Governor Perdue's North Carolina Student Learning Conditions (SLCS): Survey Implementation Study

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Executive Summary

The purpose of the SLCS is *to determine the extent to which NC schools provide a safe, caring, engaging, 21st century learning environment for students, consistent with the new professional standards for teachers and administrators.* Designed and validated by the Friday Institute for Educational Innovation at the NC State University College of Education for use by students in grades 7, 9, and 11, the 38 items on the current version of the SLCS (Appendix B) measure student perceptions of six constructs: *Academic Engagement*, *Social Engagement*, *21st Century Skills*, *Caring and Safe School Environment*, *Use of Technology for Learning,* and *Classroom Environment*.

Additional questions provide contextual data about respondents, such as demographic information, typical course grades, number of schools attended, experience with virtual courses, school uniform requirements, home language, living situations, and post-graduation goals.

By collecting data directly from students about each of these construct areas, SLCS data are intended to be utilized by decision-makers for the purpose of formative evaluation of learning conditions at the school. SLCS enables school and district staff to evaluate students' perceptions about the school's programs and culture, and changes in these perceptions over time, by providing an easy-to-use data collection tool and report. It also enables educators to look at patterns across the middle- and high-schools in a district as well as patterns across the State. The value of the SLCS lies primarily in how decision-makers can use the results to improve school learning conditions for students.

The Friday Institute was contracted to develop and validate the SLCS, with guidance from the SLCS Planning Committee, which was comprised of representatives of major educational organizations in North Carolina. In Phase I of the survey development process, the Friday Institute conducted validity and reliability analyses based on 4,776 responses from middle and high school students across the state. Phase II involved a larger pilot study of data from more than 14,000 7th, 9th, and 11th grade students from 89 schools in 11 districts.

This third administration of the SLCS, hereafter referred to as Phase III, provided schools and districts with insight into students' perceptions of their learning environment, along with additional information about the validity of the SLCS based on a larger, more representative student sample. Phase III included the addition of a new construct, Classroom Environment. This construct was added to gain insight into students' perceptions of the level of engagement, challenge, and support students experience in the classroom.

In March, LEAs across the state were invited to participate in the administration of the SLCS by the Office of the Governor. Twenty-nine LEAs agreed to administer the survey across 231 North Carolina middle and high schools between April and June, 2011. These LEAs represented all regions of North Carolina and included small, rural districts, large, urban districts, and everything in between (see Figure 1). It is noteworthy that so many districts across our state volunteered to participate in the SLCS and provides some evidence of the need for high quality, accessible student surveys in this state.

