model explained more than 17 percent of why teachers actually leave. So, while teaching conditions are important influences within the models, the models themselves do not illuminate many of the reasons why teachers leave their schools.

- Teachers move schools and leave the profession for a variety of personal and professional reasons. Issues such as job availability, proximity of vacancies, commute times, salaries, etc. all are critical elements to deciding where to work, but do not have standardized measures and data and therefore cannot be included in our models.

- Given the economic realities in the teacher labor market and budget cuts, job mobility may be declining and more financial issues for which data does not exist may be important. In 2009, all attrition models explained more school to school turnover than in 2011 (21 percent of the variance at the elementary level, 29 percent at the middle school level and 40 percent at the high school level compared to 17 percent, 13 percent and nine percent respectively).

While the models were not particularly robust, teaching conditions were found to be statistically significant in explaining attrition across the three models.

- At the elementary level, Instructional Practices and Support was a statistically significant influence on teacher attrition. For every standard deviation improvement on issues related to Instructional Practices and Supports—class assignments, data availability, access to Professional Learning Communities and other instructional supports—teacher attrition would be expected to decline one percent.
- At the middle school level, most of the variance explained could be attributed to the presence of positive conditions related to Managing Student Conduct. Teachers were more likely to stay in schools in which students follow conduct rules, rules are known by students and the faculty and they are consistently implemented by teachers and administrators.

Conclusion

Both the 2009 and now the 2011 TELL Colorado Survey indicate that students perform at higher levels in schools with more positive teaching conditions. In particular, there is stronger student achievement at schools where the parents/guardians and the community at large know what is going in the school, are influential decision makers and support teachers and the school as a whole. Other predictors of increased student performance include Student Conduct and School Leadership at the elementary level. It appears too that there are wide discrepancies in how teachers who want to remain working in their school perceive school leadership and empowerment opportunities.

These findings should add urgency to the important work already underway by the Colorado Department of Education and TELL Colorado sponsors and supporting organizations. Hopefully, with these findings in hand, educators, stakeholders, practitioners and policymakers can better target reform strategies in areas that analyses show are the most likely to influence teacher effectiveness and retention. Continued efforts to promote positive teaching conditions by creating clear expectations of what supportive school environments look like, regularly assessing conditions, providing supports and accountability to ensure conditions improve, and documenting positive reform efforts can help give every teacher and student the best opportunity to succeed.

APPENDIX. OLS REGRESSION MODELS OF STUDENT PERFORMANCE, BY SCHOOL LEVEL

	Elementary (n=516)		Middle (n=128)		High (n=161)	
Strength of Model (Percent Variance Explained)	58.6%		79.8%		65.9%	
Percent Variance Explained by Teaching and Learning Conditions	6.2%		3.2%		5.6%	
Student, Teacher and School Characteristics						
	Standardized Beta Value	Change in Student Performance	Standardized Beta Value	Change in Student Performance	Standardized Beta Value	Change in Student Performance
Percent Students Receiving Free and Reduced Lunch	-.475	(-8.4%)	-.684	(-11.6%)	-.578	(-11.3%)
Percent Student Mobility	-.147	(-2.6%)	-.208	(-3.5%)	-.301	(-5.9%)
Percent Minority Students	-.214	(-3.8%)	—	—	—	—
Percent Teacher Turnover	—	—	—	—	—	—
Percent English Language Learner Students	-.183	(-3.2%)	—	—	—	—
Teaching and Learning Conditions						
Community Support and Involvement	.245	4.3%	.239	(4.0%)	.391	(7.6%)
Student Conduct	—	—	—	—	—	—
Time	.115	(-2.0%)	—	—	—	—
Facilities and Resources	.086	(1.5%)	—	—	—	—
Teacher Leadership	-.257	(-4.5%)	—	—	—	—
School Leadership	.172	(3.1%)	—	—	—	—
Professional Development	—	—	—	—	—	—
Instructional Practices and Support	—	—	-.168	(-2.8%)	—	—

