PLANTING SEEDS IN FERTILE SOIL: ASSESSING TEACHER EMPLOYMENT ENVIRONMENTS IN TEXAS

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Abstract

A school's environment can be either conducive to teaching and learning or detrimental to both. It is important for educator preparation programs to understand the employment environment factors that impact teachers' employment decisions and to consider them when placing student teachers or making program changes. In this study, we conduct validity and reliability analyses of the Texas Teaching, Empowering, Leading, and Learning (TELL) employment environment survey to determine how best to summarize teachers' responses. We compute statewide descriptive statistics for the key 12 employment factors for the main survey questions and the 4 factors for the new-teacher questions, and we examine the relationship between employment environment factors and teachers' future employment intentions. We also suggest ways the TELL results can be used by educator preparation programs, new teachers, administrators, and policymakers to make data-informed decisions.

Keywords: teacher employment environment, employment environment factors, TELL survey, teacher mobility

Introduction

Teaching does not happen in a vacuum. Teachers teach and students learn within a school. The environment within that school can be either conducive to teaching *and* learning or detrimental to both (Kraft, Marinell, & Yee, 2016). The school's teaching and learning environment includes, for example, the instructional expertise and leadership available to teachers, the professional and educational supports provided by the school's leadership, the amount of time and types of resources available for teaching and learning, and the social/professional relationships created among other teachers, principals, students, and parents.

An extensive body of research shows that when a teacher's employment environment is conducive to teaching and learning, teachers' willingness to stay at their school increases (Allensworth, Ponisciak, & Mazzeo, 2009; Borman & Dowling, 2008; Boyd et al., 2011; Buckley, Schneider, & Shang, 2004; Ferguson & Hirsh, 2014; Grissom, 2011; Horng, 2009; Kraft et al., 2012; Kraft & Papay, 2014; Kraft, Marinell, & Yee, 2016; Ladd, 2011; Loeb, Darling-Hammond, & Luczak, 2005; Marinell & Coca, 2013; Pogodzinski, Youngs, Frank, & Belman, 2012). In a large-scale meta-analysis with 34 studies that explored the relationships between teachers' employment environment and their employment decisions, Borman and Dowling (2008) found a number of employment environment factors that predicted teacher attrition. Teachers were more likely to stay at schools that were larger, had more administrative support, included a new-teacher mentoring program, and had more opportunities for collaboration among teachers. In a study in New York schools, Boyd et al. (2011) found that the quality of a school's administration had the greatest impact on teachers' decisions to stay or leave their school. Using five environmental factors from a teacher employment survey in North Carolina schools, Ladd (2009) showed that after accounting for differences in school demographics, a

school's leadership was the strongest predictor of teachers' intention to stay at or leave a school.

Despite this extensive body of evidence, state, federal, and national educator preparation program (EPP) accreditation policies attribute the persistence of new teachers almost exclusively to the EPP and ignore the impacts of the employment environment. For example, the US Department of Education's federal regulations for teacher preparation (34 CFR-Part 612.5(a)(2), October 12, 2016) holds EPPs accountable for the employment persistence rate of their newly graduated teachers and ignores important factors external to the EPP, like the employment environment. In addition, the Council for Accreditation of Educator Preparation's (CAEP) new Standard 4.3 attributes a teacher's persistence in a school completely to the employer's satisfaction with the teacher and ignores the reverse possibility – that teachers persist in a school because of their satisfaction with the employer (CAEP, 2016).

It is important for EPPs to understand the relationships between teaching and employment environments characteristics because their graduates may work in healthy or toxic schools, and the EPP will be held accountable for their graduates' success irrespective of the quality of their schools' environments. New teachers would benefit from understanding the quality of a school's teaching environment because they can look for signs of and ask questions during job interviews to assess the health of the school. School and district improvement efforts would be more effectively designed if education administrators, researchers, and policy analysts understood how to assess each school's or district's employment environment. State and national accrediting bodies could develop better accreditation policies that actually reflect an EPPs sphere of influence if they understood the impacts of a new teacher's employment environment on outcomes like persistence and value-added modeling.

The purpose of this study is to conduct validity and reliability analyses of the Texas Teaching, Empowering, Leading, and Learning (TELL) employment environment survey to determine how best to summarize teachers' responses. We also sought to determine which TELL factors predict a teacher's intention to stay at or leave their current school. Finally, we suggest ways the TELL results can be used by EPPs, new teachers, principals, superintendents, researchers, and policy analysts to use the data to inform decision-making.