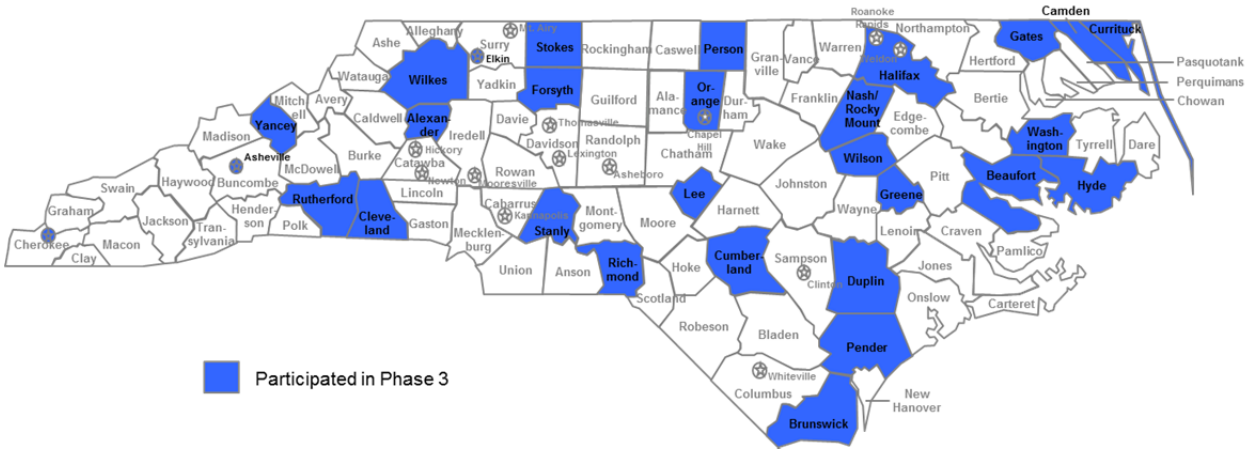

Figure 1. Map of Participating LEAs

Over 46,000 student participants (a 72% response rate) completed the survey online during a one month window selected by the LEA. Each participating LEA received school and district-level reports upon the completion of the survey administration (see Appendix F for a school-level report). Each report provided construct averages and item-level frequencies with bar graphs, providing an easy-to-read overview of results which schools and LEAs could use to target areas for growth or change. These reports were intended to provide information about students' perception of their learning conditions that could be used to inform policy at the school or district level. Collectively, the SLCS Phase III data was used to identify school and district-level differences across SLCS constructs, as well as emerging state-level item trends.

Phase III data was also analyzed to examine the structural, external, and consequential validity (Messick, 1995) of the SLCS. Factor analysis confirmed the structural soundness of the items and constructs included in the SLCS. Results from multilevel modeling and item-level analysis of the sample of students, schools, and districts substantiated the generalizability of the survey, showing that it is appropriate to use across the three selected grade levels (7, 9, 11), with students at different levels of achievement, across genders and ethnic groups, and across school contexts (*e.g.*, rural *vs*. city). White/Caucasian students were underrepresented in the sample, and rural students were overrepresented. Despite this limitation, the validation analyses and results already completed exceed that done for many widely-used surveys and provide a solid foundation for statewide use of the SLCS.

Findings

School-Level

Analysis of construct averages by school revealed some disparities.

- The greatest disparity was identified within the Use of Technology for Learning construct – students report greatest variation in access and frequency of use of technology across North Carolina schools.
- Schools size appears to impact students' perspectives across SLCS constructs. Schools with a smaller student body report higher scores on the constructs Caring and Safe School

Environment, Use of Technology for Learning, and Classroom Environment. Less disparity was seen in the constructs Academic Engagement and 21st Century Skills.

- When the constructs were examined by rate of free and reduced lunch (FRL), only small differences were revealed. Students in schools with lower levels of FRL reported slightly higher levels of Social Engagement and Caring and Safe School Environment.

District-Level

- When looking at the construct averages across districts labeled as rural, suburb, city, or town, there was virtually no difference in LEA averages within the Academic Engagement, 21st Century Skills, and Classroom Environment constructs. However, the greatest variation occurred within the Use of Technology for Learning construct with the highest average occurring at LEAs located in predominately rural areas.

Statewide

A review of the statewide results provides initial findings of differences among student groups that could inform state programs and policies. This data is important for state education leaders because for the first time, more than 10% of North Carolina's 7th, 9th, and 11th grade students, have responded to the same survey. The informative findings include the following:

- Just over half of students agreed with the statement "At the end of class, my teacher summarizes what was taught" (ranging from 53% in computer skills to 61% in foreign language).
- On all items comprising the Use of Technology for Learning construct, the average percentage of students reporting frequent use (daily or weekly) was higher among students from schools that met AYP than students from schools that did not.
- A larger percentage of students at schools in towns or rural areas reported using technology to turn in their assignments on a weekly or daily basis compared to students at schools in cities and suburbs (38% and 34% compared to 29% and 25%, respectively).
- Students in 11th grade reported a higher average level of Use of Technology for Learning than did students in 7th and 9th grade.
- Students at schools located in a rural area had a higher rate of agreement with the statement "I feel physically safe at my school" (79%) than students at schools located in a suburb (77%), a town (74%), or a city (71%).
- Similar to previous phases of the SLCS study, Hawaiian/Pacific Islander students reported the lowest average level of agreement of any racial/ethnic group to all constructs except for Technology Use. These students report lower levels of satisfaction in their schools than any other group.
- Compared to male students, female students had a higher rate of agreement with the statement "In school, I often encourage others to do their best" (82% vs. 71%).Compared to male students, female students had a higher rate of agreement with the statement "I often help other students in my class with their schoolwork" (78% vs. 67%).