APPENDIX. OLS REGRESSION MODELS OF TEACHER ATTRITION, BY SCHOOL LEVEL

	Elementary (n=516)		Middle (n=128)		High (n=161)	
Strength of Model (Percent Variance Explained)	17.4%		13.1%		9.4%	
Percent Variance Explained by Teaching and Learning Conditions	10.0%		9.3%		—	
Student, Teacher and School Characteristics						
	Standardized Beta Value	Change in Student Performance	Standardized Beta Value	Change in Student Performance	Standardized Beta Value	Change in Student Performance
Percent Students Receiving Free and Reduced Lunch	—	—	—	—	—	—
Percent Student Mobility	-.149	(0.7%)	—	—	.308	(1.9%)
Percent Minority Students	—	—	—	—	—	—
Percent English Language Learner Students	-.154	(0.7%)	—	—	—	—
Teaching and Learning Conditions						
Community Support and Involvement	—	—	—	—	—	—
Student Conduct	—	—	.306	(-1.5%)	—	—
Time	.305	(1.4%)	—	—	—	—
Facilities and Resources	—	—	—	—	—	—
Teacher Leadership	—	—	—	—	—	—
School Leadership	—	—	—	—	—	—
Professional Development	—	—	—	—	—	—
Instructional Practices and Support	-.209	(-1.0%)	—	—	—	—

About the New Teacher Center

New Teacher Center focuses on improving student learning by accelerating the effectiveness of new teachers. NTC partners with states, school districts, and policymakers to design and implement systems that create sustainable, high-quality mentoring and professional development; build leadership capacity; work to enhance teaching conditions; improve retention; and transform schools in vibrant learning communities where all students succeed.



725 Front Street, Suite 400, Santa Cruz, CA 95060
 831-600-2200 | Fax: 831-427-9017 | info@newteachercenter.org
www.newteachercenter.org

Validity and Reliability of the 2011 TELL Colorado Survey

The design of the 2011 TELL Colorado Survey instrument is the result of many years of pilot testing, review, and refinement of individual survey questions and constructs. This current iteration represents the New Teacher Center's efforts to utilize the most effective instrument in assessing the Colorado educators' teaching and learning conditions.

To assure the psychometric soundness of the survey instrument, studies on its validity and reliability were conducted with their results presented here. These analyses indicate that the TELL Colorado Survey is both a valid and reliable measure of the presence of teaching conditions in participating schools. The tool is valid in that it accurately assesses the teaching and learning conditions educators navigate in their work environment. It is reliable in that the instrument is consistent in its measure.

Validity of the 2011 TELL Colorado Survey

Examining the validity of the TELL Colorado Survey addresses questions of whether the instrument is a true measure of what it is attempting to assess; in this case, the presence of teaching conditions.

Content Validity

Content validity refers to the extent to which a measure represents all facets of a given social concept, in this case, teaching, leading and learning conditions. The TELL Colorado Survey is based on the North Carolina Teacher Working Conditions Survey. In creating the first working conditions survey in 2001, the North Carolina Professional Teaching Standards Commission (NCPTSC) completed a literature review of the role of working conditions on teacher dissatisfaction and which of those conditions contributed to teacher mobility. The work, driven by analyses of state and national survey data from the National Center for Education Statistics' School and Staffing Survey, focused on areas that teachers identified as conditions that drove their satisfaction and employment decisions, including administrative support, autonomy in making decisions, school safety, class size, time, etc. The NCPTSC created 30 state working conditions standards passed by the North Carolina State Board of Education (online at www.ncptsc.org) in five areas: Time, Empowerment, Leadership, Professional Development, and Facilities and Resources.

While the list is by no means exhaustive, those initial 30 standards served as the foundation for the first survey in North Carolina in 2002. The survey was designed to assess whether or not educators agreed that those standards were in place in schools across the state. It is why every educator is assessed and the unit of analysis is the school.



In 2004, the survey was expanded from a 39 question paper/pencil survey on a 1 to 6 scale to a 72 question online survey. Many of the items were “reality” questions, drawn from the National Center for Education Statistics School and Staffing Survey, to see if teachers’ reporting of issues such as non-instructional time and professional development received had an impact on their perceptions of whether supportive working conditions were in place.

- In 2004, a sample of educators was asked to rank on an ordinal scale the relevance and importance of each question on the 2004 instrument. Those questions were then compared to the factor analyses to verify the importance of a set of critical conditions in each area of the survey. The questions rated as most important also had the highest factor loads and most make up the battery of core questions still used in 2011 in multiple states and districts.
- Correlations were calculated between the perceptual and “reality” questions on the survey to better understand teaching conditions. There were statistically significant and meaningful correlations between teachers’ perception of time and how much planning time they received and how many hours outside of the school day they worked. In South Carolina, where more than 160 variables were made available to triangulate the data, analyses showed that teachers were more negative about the availability of resources when a higher proportion of students were taught in portable classrooms, etc. (Hirsch, 2005)

Since 2004, there have been several iterations of Teacher Working Conditions Surveys. States and districts have tweaked them to answer the questions that were particular to their contexts, but the core constructs that the survey measures have remained largely the same. A section on beginning teacher support only for those teachers in their first three years in the profession was added in 2006 to most surveys and items for principals only that assess district support were added in 2008.