Methods

We started by conducting an exploratory factor analysis (EFA) of the statewide responses to the 2014 TELL Texas survey's main questions using principal axis factoring with oblique promax rotation to determine how best to summarize responses into a small set of employment environment factors. We also performed a similar EFA on the new teacher questions, using responses only from teachers who were in their first three years of teaching. However, because the new teacher questions were two sets of questions—one set was answered by all new teachers and the other set was answered only by teachers who had a mentor—we also conducted an EFA on these two sets of questions separately and compared the outcomes to those obtained from the analysis with all new-teacher items together. We then conducted Cronbach's alpha calculations for each of the factors identified during the different EFAs to determine each factor's internal reliability or the degree to which the survey items measured a shared, underlying construct. A priori we planned to remove any survey items that if removed would cause the overall alpha to increase by more than 0.01.

Next, we generated descriptive statistics for both sets of TELL questions and disaggregated the results by demographic variables that were included in the survey. Finally, we computed four multinomial logistic regressions, one for each of the four overall rating questions at the end of the main survey (Q10.1, Q10.3, Q10.5, Q10.6). For these analyses, the response to each overall-rating question was the dependent variable (DV) and the years employed as an educator, years employed at the schools, and each teacher's average responses to each of the main employment environment factors were the independent variables (IVs).

TELL Survey

In 2013, House Bill 2012 (HB 2012) required the Commissioner of Education to develop a valid and reliable online survey to be administered statewide "at least biennially" to all teachers, administrators, and other

certified, full-time professional employees. The goal of the legislation was to elicit information about "(1) teaching and learning conditions as predictors of student achievement and growth; (2) the relationship between teaching and learning conditions and teacher retention; and (3) the influence of school leadership on teaching and learning conditions" (HB 2012, pp. 2-3). The bill requires school districts and campuses to use the results to make improvements and "enhance the district and campus learning environments" (HB 2012, p. 3). The bill also requires the commissioner to use the results to "develop, review, and revise" professional development, teacher retention efforts, and standards for educational leaders (HB 2012, p. 4).

The state selected the TELL survey, which is the most widely used survey to assess a school's employment environment. The TELL originated in North Carolina in 2002 as the Teacher Working Conditions Survey and is now used by at least 20 states (New Teacher Center, 2016). The survey includes questions to assess eight broad teaching-condition constructs and a new-teacher construct (New Teacher Center, 2016). These constructs are:

1) *Time* – the degree to which teachers have time to plan instruction, collaborate with each other, and provide instruction versus the amount of time spent on other duties as assigned.
2) *Teacher leadership* – the degree to which teachers are empowered to impact classroom and school practices that are associated with student learning.
3) *Facilities and resources* – the degree to which teachers have the instructional, technological, administrative, and school resources necessary to do their job.
4) *School leadership* – the degree to which teachers perceive the school's leadership as building a trusting and supportive employment environment.
5) *Community support and involvement* – the degree to which community members and parent/guardian participate in and influence the school and student learning.
6) *Professional development* – the quality and effectiveness of professional development provided to teachers to improve their instruction and increase student learning.
7) *Managing student conduct* – school policies and administrative practices related to student conduct and the creation of a safe employment and learning environment.
8) *Instructional practices and support* – the quality and effectiveness of data systems and analytic tools available to teachers that support teaching and learning.
9) *New teacher support* – the availability and effectiveness of supports available to teachers during their first three years as a teacher.

The vast majority of the survey questions use a four-point Likert scale from strongly agree to strongly disagree with an "I don't know" option. These data were coded from -2 (strongly disagree) to +2 (strongly agree), with "I don't know" treated as a missing value. Two sets of *Professional development* questions used a Yes (+1) / No (0) response. Survey responses that were ordinal in nature were coded from +1 to +*n*, where *n* was the number of response items. For example, one set of *Time* questions asked teachers about how much time they spent doing different activities. It used a six-item response scale that ranged from *None* (i.e., no time spent) to *More than 10 hours* spent, and the response scale ranged from 1 to 6. One set of *Teacher leadership* questions about the role teachers have at their school used a four-point scale that ranged from *No role at all* to *Large role*, and the response scale ranged from 1 to 4.

Although the TELL survey has been used by Austin Independent School District since 2011, the first statewide administration in Texas was in 2014. The Texas TELL was much longer than any other TELL survey with 132 main survey questions, 39 new teacher questions, 4 employment history questions, and 4 general questions. While HB 2012 required the state to implement the survey biennially, the Texas Education Agency (TEA) did not implement the survey in 2016 due to lack of funding (personal communication, 10/12/2016).