- Black/African American students and Hispanic students had a lower average rate of agreement to the statement "Students of all races are treated equally at my school" (69% and 68%, respectively) than White/Caucasian students (77%).
- A smaller percentage of students at schools located in a town agreed that "Students of all races are treated equally at my school" (68%) than students at schools located in a suburb (78%), a city (71%), or a rural area (74%).
- Black/African American student and Hispanic students had a lower average rate of agreement to the item "Male and female students are treated equally at my school" (75% and 78%, respectively) than White/Caucasian students (83%). This was true of both male and female respondents.

Recommendations

Based on our analyses of these data, the FI evaluation team makes the following recommendations for a statewide rollout of the SLCS:

Survey Implementation

- SLCS data can and should be aggregated to the school, district, and state levels to inform policy and program decisions as appropriate. Support staff should be also available to visit LEAs and schools to discuss how to interpret and utilize the findings of the survey.
- The survey should be rolled out in the early spring to allow students time to fully experience their school environments and avoid conflicts with the state standardized testing schedule.
- Additional support should be available to LEAs that administer the SLCS. It would be beneficial to have a technical support system in place to troubleshoot any technical issues that arise during the administration of the online surveys.

Additional Analysis

- Since the student self-reported course grades variable was found to be a significant and meaningful predictor for all six of the SLCS factors, the SLCS Planning Team should consider linking SLCS responses with student UIDs so that future multilevel models can include objective student achievement measures and demographic data.

North Carolina Student Learning Conditions: Survey Validation Study – Phase III

Introduction

North Carolina is committed to improving student achievement, increasing graduation rates, reducing achievement gaps among student groups, improving teacher effectiveness, and improving the states' schools so that every student becomes career and college ready. To increase student achievement and graduation rates, proactive strategies are needed that focus directly on students and on what motivates them to learn and be successful in school. The *North Carolina Student Learning Conditions Survey* (SLCS) is designed to obtain information directly from students about their school experiences.

The six constructs that make up the SLCS include:

1. Academic engagement is identified by participation and on-task behavior during a learning activity, which signals an investment in the schoolwork.
2. Social engagement is defined as students' perceptions of belonging and commitment to their school. It also includes perceptions of social connectedness with others in the school.
3. The elements described as 21st Century Skills are the skills, knowledge, and expertise students should master to succeed in work and life in the 21st century.
4. A safe and caring school environment is one that is welcoming, orderly, and conducive to learning that emphasizes student safety and well-being typified by a school staff that provides both academic and emotional support for its students and their families.
5. Use of technology for learning is defined as the frequency with which technology is used to support various learning activities.
6. Classroom environment measures the level of engagement, challenge, and support students experience in the classroom.

The SLCS will enable educators to more fully understand student perceptions of their schools and the adults that support students' learning. It will provide data that can inform changes in programs and policies at the local and state levels, and then be used over time to assess whether those programs and policies are resulting in improved learning conditions for students.

SLCS Pilot Survey Development Process

State education leaders representing the NC Department of Public Instruction (NCDPI), NC Association of School Administrators (NCASA), NC Professional Teaching Standards Commission, NC School Board Associations (NCSBA), New Teacher Center, NC Association of Educators (NCAE), and NC Virtual Public Schools (NCVPS) were convened by the Office of the Governor for participation on the SLCS Planning Team. The SLCS Planning Team provided input and recommendations related to the purpose and use of the new instrument, as well as development of SLCS items. The SLCS Planning Team came to consensus that the purpose of the SLCS is *to determine the extent to which NC schools provide a safe, caring, engaging, 21st century learning environment for students, consistent with the new professional standards for teachers and administrators* (North Carolina Professional Teaching Standards Commission, n.d.).

The Office of the Governor asked the Friday Institute for Educational Innovation (FI) at the NC State University College of Education to carry out the survey development process, collect data for a pilot study, and then validate the SLCS set of items. In Phase I of the study, we conducted validity and reliability analyses based on 4,776 responses from middle and high school students across the state. The resulting SLCS included 32 items measuring three constructs: Connections to a 21st Century Learning Environment, Engaging and Caring School Environment, and Use of Technology for Learning. The initial version of the survey demonstrated evidence of validity and reliability based upon exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and internal consistency analyses for the selected sample. Phase II of the study focused on validity and reliability testing of a 31 item survey across a larger and more diverse sample.

