New Jersey School Climate Improvement (NJ SCI) Survey
Development and Validation Study Summary Report
Fall 2023

What is school climate and how is it measured?

School climate represents how it feels to be a part of a school community from the unique identity and perspective of its members. School climate is dynamic and can be shaped by external events and vary across contexts within the school. Research consistently shows the importance of promoting a positive school climate for all students, staff, and parents/caregivers. Positive school climates promote higher levels of student academic achievement and foster the physical, psychological, and social and emotional well-being of both students and staff, while supporting connections between schools and families. Promoting the overall well-being of staff and students creates conditions for effective teaching and learning that lead to more positive student academic and developmental outcomes (Brand, Felner, Seitsinger, Burns & Bolton, 2007; Cohen, McCabe, Michelli & Pickeral, 2009; Hosford & O'Sullivan, 2016; Kutsyuruba, Klinger, & Hussain, 2015; Thapa, Cohen, Guffy, & Higgins-D'Alessandro, 2013; Wang & Degol, 2015).

School climate is often measured using surveys which can be taken by all members of the school community to represent how respondents perceive specific domains, or conditions for learning. Survey data can help reveal strengths and potential areas for school climate improvement within and across respondent groups (i.e., students, staff, and parents/caregivers) and identify disparities in experiences of school climate according to demographic characteristics (e.g., gender, race, grade level).

The NJ SCI Survey is a new comprehensive assessment tool which is customized to the needs and priorities of NJ schools. It provides clear and specific school climate domains to support schools in identifying areas to address and exploring research-based strategies for addressing them.

How did the School Climate Transformation Project (SCTP) develop the NJ SCI Survey?

Each domain on the NJ SCI Survey represents a concept or area of school climate measured by a group of related questions. The SCTP reviewed the performance of the school climate survey previously used in the state, and other validated school climate surveys, as well as the most recent research literature related to school climate, in order to draft questions or items to measure common conceptual domains of school climate. The SCTP also considered feedback and suggestions from school-based constituents engaged in school climate improvement work and organizational partners who participated in an input process (see page 5 for acknowledgements).

How did the SCTP ensure that the NJ SCI Survey is a valid and reliable instrument?

An instrument is valid if it measures what it intends to measure, and reliable if it does so consistently. The SCTP initiated a validation study in spring 2022, starting with a sample of respondents who participated in the pilot survey. The findings were used to guide modifications to the final instrument and to ensure the surveys measured the intended domains in as few items as possible. In fall 2022, another sample of respondents took the revised versions of the survey to confirm that the modifications were an improvement and that the instrument still measured the intended domains. Finally, the findings were reconfirmed using a larger and more representative sample of data from the 2022-2023 school year. The following sections summarize the results of the validation study.

Pilot Study and Resulting Modifications

Following the reviewer input process and field testing of selected items and domains with schools in a cohort project, a pilot version of the NJ SCI Survey was approved for use in spring 2022 via the NJ SCI Platform. The opportunity to participate was advertised widely through various recruitment efforts. A diverse sample of over 30,000 respondents, including students (grades 3-12), staff, and parents/caregivers, from 25 districts of varying sizes and characteristics across the state, participated in the pilot. Data from participating schools were de-identified and aggregated, and cases with insufficient responses (e.g., too many answers missing) were removed.

Statistical analyses were conducted to test the validity of the survey, meaning how well the items measure the domains or areas of school climate they are intended to measure. Given that the domains were constructed based on previous findings as well as theoretical contributions from the research literature, Confirmatory Factor Analysis (CFA) was conducted for each version of the survey (Students Grades 3-5, Students Grades 6-12, Staff, Parents/Caregivers) using multiple imputation methods to handle missing data. CFA helps verify how well items fit together using statistical modeling. The initial results supported use of the overall domain mean, or average, to describe performance in each domain. For further questions about the statistical analyses conducted, please contact njscisupport@rutgers.edu.