Texas law requires the TELL results to be used to improve learning environments, however no guidance has been provided to principals or superintendents on how to summarize the survey responses for their school or district. No guidance is provided for how to use the survey responses to inform campus and district improvement decisions or what professional development to provide to

teachers. Any researcher wanting to use these data to determine how the employment environment impacts teacher employment decisions will need to know how best to summarize the survey responses prior to conducting the necessary inferential statistical modeling. Summary information is also needed in order to generate school-level employment environment scores so that EPPs and new teachers can know which schools have healthy employment environments and which environments are toxic.

Data

The 2014 Texas TELL survey responses were obtained from TEA through the state's Education Research Center (ERC) that is housed at and operated by the University of Texas at Austin, in partnership with Texas State University. The ERC P-20 education and workforce data warehouse holds 20+ years of educational (P-12 and higher education) and workforce data in a de-identified, but longitudinally-linkable form. The ERC has been approved by the Family Educational Records and Privacy Act office and has extensive policies and safeguards to protect the confidentiality of the person-level data.

Sample

Only survey responses from teachers were included in this study because most of the questions are strongly teacher-centric and teachers' pattern of responses are likely to be different from those of school administrators, librarians, and school counselors. Of the 319,349 teachers employed in Texas during the 2013-14 school year, 75,400 completed the survey (23.6% response rate). The *New Teacher Support* items were completed by 11,170 beginning teachers.

Results

Exploratory Factor Analysis

The results of the EFA for the main survey questions are shown in Table 1. The first 12 factors had eigenvalues greater than 1.0 and were therefore retained. This 12-factor solution indicates that the Texas TELL data are structured differently than all other states' TELL data. The results show that 95% of the cumulative variance is accounted for by these 12 factors.

Table 1

Results of Exploratory Factor Analysis for Main TELL Questions

Construct	Construct Label	Items Included	Eigenvalues	Variance	Cumulative Variance
Factor 1	Educational Leadership	Q5.1d, e, g; Q6.1a-g; Q6.5; Q7.1a-k; Q7.3a-i; Q9.1c-f	39.44	0.57	0.57
Factor 2	Instruction Practice & Support	Q9.1a, b, g-o	4.59	0.07	0.64
Factor 3	Facilities & Resources	Q3.1a-i	3.65	0.05	0.69
Factor 4	Effective PD Provided	Q8.1a-l	3.16	0.05	0.74
Factor 5	Community Support	Q4.1a-h	2.70	0.04	0.78
Factor 6	Time Spent on Teaching	Q2.1a-g	2.41	0.03	0.81
Factor 7	Teacher Leadership	Q6.2a-h	2.30	0.03	0.84
Factor 8	Hours Spent on PD	Q8.3a-l	1.76	0.03	0.87
Factor 9	Managing Student Conduct	Q5.1a-c, f	1.56	0.02	0.89
Factor 10	Need for PD	Q8.2a-l	1.46	0.02	0.91
Factor 11	Time Spent Not Teaching	Q2.2a-k	1.26	0.02	0.93
Factor 12	Time Spent After-Hours	Q2.3, Q2.4	1.07	0.02	0.95
Factor 13	Not used		0.92	0.01	0.96

Note: PD means Professional Development.

We labeled Factor 1, *Educational Leadership,* because it includes campus-level aspects of *Managing Student Conduct* (Q5.1d, e, & g), all items within the first *Teacher Leadership* subsection (Q6.1a-g), the one question in the third *Teacher Leadership* subsection (Q6.5), all items within *School Leadership* (Q7.1a-k; Q7.3a-i), and campus-level items from *Instructional Supports and Practices* (Q9.1c-f). Taken together, a school that has strong ratings on *Educational Leadership* will have an environment where teachers have autonomy and are viewed as leaders and decision makers, where principals act as instructional leaders, where teachers feel supported and can collaborate together, where teachers are respected as professionals, and where teachers perceive the school as a safe learning environment for all.

Factor 2 included the questions in the *Instructional Practice and Support* section not already assigned to Factor 1 (Q9.1a, b, g-o). High scores reflect an environment where teachers have a sound curricular structure, high quality instructional practices, high expectations for students, and the ability to work collaboratively. Factor 3 included all questions in the *Facilities and Resources* section (Q3.1a-i), and reflects an environment where teachers have the physical environment and instructional resources conducive to teaching and learning. Factor 4 included all items in the first *Professional Development* (PD) subsection (Q8.1a-l). It was labeled *Effective PD Provided* because it reflected teachers' perceptions of having the resources, time, and opportunities for professional development that aligns with their needs.