The objective of Phase III of the SLCS study is to provide schools and districts with insight into students' perceptions of their learning environment, as well as to provide additional information about the validity of the SLCS based on a larger, more representative student sample. Messick (1995) identifies different aspects of construct validity appropriate for this phase of instrument development including structural, generalizability, external, and consequential. The FI evaluation team identified and conducted specific analyses of the Phase III data in order to examine these aspects of validity of the SLCS. Factor analysis was utilized to confirm the structural soundness of the items and constructs included in the SLCS. Results from multilevel modeling and item-level analysis of a larger, more diverse sample of students, schools, and districts were included to examine the generalizability of the survey. Finally, school and district SLCS data reports were developed to address local-level interpretations and consequences of the SLCS. The results should be used to inform school improvement.

Participants

Superintendents from each LEA in North Carolina were invited to participate in the third administration of the SLCS. Twenty-nine districts, encompassing 231 middle and high schools, elected to participate in Phase III of the SLCS study.

A total of 46,698 students completed surveys, corresponding to a 72% response rate. This sample included 18,504 middle school students and 28,194 high school students. Table 1 provides the characteristics of the students who completed the SLCS. When compared to the NC 7th, 9th, and 11th grade student populations, the SLCS pilot sample over-represented middle school and rural students and significantly under-represented White students.

Table 1.
Characteristics of the Sample

Characteristics items and choices	Sample Frequency	Sample Percent	Percent NC 7th, 9th, 11th graders[a]
Gender			
Female	22,840	50%	49%
Male	22,698	50%	51%
Grade level			
7th grade	18,504	40%	33%
9th grade	15,405	33%	37%

Characteristics items and choices	Sample Frequency	Sample Percent	Percent NC 7th, 9th, 11th graders[a]
11th grade	12,789	27%	30%
Race			
American Indian/Alaskan Native	1,402	3%	2%
Asian	820	2%	2%
Black/African American	12,388	27%	28%
Hawaiian/Other Pacific Islander	317	1%	<1%
Hispanic/Latino[b]	6,168	14%	11%
Multiracial	3,071	7%	4%
White/Caucasian	22,400	46%	54%
Other	4,983	11%	-
Average grade			
Mostly As	14,848	33%	
Mostly Bs	19,236	42%	
Mostly Cs	8,887	20%	
Mostly Below Cs	2,428	5%	
NCVPS classes			
Yes	6,243	14%	
No	39,174	86%	
Main goal after high school			
Go to a community college or other 2 year degree program	7,103	16%	
Go to a 4-year college	28,649	63%	
Enter the military	4,337	10%	
Enter the workforce	910	2%	
Other	4,417	10%	
Number of schools attended in past two years			
1	25,260	56%	
2	16,278	36%	
3	2,387	5%	
More than 3	1,492	3%	
Living situation			
Living in a house, condo, apartment, or trailer	43,828	97%	
Living in a shelter	524	1%	
Living in a car, campsite, abandoned building, or on street	934	2%	
Required to wear a uniform			
Yes	9,511	21%	
No	36,028	79%	
Benefits to wearing uniform			
Yes	10,842	24%	

Characteristics items and choices	Sample Frequency	Sample Percent	Percent NC 7th, 9th, 11th graders[a]
No	34,691	76%	
Home Language other than English			
Yes	7,989	18%	
No	37,423	82%	

[a]2010-2011 NC student demographic data retrieved from http://www.ncpublicschools.org/fbs/accounting/data/.
[b]Students were able to identify themselves as being of Hispanic origin and as being a member of another race

Methodology

Appendix A provides a detailed technical report on the following Methodology and Results sections.