In 2010, additional survey constructs were included in multiple surveys to address conditions related to Managing Student Conduct, Community Support and Involvement, and Instructional Practices and Support. The inclusion of these additional constructs provide a more detailed and nuanced lens to examining school working conditions from the initial TELL Colorado Survey conducted in 2009. Whereas some questions in these new constructs are new to the TELL Colorado Survey, others have been taken from a redistribution of existing survey questions as their focus is better aligned with these new areas. More specifically, the Managing Student Conduct construct includes items formerly part of the constructs Facilities and Resources, Teacher Empowerment, and School Leadership. Additionally, response options were changed from a 5-point scale to a 4-point scale (Strongly disagree, Disagree, Agree, Strongly agree) with a "Don't Know" option included.



Given these changes, this version of the 2011 TELL Colorado Survey is designed to measure eight research-based constructs:

- **Time**—Available time to plan, to collaborate, to provide instruction, and to eliminate barriers in order to maximize instructional time during the school day
- **Facilities and Resources**—Availability of instructional, technology, office, communication, and school resources to teachers
- **Community Support and Involvement**—Community and parent/guardian communication and influence in the school
- **Managing Student Conduct**—Policies and practices to address student conduct issues and ensure a safe school environment
- **Teacher Leadership**—Teacher involvement in decisions that impact classroom and school practices
- **School Leadership**—The ability of school leadership to create trusting, supportive environments and address teacher concerns
- **Professional Development**—Availability and quality of learning opportunities for educators to enhance their teaching
- **Instructional Practices and Support**—Data and support available to teachers to improve instruction and student learning

Construct Validity

In 2011, to examine construct validity as a part of the Measures of Effective Teaching with the Bill and Melinda Gates Foundation, Andrew Swanlund of American Institutes for Research conducted a psychometric analysis on the Teaching and Learning Conditions Survey (TLCS), which contains the same core questions in each construct as the 2011 TELL Colorado Survey. Using data from 15,000 educators from 633 schools in 9 districts and a statistical measurement model called the Rasch Rating Scale model, in combination with dimensionality analysis including factor analysis, he found that several of the above constructs actually function as more than one construct. For example, the teacher leadership construct may be more productively thought of as three separate constructs: 1) a general construct such as whether teachers are recognized as experts and whether they are centrally involved in decision-making on educational issues, 2) a construct regarding the amount of control the teacher has over making decisions in the classroom such as selecting instructional materials and resources or devising teaching techniques, and 3) a construct involving teachers' level of influence over larger school administration issues such as establishing the school budget priorities and having a say over the school improvement plan.



Analyzing the survey based on these more fine-grained constructs,¹ Swanlund (2011) found that the TLCS survey holds up to a number of tests of its technical validity. First, the survey reliably measures the TLCS constructs. In other words, the data generated from the survey are sufficient for comparing both individual perceptions as well as school-wide aggregates of these perceptions for each construct.² Second, the rating scale that the TLCS uses—wherein respondents are asked to indicate the extent of their agreement along a four-point scale—functions well in accordance with strict diagnostic criteria. Third, each of the items used in the survey fit each construct such that none of the items seem to measure some unknown other aspect of teaching and learning conditions. Swanlund, however, did find that there was some inconsistency across districts in how the constructs functioned. That is, some items tended to have different meanings across districts in relation to the particular policy context within a district. This means that comparing results across states or districts should be done carefully, paying attention to local context. All told, however, the TLCS, and thus the 2011 TELL Colorado Survey, is a robust tool for use in measuring multiple aspects of teaching and learning conditions.

To assess the degree to which the TELL Colorado Survey measures the eight theoretical constructs on which it is designed—Time, Facilities and Resources, Professional Development, Teacher Leadership, School Leadership, Community Support and Involvement, Managing Student Conduct, and Instructional Practices and Support—both confirmatory and exploratory factor analyses on the data set were conducted. These analyses were used to determine if the items separated into eight distinct constructs or areas of focus. This would be expected if each of the eight areas were independent standards. However, as noted above, previous analyses of similar teaching conditions surveys indicated strong overlap between some constructs, such as school leadership and teacher leadership.

Using a principal components analysis and varimax rotation procedures, eigenvalues of one or greater were used as the criteria for factor extraction. In the TELL Colorado Survey, a nine factor model accounted for the greatest proportion in the total variance (multiple factor models were attempted), suggesting that there are nine distinct concepts within the survey. This was not surprising as teacher leadership and school leadership combined into one construct with a small subsection of teacher leadership questions as another construct and facilities and resources split into two (facilities as one construct and resources as the other). Confirmatory factor analyses where the number of factors was set at eight produced an eight factor solution where teacher leadership and school leadership again combined as one construct and the eighth construct was inconsequential. Given how close the confirmatory factor analysis is to the constructs used to design the survey, we use the original eight constructs as the basis for reporting. Assessing each construct as originally developed, we identified the questions that load most strongly for each construct and thus are most representative of that construct.