Factor 5 included all items in the *Community Support* section (Q4.1a-h). It reflects the level of collaboration, open communication, and relationships with parents and the school community. Factor 6 included all items in the first *Time* subsection (Q2.1a-g). We labeled it *Time Spent on Teaching* because it reflects teachers' perception of having adequate and sufficient time to devote to planning instruction and teaching students. Factor 7 included all items in the second *Teacher Leadership* subsection (Q6.2a-h), and is defined as teachers having autonomy and being viewed as leaders and decision makers in all aspects of schooling, teaching, and learning. Factor 8 included all items in the third *Professional Development* subsection (Q8.3a-l). We labeled it, *Hours Spent on PD,* because it reflects the amount of time spent on professional development associated with instructional curricula, assessments, pedagogy, and classroom management.

Factor 9 included four items from the *Managing Student Conduct* section (Q5.1a-c, f), and reflects students' and teachers' understanding of rules and expectations for student conduct. It did not include the items about the administration's policies and behavior related to student conduct; these items were included in Factor 1, *Educational Leadership*. Factor 10 included all items in the second *Professional Development* subsection (Q8.2a-l). We labeled it, *Need for PD,* because it reflects teachers' perceptions of their need for additional PD. Factor 11 included all items in the second, *Time,* subsection (Q2.2a-k). We labeled it, *Non-teaching Time,* because it reflects the average amount of time teachers had to spend, outside of class, on school-related and/or administrative activities, such as planning, collaboration, meetings, PD, and disciplining students. Factor 12 included two *Time* items (Q2.3, Q2.4). We labeled it, *Beyond-School-Day Time,* because it reflects the average amount of time teachers spent on general school-related activities, after school and/or on weekends. Q2.5 did not correlate above 0.30 with any of the factors and was removed. The correlation matrix for the 12 factors is shown in Table 2.

Table 2
Correlation Matrix for 12 Final Factors

Factor	1	2	3	4	5	6	7	8	9	10	11	12
Factor 1	1.00											
Factor 2	0.61	1.00										
Factor 3	0.62	0.45	1.00									
Factor 4	0.75	0.59	0.55	1.00								
Factor 5	0.66	0.49	0.52	0.53	1.00							
Factor 6	0.62	0.38	0.55	0.52	0.44	1.00						
Factor 7	0.70	0.44	0.46	0.59	0.48	0.48	1.00					
Factor 8	0.21	0.20	0.14	0.29	0.16	0.11	0.20	1.00				
Factor 9	0.67	0.52	0.49	0.49	0.56	0.45	0.47	0.15	1.00			
Factor 10	-0.07	-0.08	-0.10	-0.07	-0.10	-0.10	-0.03	-0.01	-0.08	1.00		
Factor 11	0.00	0.10	-0.03	0.08	0.01	-0.07	0.05	0.19	0.01	0.03	1.00	
Factor 12	-0.14	-0.06	-0.13	-0.13	-0.07	-0.23	-0.11	0.02	-0.08	0.03	0.20	1.00

New Teacher

The full EFA for all items in the New Teacher section showed a four-factor solution was optimal, accounting for 74% of the variance (see Table 3). Items Q11.1a, Q11.1k, and Q11.4a-c were removed because they did not correlate with any factor above 0.30 and provided no substantial additional information.

As noted above, the second new teacher EFA involved separating two subsets of items. The first subset included the *Support* and the *Support Effectiveness* items, which all new teachers answered. The second subset included the *Mentoring Time*, *Mentoring Effectiveness*, and *Mentoring* characteristic items, which were only answered by new teachers who were assigned and worked with a mentor. These separate EFA analyses resulted in nearly identical results with one exception. Item Q11.1a correlated above 0.30 with Factor 3 and was therefore retained. Q11.1k and Q11.4a-c were again removed. Only the results for the full EFA are reported here. The correlation matrix for the new teacher factors is shown in Table 4.

Table 3
Results of Exploratory Factor Analysis for New Teacher TELL Items

Construct	Construct Label	Items Included	Eigenvalues	% variance	Cumulative % variance
Factor 1	Mentor Support	Q11.3a-m	15.82	0.72	0.72
Factor 2	Mentor Time	Q11.2a-i	2.01	0.09	0.81
Factor 3	Supports	Q11.1b-j	1.65	0.08	0.89
Factor 4	Effectiveness of Supports	Q11.5-7	1.18	0.05	0.94
Factor 5	Not used		0.70	0.03	0.97

Table 4
Correlation Matrix for New Teacher Factors

	Factor 1	Factor 2	Factor 3	Factor 4
Factor 1	1.00			
Factor 2	0.71	1.00		
Factor 3	0.49	0.46	1.00	
Factor 4	0.50	0.38	0.39	1.00

Internal Reliability

The results of the Cronbach's alphas for the main TELL items are shown in Table 5, and for the New Teacher items are shown in Table 6. The alphas for the main items are high, ranging from 0.79 to 0.98. None of the items resulted in a reduction of the overall alpha for the factor by more than 0.01. The alphas for the New Teacher items range from 0.74 to 0.97. Item Q11.7 resulted in an alpha decrease of 0.03 in Factor 4, and was therefore removed. The alpha for Factor 4 included Items Q11.5 and Q11.6.