Factor Analysis

Structural validity was evaluated for Phase III of the SLCS pilot using confirmatory factor analysis (CFA). Factor analysis is a statistical method used to identify a smaller set of unobservable latent constructs (i.e., factors) that explain the shared variance amongst a set of items that comprise a given instrument or measure. This analysis was used to summarize and uncover patterns in the data collected, reducing the complexity of the data by combining variables that are moderately or highly related (Gall, Borg, & Gall, 1996; Landau & Everitt, 2004). Factor analysis allowed us to (a) examine the structural relations of the purported SLCS model (b) determine if the implied model adequately fit the Phase III data, and (c) compare its viability against plausible alternative models. The authors then analyzed the internal consistency reliability of each SLCS factor identified by the factor analysis.

Multilevel Modeling & Item-Level Analysis

The inclusion of demographic items in the survey allowed for a collection of information on various student subgroups (e.g., ethnicity, gender, and grade). This demographic information was used with multilevel modeling, construct-means, and item-level analysis techniques, which allowed the FI evaluation team to examine whether score interpretation generalized to and across population groups and settings.

Multilevel modeling, also known as hierarchical linear modeling, was used to determine the relationship between the independent variables (e.g., student level: gender, grade, ethnicity, self-reported grades, home language, transiency; school level: ABC composite, AYP goals met, rurality, NBPTS, size, FRL) and the dependent variable, factor means on the SLCS (see Appendix C for a full list of variables). The multilevel model framework uses a two-level model (students nested within schools) to examine variability. It allows an inspection of variables specific to the students, along with variables specific to the school, so the extent to which each one influences the outcome can be measured.

Frequencies for each item, by subgroups (e.g., schools that met AYP and did not meet AYP, male and female students, rurality, students whose home language is and is not English, and students by race/ethnicity) were calculated to more closely examine the student subgroup responses to specific items. Tables of each item by subgroup can be found in Appendix D.

School/District Reports

At the completion of the administration, SLCS reports at both the school and district levels of analysis were generated (see Appendix E for a sample school-level report). These reports contain item- and factor-level descriptive statistics (e.g., the frequency and percentage of students responding a given way to a given item), and were developed to address local-level implications and consequences of the SLCS. These reports provide convenient summaries of the data, thus assisting with making interpretations based on evidence gathered from survey administration.

Results

Structural Validity

Analysis of the smaller Phase I pilot sample supported a 3-factor model, however current results from the confirmatory factor analysis (CFA) confirmed that a revised 6-factor model demonstrated acceptable fit, according to recommended standards for model fit (Hu & Bentler, 1999; Segars & Grover, 1993). Overall, the 6-factor structure is most appropriate for this larger and more representative sample of 7th, 9th, and 11th graders and across subgroups. Table 2 shows the alignment between the original SLCS pilot constructs, the factors identified in Phases I and II, and the new factors identified in the factor analysis for Phase III.

Table 2.

Original SLCS Pilot Constructs Aligned with Phase III Factors

Original SLCS Pilot Constructs (*A priori model*)	Phase I Pilot Factors (32 items)	Phase II Factors (31 items)	Phase III Factors (38 items)
21st Century Learning	21st Century Learning	21st Century Skills	21st Century Skills
Academic Engagement		Academic Engagement	Academic Engagement
Social Engagement		Social Engagement	Social Engagement
Caring Environment	Engaging and Caring School Environment	Caring and Safe Environment	Caring and Safe Environment
Safe Environment			
Use of Technology for Learning	Use of Technology for Learning	Use of Technology for Learning	Use of Technology for Learning
			Classroom Environment

The Phase III administration included a new construct, Classroom Environment, which was designed to measure the level of engagement, challenge, and support students experience in the classroom. The construct asks students to reflect on their first period teacher when responding to

the following items: “My teacher asks me questions about what I am learning in class,” “My teacher has high expectations of me,” “My teacher expects me to use thinking skills in class,” “My teacher asks me to fully explain my answers,” “At the end of class, my teacher summarizes what was taught,” “My teacher cares about whether or not I am learning in class,” and “My teacher gives me feedback on how to improve my work.” Ultimately, the factor analysis provided empirical evidence that substantiated the current version of the NC SLCS (provided in Appendix B) that consists of 38 items and measures six constructs: Academic Engagement, Social Engagement, 21st Century Skills, Caring and Safe School Environment, Use of Technology for Learning, and Classroom Environment. The accumulation of evidence, including statistical analyses from Phase III, supports the reliability and validity of inferences made from the current version. These analyses confirm the structural soundness of the items and constructs included in the SLCS.