¹ These 13 more finely-grained domains are 1) Time; 2) Facilities and Resources—Technological Resources; 3) Facilities and Resources—Physical Environment; 4) Community Support and Involvement; 5) Managing Student Conduct; 6) Teacher Leadership—General; 7) Teacher Leadership—In the Classroom; 8) Teacher Leadership—School Administration; 9) School Leadership—General; 10) School Leadership—Teacher Concerns; 11) Professional Development; 12) Instructional Practices and Support—Assessments; 13) Instructional Practices and Support—Support

² Swanlund notes that it is important that the sample size at each school is sufficient to ensure schoolwide reliability.



Predictive Validity

While the collection of survey data for the 2011 TELL Colorado Survey is now complete, comparative data including teacher retention and student achievement data will not be available from the state until the fall of 2011. At that time, this brief will be updated with more recent analyses examining the predictive validity of the instrument.

Analyses between the 2009 TELL Colorado Survey data, teacher retention and student achievement data demonstrate that the presence of positive teacher working conditions are connected to student learning and teacher retention (Hirsch, Sioberg, and Germuth, 2010). As noted in the 2010 report, Community Engagement and Student Learning factors exerted significant influence on absolute performance and growth on state assessments, with working conditions explaining as much as 11 percent of the variation in performance across schools in Colorado.

Further, in analyzing the connections between future employment plans, actual attrition and teaching conditions, several important findings were documented. Teachers who indicate that they plan to remain teaching in their school are twice as likely to agree they work in trusting and supportive environments. Leadership, Resources, and Decision Making factors were significant in explaining teachers' future employment plans and actual teacher turnover. For more information see Eric Hirsch, Andrew Sioberg, and Amy Germuth, "TELL Colorado: Creating Supportive School Environments to Enhance Teacher Effectiveness" Santa Cruz, CA: New Teacher Center, 2009. Online at: http://www.tellcolorado.org/sites/default/files/attachments/Colorado_TELL--finalreport.pdf.

Reliability of the 2011 TELL Colorado Survey

Reliability refers to the consistency of measurement. Analyses were conducted measuring the reliability (consistency) of the 2011 TELL Colorado Survey for measuring the presence of various components of teaching conditions. Reliability was assessed for the eight constructs upon which the survey was built.

In order to test the internal consistency of the eight major constructs (Time, Facilities and Resources, Community Support and Involvement, Managing Student Conduct, Teacher Leadership, School Leadership, Professional Development, and Instructional Practices and Support), Cronbach's alphas were calculated. An alpha coefficient ranges from 0 to 1 with higher coefficients indicating higher levels of instrument consistency. ***All eight construct are reliable with alphas above 0.789.*** (Table A-1).



Table A-1
Reliability Statistics for Survey Organized Around Major Constructs

Factors	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	Mean Inter-Item Correlations	N of Items	Sample Size
Time	.814	.816	.388	7	27521
Facilities & Resources	.858	.859	.357	11	27270
Community Support & Involvement	.901	.901	.504	9	24869
Managing Student Conduct	.894	.895	.548	7	28082
Teacher Leadership	.925	.926	.554	10	25930
School Leadership	.953	.953	.591	14	23759
Professional Development	.944	.944	.565	13	22059
Instructional Practices & Support	.789	.793	.434	5	23917

Note: Cronbach’s alpha is a measure of internal consistency of a set of items or survey questions, not single survey items. Cronbach’s alpha measure reliability using a single test administration to provide a unique estimate of the reliability for a given test in the absence of being able to conduct a test-retest method, which is impractical for this survey. Alpha is the average value of the reliability coefficients one would obtain for all possible combinations of scaled items when split into two half-tests. The internal consistency estimates attempt to determine how consistently individuals respond to the items measured on a scale. The more consistent within-subject responses are, and the greater the variability between subjects in the sample, the higher the Alpha produced. Alphas above a 0.70 level are generally considered as good.

Having determined that the 2011 TELL Colorado Survey instrument is both valid and reliable, Colorado stakeholders can have confidence that the information gathered is an accurate representation of educators’ perceptions of teaching and learning conditions across the state. Data collected from this survey can serve as a powerful artifact and starting point for discussions of school, district, and state improvement planning to provide the optimum environments for all Colorado students to have the best opportunity to succeed.