Table 5

Cronbach Alphas for Main TELL Items

Construct Label	Cronbach Alphas
Educational Leadership	0.98
Instruction Practice & Support	0.89
Facilities & Resources	0.87
Effective PD Provided	0.94
Community Support	0.89
Time Spent on Teaching	0.86
Teacher Leadership	0.87
Hours Spent on PD	0.82
Managing Student Conduct	0.81
Need for PD	0.83
Time Spent Not Teaching	0.79
Time Spent After Hours	0.82

Table 6

Cronbach Alphas for New Teacher TELL Items

Construct Label	Cronbach Alphas
Mentor Support	0.97
Mentor Time	0.94
Supports	0.74
Effectiveness of Supports	0.94

Descriptive Statistics

We computed a series of descriptive statistics to summarize the statewide results. The overall response characteristics for the 12 mains factors are shown in Table 7 and the response characteristics for the four new teacher factors are shown in Table 8.

Table 7
Descriptive Statistics for the 12 TELL Main Factors

Construct Label	*n*	Mean	Std. Dev.	Minimum	Maximum
Educational Leadership	75,269	0.66	0.85	-2	2
Instruction Practice & Support	74,520	1.08	0.65	-2	2
Facilities & Resources	75,147	0.89	0.77	-2	2
Effective PD Provided	74,682	0.60	0.87	-2	2
Community Support	74,906	0.73	0.82	-2	2
Time Spent on Teaching	75,232	0.24	0.96	-2	2
Teacher Leadership	71,269	2.61	0.69	1	4
Hours Spent on PD	68,303	0.49	0.29	0	1
Managing Student Conduct	74,923	0.64	0.94	-2	2
Need for PD	69,469	0.51	0.30	0	1
Non-teaching Time	69,658	2.76	0.59	1	6
Time Spent After Hours	75,241	4.27	1.17	1	6

Table 8
Descriptive Statistics for the Four New Teacher Factors

Construct Label	*n*	Mean	Std. Dev.	Minimum	Maximum
Mentor Support	7,930	3.24	1.15	1	5
Mentor Time	8,055	3.12	1.41	1	6
Supports	10,933	0.56	0.28	0	1
Effectiveness of Supports	10,683	0.70	1.27	-2	2

Overall Responses

The Texas TELL included four general attitudinal or intentional questions. We started by computing the responses to these questions and disaggregating the responses by the number of years the teachers had taught.

Immediate employment plans. The first general question, Q10.1, was about the teacher's immediate employment plans (see Table 9). Overall, 76% of the teachers (56,561) planned to teach at the same school next year, 6% planned to move to a different school district, 6% planned to seek an administrative position, 5% planned to change schools within the same district, and 4% planned to leave education. However, the rate varied by years of teaching experience.

For first-year teachers, 79% planned to stay teaching at the same school, 11% planned to teach in a different district, 4% planned to teach in a different school within the same district, and 2% planned to leave education. For teachers with 20+ years of experience, 82% planned continue teaching at the same school, 3% planned to change districts, 2% planned to seek an administrative position, and 6% planned to leave education. Teachers with 4-6 and 7-10 years of teaching experience were least likely to stay teaching at the same school (70%), and most likely to seek an administrative position (9% and 10%, respectively).

Table 9

Numbers and Percentages of Responses to Q10.1, by Years Teaching

	Years Teaching						
Immediate Plans	**First**	**2-3**	**4-6**	**7-10**	**11-20**	**20+**	***Total***
Same school	79%	74%	70%	70%	76%	82%	56,561 (76%)
Same district	4%	5%	6%	6%	5%	4%	3,912 (5%)
Different district	11%	10%	8%	7%	6%	3%	4,705 (6%)
Seeking admin position	3%	5%	9%	10%	7%	2%	4,768 (6%)
Obtaining non-admin position	1%	3%	4%	4%	3%	2%	2,072 (3%)
Leave education	2%	3%	3%	4%	3%	6%	2,893 (4%)
Totals	4,472	6,619	10,359	14,108	21,098	13,880	74,911