Generalizability

Further evidence for the validity of inferences made from the SLCS involves generalizability across time, observations, settings, and individuals (Messick, 1995; Shadish, Cook, & Campbell, 2002). Multilevel modeling, district-, school-, and item-level analysis techniques provided evidence supporting the generalizability of the SLCS. Differences were not found for most of the student subgroups or for different types of schools examined. In sum, results demonstrated strong consistency of construct results at the state level.

Multilevel Modeling

A number of significant predictors were identified, although only a few of those predictors had effect sizes of consequence. Students’ self-reported grades were identified as a significant predictor of all six constructs: Academic Engagement, Social Engagement, 21st Century Skills, Caring and Safe School Environment, Use of Technology for Learning, and Classroom Environment. Not surprisingly, students who reported better grades tended to report higher levels of these constructs. Students’ self-reported transiency was also a significant predictor of these constructs, but in the opposite direction, as transient students tended to report lower levels of each constructs. Also, students in 11th grade tended to report a higher level of Use of Technology for Learning than did students in 7th and 9th grade. See Appendix C for a detailed list of variables, interpretation recommendations, and results from multilevel modeling analyses.

District-Level Analysis

Overall, construct averages were remarkably similar across LEAs (see Table 3). The greatest variation occurred within the Use of Technology for Learning construct. The averages for this construct ranged from 2.19, in a rural LEA, to 3.31, also in a rural LEA. When looking at the averages across districts labeled as rural, suburb, city, or town, there was virtually no difference in LEA averages within the Academic Engagement, 21st Century Skills, and Classroom Environment constructs. Again, the greatest variation occurred within the Use of Technology for Learning construct, with the lowest average, 2.41, occurring at LEAs located in and around cities and the highest average, 2.65, occurring at LEAs located in predominately rural areas.

Table 3.
Construct Averages by District Locale

	AE	SE	TFCS	CSSE	UTL	CE
Rural	2.81	3.04	3.09	2.98	2.26	2.97
Rural	2.88	3.15	3.11	3.11	2.84	3.05
Rural	2.85	3.17	2.98	3.01	2.46	3.04
Rural	2.83	2.99	3.07	2.93	2.36	3.00
Rural	2.79	2.96	3.06	2.93	2.66	2.93
Rural	2.88	3.07	3.12	3.00	2.48	3.06
Rural	2.76	2.97	3.07	2.92	2.19	2.98
Rural	2.82	2.90	3.05	2.94	3.14	2.99
Rural	2.92	3.00	3.14	2.91	2.70	3.05
Rural	2.76	3.01	3.03	2.95	2.84	2.98
Rural	2.83	3.02	3.09	2.96	2.90	2.99
Rural	2.79	2.99	3.05	2.88	2.67	2.93
Rural	2.83	2.87	3.06	2.87	2.91	3.06
Rural	2.85	3.01	3.10	2.98	2.44	3.07
Rural	2.93	3.19	3.16	3.06	3.31	3.05
Rural	2.86	3.07	3.12	3.03	2.44	3.01
Rural	2.92	2.91	3.11	2.83	2.70	3.04
Rural	2.84	3.14	3.12	3.05	2.70	3.06
Rural	2.88	3.16	3.13	3.11	2.30	3.04
Rural Average	**2.84**	**3.03**	**3.09**	**2.97**	**2.65**	**3.02**
Town	2.85	2.99	3.10	2.97	2.44	3.03
Town	2.79	2.92	3.01	2.81	2.67	2.86
Town	2.80	2.95	3.05	2.88	2.46	2.96
Town Average	**2.81**	**2.95**	**3.05**	**2.89**	**2.53**	**2.95**
Suburb	2.85	2.99	3.08	2.92	2.58	3.01
Suburb	2.83	3.05	3.10	3.01	2.49	2.99
Suburb	2.89	3.10	3.13	3.06	2.59	3.06
Suburb Average	**2.85**	**3.04**	**3.10**	**3.00**	**2.55**	**3.02**
City	2.87	2.97	3.08	2.88	2.42	2.94
City	2.81	3.02	3.10	2.89	2.41	3.02
City	2.88	3.00	3.09	2.95	2.41	3.01
City	2.80	2.97	3.05	2.89	2.38	2.96
City Average	**2.84**	**2.99**	**3.08**	**2.90**	**2.41**	**2.98**