Reason to remain at current school. The second general question, Q10.3, asked about the one employment environment factor that most affected their willingness to stay teaching at their current school (see Table 10). Overall, 29% of teachers said that the quality of the *School Leadership* was the most important factor in determining their willingness to stay at the same school. This was followed by the quality of the *Instructional Practices and Supports* at the school, which was indicated by 16% of the teachers. *Professional Development* (2%) and the *Community Supports* (7%) were indicated as the most important factors by the smallest percentages of teachers. The rate at which teachers responded to each factor was relatively consistent across years of teaching experience, except for *Professional Development* and *School Leadership*. For *Professional Development*, 5% of first-year teachers indicated this was the most important factor, whereas only 1% of 20+ year teachers selected this response. For *School Leadership*, 24% of first-year teachers said this was the most important factor, whereas 30-31% of teachers with 4-6, 7-10, and 11-20 years of teaching experience indicated this factor as important.

Table 10

Numbers and Percentages of Responses to Q10.3, by Years Teaching

Most Important Factor Stay at School	**First**	**2-3**	**4-6**	**7-10**	**11-20**	**20+**	**Total**
School Leadership	24%	28%	30%	31%	30%	28%	19,688 (29%)
Instructional Practices & Support	16%	14%	15%	14%	16%	18%	10,560 (16%)
Time during the work day	12%	13%	14%	14%	13%	13%	8,893 (13%)
Facilities & Resources	12%	12%	11%	11%	11%	11%	7,405 (11%)
Teacher Leadership	11%	11%	10%	10%	11%	13%	7,637 (11%)
Managing Student Conduct	13%	12%	11%	10%	9%	10%	6,806 (10%)
Community Support	7%	8%	7%	7%	7%	6%	4,603 (7%)
Professional Development	5%	3%	2%	2%	2%	1%	1,454 (2%)
n	4,297	6,314	9,840	13,412	20,082	13,101	67,046

Promote student learning. The third general question, Q10.5, asked about the employment environment factor that is most important for promoting student learning (see Table 11). Overall, 36% of the teachers said that the quality of the *Instructional Practices and Supports* was the most important, followed by the ability of the school to *Manage Student Conduct* (19%). *Instructional Practices and Supports* was given as the most important factor for promoting student learning by all teacher experience groups, but the rate increased monotonically, with experience level with first-year teachers having the lowest response rate (31%) and 20+ year teachers having the highest (38%). *Managing Student Conduct* was most important to first year teachers (23% response rate) and the

rate decreased steadily with experience with 20+ year teachers having the lowest response rate (18%). The factors perceived as least important were *Community Support* and *Professional Development*; both responses were given by 4% of teachers.

Table 11
Numbers and Percentages of Responses to Q10.5, by Years Teaching

Most Important Factor Promote Student Learning	**First**	**2-3**	**4-6**	**7-10**	**11-20**	**20+**	**Total**
Instructional Practices & Support	31%	33%	35%	36%	37%	38%	24,188 (36%)
Managing Student Conduct	23%	21%	19%	18%	18%	18%	12,521 (19%)
Time during the work day	8%	9%	11%	12%	13%	14%	8,233 (12%)
Facilities & Resources	12%	11%	9%	9%	9%	8%	6,186 (9%)
Teacher Leadership	8%	8%	8%	8%	8%	9%	5,353 (8%)
School Leadership	5%	7%	8%	8%	8%	7%	5,053 (8%)
Professional Development	8%	6%	5%	5%	4%	3%	2,980 (4%)
Community Support	5%	6%	5%	5%	4%	3%	2,754 (4%)
n	4,311	6,358	9,849	13,476	20,148	13,126	67,268

Good place to work. The last general question, Q10.6, asked about their level of agreement that their current school was a good place to work and learn (see Table 12). Overall, 45% of the teachers agreed and 35% strongly agreed that their school was a good place to work and learn. However, 20% of the teachers (14,660) indicated their school was not a good place to work and learn.

Table 12
Numbers and Percentages of Responses to Q10.6, by Years Teaching

Good Place to Work	**First**	**2-3**	**4-6**	**7-10**	**11-20**	**20+**	**Total**
Strongly Agree	31%	33%	35%	36%	37%	38%	26,198 (35%)
Agree	23%	21%	19%	18%	18%	18%	33,004 (45%)
Disagree	8%	9%	11%	12%	13%	14%	7,494 (10%)
Strongly Disagree	12%	11%	9%	9%	9%	8%	7,166 (10%)

Predictors of Employment Intention

Finally, we sought to determine which employment environment factors were associated with teachers' future employment intentions. To answer this question, we computed a logistic regression model where the DV was either *Stay teaching at the same school* (code=1) or *Leave the current school* (code=0) and the 12 main employment environment factors were IVs along with Years in Education, Years in School, and Years Teaching. The DV was based on the answers to Q10.1 and the five responses related to leaving the school were combined into a single response. The base outcome was *Leave the current school*.