School-Level Analysis

Analysis of construct averages by school revealed some disparities (see Table 4). The greatest disparity was identified within the Use of Technology for Learning construct – students report greatest variation in access and frequency of use of technology across North Carolina schools. The schools with the lowest 10 percent of averages on this construct averaged 2.13, which most closely corresponds to a response of "Monthly," while the schools with the highest 10 percent of averages on this construct averaged 3.35, which most closely corresponds to a response of "Weekly." The Use of Technology for Learning construct had the lowest average across all

schools of any construct on the SLCS. The smallest disparity between schools occurred within the 21st Century Skills construct (averaging 2.92 among the lowest 10 percent and 3.29 among the highest 10 percent). The 21st Century Skills construct also had the highest average across all schools of any construct on the SLCS.

Table 4.
Means of SLCS Construct Scores among Highest and Lowest Ten Percent of Schools for each Construct and Average Across All Schools

	Lowest 10%	Average	Highest 10%
Academic Engagement	2.66	2.84	3.08
Social Engagement	2.66	3.01	3.36
21st Century Skills	2.92	3.09	3.29
Caring and Safe School Environment	2.70	2.94	3.34
Use of Technology for Learning	2.13	2.51	3.35
Classroom Environment	2.81	3.01	3.29

Schools size appears to impact students' perspectives across SLCS constructs (see Table 5). Schools with a larger student body experienced higher levels of Social Engagement. Schools with a smaller student body report higher scores on the constructs Caring and Safe School Environment, Use of Technology for Learning, and Classroom Environment. Less disparity was seen in the constructs Academic Engagement and 21st Century Skills.

Table 5.
Means of SLCS Construct Scores among Largest and Smallest Ten Percent of Schools

	Largest 10%	Smallest 10%
Academic Engagement	2.82	2.87
Social Engagement	2.97	2.84
21st Century Skills	3.07	3.07
Caring and Safe School Environment	2.88	3.03
Use of Technology for Learning	2.43	2.86
Classroom Environment	2.95	3.06

When the constructs were examined by rate of free and reduced lunch (FRL), only small disparities were revealed (see Table 6). For example, students in schools with lower levels of FRL reported slightly higher levels of Social Engagement and Caring and Safe School Environment. Schools with higher percentages of students receiving FRL, reported higher Academic Engagement, Use of Technology for Learning, and Classroom Environment.

Table 6.
Means of SLCS Construct Scores among Highest and Lowest Ten Percent of Schools for rates of FRL

	Highest 10% FRL	Lowest 10% FRL
Academic Engagement	2.86	2.84
Social Engagement	2.89	3.01
21st Century Skills	3.05	3.07
Caring and Safe School Environment	2.92	3.00

	Highest 10% FRL	Lowest 10% FRL
Use of Technology for Learning	2.62	2.59
Classroom Environment	3.08	3.04

Item-Level Analysis

Analysis of students' responses to individual items revealed little variation among student subgroups, including comparisons of male and female students, students whose home language is versus is not English, and students at schools in cities, towns, suburban, and rural areas. The majority of differences in responses occurred when items were disaggregated by race/ethnicity. In particular, Hawaiian/Other Pacific Islander students (n=317, or less than 1% of the study sample) reported the lowest level of agreement of any ethnic group on 35 of 38 items. Less variation occurred among the three largest racial/ethnic groups (Black/African American, Hispanic, and White/Caucasian). Some of key findings from this analysis include the following:

- Academic Engagement
  - Compared to male students, female students had a higher rate of agreement with the statement "I often help other students in my class with their schoolwork" (78% vs. 67%).
- Social Engagement:
  - Black/African American students and Hispanic students had a lower average rate of agreement to the statement "Students of all races are treated equally at my school" (69% and 68%, respectively) than White/Caucasian students (77%).
  - A smaller percentage of students at schools located in a town agreed that "Students of all races are treated equally at my school" (68%) than students at schools located in a suburb (78%), a city (71%), or a rural area (74%).
  - Black/African American student and Hispanic students had a lower average rate of agreement to the item "Male and female students are treated equally at my school" (75% and 78%, respectively) than White/Caucasian students (83%). This was true of both male and female respondents.
- 21st Century Skills
  - Compared to male students, female students had a higher rate of agreement with the statement "In school, I often encourage others to do their best" (82% vs. 71%).
- Caring and Safe Environment
  - Students at schools located in a rural area had a higher rate of agreement with the statement "I feel physically safe at my school" (79%) than students at schools located in a suburb (77%), a town (74%), or a city (71%).
- Use of Technology for Learning:
  - On all items comprising the Use of Technology for Learning construct, the average percentage of students reporting frequent use (daily or weekly) was higher among students from schools that met AYP than students from schools that did not.
  - A larger percentage of students at schools in towns or rural areas reported using technology to turn in their assignments on a weekly or daily basis compared to students at schools in cities and suburbs (38% and 34% compared to 29% and 25%, respectively).

- Classroom Environment
    - Just over half of students agreed with the statement "At the end of class, my teacher summarizes what was taught" (ranging from 53% in computer skills to 61% in foreign language).
    - There was little variation in the average agreement levels across content areas.

See Appendix D for a comprehensive list of item frequencies for each subgroup.

Consequential Validity

Consequential validity focuses on how the SLCS results will be used and what intended and unintended consequences might exist (Messick, 1995). Since these results are intended to be aggregated to the school, district, and state-level to facilitate decisions about policies and initiatives to improve teaching and learning, there is a great need for careful consideration about how the data is reported back to the schools and districts, and what if any support is needed to ensure effective use of the results. The FI evaluation team created SLCS reports containing item- and factor-level statistics for each school and district that participated in Phase III (see school report example in Appendix E). For example, the reports contain information on the percentage of students that reported agreement with feeling physically safe at their school (item-level), and further, the percentage of students that reported agreement that their school provides a caring and safe environment (factor-level). The reports present item-level response frequencies and percentages; and factor-level means, standard deviations, and percentages. Further, the reports provide graphical displays of the information. These reports will assist school and district leaders with interpreting and making inferences based on their data.

Study Summary

The SLCS is based on current research, standards, and best practices in the field of education, and provides an essential source of data to inform education policies and initiatives at the state and district level. Additionally, the SLCS provides school staff and parents with a source of information from students about changes needed in classrooms and schools. The SLCS is intended to collect data about students' views of the extent to which NC schools provide safe, caring, engaging, 21st century learning environments. The SLCS has 38 items measuring six major constructs: *21st Century Skills, Academic Engagement, Social Engagement, Caring and Safe Environment, Use of Technology for Learning,* and *Classroom Environment* (see Appendix B for specific items).

Phase III of the SLCS pilot study provided additional information about the validity of the SLCS based on a larger, more representative student sample of 46,698 participants. The FI evaluation team conducted specific analyses of the Phase III data in order to examine the structural, generalizabilty, external, and consequential validity (Messick, 1995) of the SLCS. Factor analysis confirmed the structural soundness of the items and constructs included in the SLCS. Results from multilevel modeling and item-level analysis of a larger, more diverse sample of students, schools, and districts substantiated the generalizability of the survey. Finally, school and district SLCS data reports addressed local-level interpretations and consequences of the SLCS.

Recommendations

Based on our analyses of these data, the FI evaluation team makes the following recommendations for statewide rollout of the SLCS around implementation, additional analysis, and technical assistance.

Survey Implementation

The SLCS can and should be used for the 7th, 9th, and 11th grade students in North Carolina middle and high schools to collect important data about student perceptions of their school. Additionally, SLCS data can and should be aggregated to the school, district, and state level. The survey should be rolled out in the early spring to allow students time to fully experience their school environment and avoid conflict with the state standardized testing schedule.

Additional Analysis

The current study sample underrepresented White students and high school students, and over-represented schools in rural areas. Since the student self-reported grade variable was found to be a significant and meaningful predictor for all six of the SLCS factors, the SLCS Planning Team should consider linking SLCS responses with student UIDs so future multilevel models can include objective student achievement measures.

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