The TELL factor that most strongly predicts teachers' intention to stay at their current school was the quality of the *Educational Leadership.* A 1-unit increase in the average rating of the *Educational Leadership* is associated with teachers being 2.2 times more likely to stay teaching at their current school than to leave the school ($z = 34.2$, $p < 0.0001$). The second strongest predictor was the number of years employed at the school with each year of employment associated with an increase of 1.2 in the odds of staying versus leaving ($z = 19.33$, $p < 0.0001$).

In addition, teachers are less likely to stay at their current school the more time they spent on non-teaching related

activities (*Time Spent Not Teaching*; odds = 0.7, z = -15.98, $p < 0.0001$), and more likely to stay at their current schools the more time they spent actually teaching students (*Time Spent on Teaching;* odds = 1.2, z = 10.51, $p < 0.001$). The following additional employment environment factors were positively associated with teachers' intention to remain at their current school: *Community Support* (odds = 1.2, z = 9.21, $p < 0.001$), *Time Spent After-Hours* (odds = 1.1, z = 5.63, $p < 0.001$), and *Teacher Leadership* (odds = 1.1, z = 2.97, $p = 0.003$). Teachers were less likely to stay at their current school (more likely to leave) the higher they rated the following employment environment factors: *Facilities & Resources* (odds = 0.9, z = -3.91, $p < 0.001$) and *Managing Student Conduct* (odds = 0.96, z = -3.05, p = 0.002).

Table 13

Logistic Regression Results for Staying at versus Leaving Current School

	Coefficient	Std Error	Z	p
Years in Education	-0.025	0.023	-1.06	0.291
Years Teaching	0.049	0.023	2.08*	0.037
Years at School	0.164	0.008	19.33*	<0.001
Educational Leadership	0.790	0.023	34.18*	<0.001
Instruction Practice & Support	-0.017	0.019	-0.88	0.381
Facilities & Resources	-0.065	0.017	-3.91*	<0.001
Effective PD Provided	-0.001	0.017	-0.06	0.955
Community Support	0.143	0.016	9.21*	<0.001
Time Spent on Teaching	0.143	0.014	10.51*	<0.001
Teacher Leadership	0.059	0.020	2.97*	0.003
Hours Spent on PD	0.017	0.036	0.48	0.631
Managing Student Conduct	-0.041	0.014	-3.05*	0.002
Need for PD	-0.050	0.034	-1.46	0.145
Time Spent Not Teaching	-0.275	0.017	-15.89*	<0.001
Time Spent After Hours	0.050	0.009	5.63*	<0.001

Notes: Model $r^2 = 0.11$. * indicates a statistically significant result.

Discussion

Texas House Bill 2012 (Texas Legislature, 2013) requires the Commissioner of Education to biennially conduct a statewide survey of schools' employment environment but no guidance is provided by the state on how to use these results. Publishing a long list of survey items, as Texas did, with the percentages of teachers giving each response is not useful for guiding meaningful changes to education practices or policies. The present method of summarizing the TELL survey data is statistically rigorous, conceptually sound, and leads to interesting and useful information that EPPs can use to improve the quality of student placements and to ensure their ability to meet accountability standards. The results can also be used by new teachers to determine which schools have the best employment environments for teaching and learning, and by other educators to improve school practices and policies.

The exploratory factor analysis of the Texas TELL survey data collected during the spring of 2014 revealed that the responses to the 127 main survey items are best summarized by 12 factors, and the responses to the 39 new teacher items are best summarized by 4 factors. Using these 12 factors and rigorous statistical methods, we determined that the most powerful factor associated with a teacher's intention to stay at (versus leave) their school was the quality of the *Educational Leadership*, with higher *Educational Leadership* ratings associated with teachers planning to return to their current school the following year. This result is consistent with other research findings that indicated the factor that most influences teachers'

decisions to stay at or leave their school is teachers' perceptions of their principal or school's leadership (Kraft, Marinell, & Yee, 2016; Ferguson & Hirsh, 2014; Marinell & Coca, 2013; Ladd, 2011; Grissom, 2011).

The second and third most powerful factor associated with a teacher's decision to stay at their school was the amount of time spent doing non-teaching related activities and the amount of time spent teaching, respectively. Teachers were more likely to stay at schools where they spent less time doing non-teaching activities and where they spent more time actually teaching. These findings are consistent with other research that found teachers were more likely to stay at their school when they perceive their principal as providing instructional support and creating an environment where teachers can collaborate with each other (Boyd et al., 2011). For example, Pogodzinski et al. (2012) found a positive association between teachers reporting that they had adequate instructional resources and their willingness to remain in their schools. Chicago Public School teachers who perceived their collaborations with other teachers as reflecting partnerships were more likely to remain teaching in their schools (Allensworth, Ponisciak, & Mazzeo, 2009).

It is interesting to note that teachers' beliefs of the most important factors for remaining at their current school are only somewhat consistent with the statistical results above. For example, the response given by teachers most frequently is that *School Leadership* is the most important factor in determining whether they will stay at their current school, which is consistent with the statistical results. However, the second most frequent response given by teachers is that *Instructional Practices and Supports* is the most important factor but statistically we found that teachers' use of time (teaching or non-teaching) is actually more directly related to their intention to stay or leave their school.

Community Supports was indicated as the most important factors by the second smallest percentages of teachers, however, *Community Support* was statistically the fourth strongest factor (out of the 12 factors) and it was positively associated with their intention to stay at their school. By contrast, *Professional Development* was given as the most important factor by the smallest percentage of teachers, and consistent with this finding, the *Professional Development* factors were statistical un-related to their intention to stay at their school.

Implications

The TELL survey provides important and powerful information about the quality of the employment environment at many of the 8,700 schools in Texas. However, in the absence of a rigorous method for summarizing the TELL responses, the answers to the 129 main items are relatively meaningless and not useful for data-informed decision making. With the results provided in this paper, the results can be used in meaningful ways by EPPs, teachers, schools, districts, the state, and policymakers.

EPPs and New Teachers

The employment environment factors that are the most powerful predictors of teachers' intention to stay at or leave their current school are completely outside the control or influence of EPPs. Yet, under new federal regulations, EPPs will be held accountable for the impacts these school's environment factors have on its graduates and the students in their classrooms. Therefore, EPPs can use the present results to create lists of ideal (healthy) schools for student fieldwork, internships, and student teaching placements. EPPs can also create a list of healthy schools that their students should consider for employment because the schools are conducive to both teaching *and* learning. Conversely, EPPs can create a list of less-healthy or toxic schools that their students should avoid when seeking employment. New graduates could use the results to ask questions during the employment interview to assess the degree to which the employment environment is supportive of new teachers. For example, a new teacher can ask, what percentage of my time am I likely to spend teaching versus performing non-teaching related activities?

Principals

The areas of the TELL that principals have the most influence over are *Educational Leadership, Instructional Practices and Supports, Community Support and Involvement*, and *Managing Student Conduct*. By summarizing their school's TELL results based on the results here, they will know whether teachers believe they have the instructional support, resources, time, planning,

and autonomy they need to be effective in the classroom. The results are also a window into their own effectiveness, and whether teachers perceive their school environment as one that is safe and conducive to teaching and learning.

Superintendents

Summarizing the TELL results for all schools within a district will provide superintendents with aggregate information on teacher perceptions of the district environment to determine if district-level policies are supportive or detrimental to campus *Educational Leadership*, for example. Superintendents may also use disaggregate TELL results to examine educator perceptions by school to determine how best to assign principals. TELL results may be used to inform district-wide policies and procedures for principal- and teacher- satisfaction and retention, and for school and districtwide improvement planning.

Policymakers

Policymakers can ensure sound, data-informed policies are in place so that school environments are safe and conducive for teaching and learning. Policymakers could examine summary TELL data in the context of other data about teaching and learning, such as principal and teacher effectiveness, student achievement, and budget allocations. As *Educational Leadership* is consistently shown to be the most important factor in retaining teachers, policies could be tailored to reflect the state's focus on principal preparation and the recruitment and retention of high quality principals that can create empowered school environments. Because *Instructional Practices and Supports* are important for teacher retention and for promoting student learning, policies could be established that build professional learning communities and induction programs for teachers. Summary TELL data also show that policies framed around more teaching-time allotment and teacher responsibilities may be necessary to ensure teachers want to remain teaching at their schools.

TELL results may also be used as an additional, rich information source for how to improve teaching and learning within schools and across school districts. Results may be triangulated with other data, such as principal effectiveness, teacher evaluations, and student achievement data to provide EPPs, new teachers, superintendents, and policymakers with a more comprehensive picture of school settings. The state should fund the implementation of this survey biennially so the environment in the schools can be monitored over time to determine if program changes are having positive impacts on teaching and learning.

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