Results from the pilot analyses were used to make minor modifications and improvements to the NJ SCI Survey for all respondent groups. No domains were added or removed, and items within domains were not combined or moved to a different domain. Minor wording changes were made to help clarify the intent of some items and/or to align more closely with wording for another respondent group. Items were also removed to avoid redundancy and reduce the length of the survey and the time needed to complete it.

Validation Study Results and Final Instrument

In fall 2022, additional schools and districts were recruited for an initial validation study to confirm that the changes to the instrument following the pilot had been an improvement and to confirm the instrument and its domains were still measuring the concepts as intended. Statistical tests confirmed that the performance of the instrument improved following the minor modifications described above, and because of these favorable findings, the instrument was determined to be valid and final.

To replicate the findings with an even larger and more diverse sample, the analyses from the validation were repeated using deidentified, disaggregated data from the full school year 2022-2023. The sample for the final validation study included over 83,000 respondents, representing 49 districts and 248 schools. See Tables 1 and 2 on pages 3 and 4 for selected results by survey for the finalized instruments.

Analysis of Instrument Validity

The results are presented below using the following confirmatory factor analyses conducted for each final version of the instrument using data from the 2022-2023 school year. Goodness-of-fit tests were also conducted for each school climate domain on each instrument and were found to be acceptable prior to finalizing the instrument. Reported below are three indices to inform how well the scores to the items generate a latent variable that represents the concept being measured. The standard goodness-of-fit measures included are:

- Root mean square error of approximation (RMSEA) assesses how far the hypothesized model is from a perfect model (should be below 0.10)
- Standardized root mean residual (SRMR), a measure of predictive validity that is a measure of error, therefore smaller values are preferable (closer to 0.00 indicates "perfect fit")
- Comparative fit index (CFI) examines discrepancies between the data and the worst-case scenario (compares to model with worst fit, and should be greater than 0.90)

RMSEA and SRMR were all below 0.07, and CFI were all above 0.94, which indicate good model fit (Hu & Bentler, 1999).

Table 1. Goodness-of-Fit Indices by Respondent Group (2022-2023 Validation Sample)

Instrument	**RMSEA**	**SRMR**	**CFI**
Students Grades 3-5	0.038	0.040	0.983
Students Grades 6-12	0.062	0.051	0.943
Staff	0.057	0.046	0.970
Parents/Caregivers	0.051	0.036	0.993

Analysis of Instrument Reliability

The total number of items on each instrument, finalized following the initial pilot, is 67 for Students Grades 3-5, 78 for Students Grades 6-12, 81 for Staff, and 45 for Parents and Caregivers. The number of items for each domain, across instruments, ranges from 3-13. Each scale item is intended to measure a different aspect of a similar concept as part of a domain. These different aspects of the same construct should covary, or have similar responses, according to the concept in focus. Coefficient alphas, which help measure internal consistency of items in a domain/scale, were estimated for all respondent groups. Coefficient alphas range from 0 to 1 with higher scores generally reflecting more reliability in the domain. Alphas higher than 0.70 are considered to have good internal reliability and indicate there is no further need to refine a scale (Taber, 2018). Results from the validation sample provide evidence of strong internal consistency (see Table 2 on page 4).

Table 2. Coefficient Alpha by Domain and Respondent Group (2022-2023 Validation Sample)

	Students 3-5	Students 6-12	Staff	Parent
Academic Culture & Classroom Practices	.705	.814	.853	.872
Behavioral Expectations	.724	.822	.891	.902
Family Support & Engagement	-	-	.906	.933
Sense of Physical Safety	.733	.886	.935	.802
Student Voice & Involvement	.775	.857	.900	.740
Supportive Staff-Student Relationships	.742	.914	.876	.870
Supports for Student Social & Emotional Learning	.894	.948	.945	.913
Negative Student Interpersonal Behaviors	.890	.941	.879	.903
Prosocial Student Interpersonal Behaviors	.793	.877	.898	.879
Organizational Resources & Supports	-	-	.922	-
Leadership Support	-	-	.962	-
Collegial Support	-	-	.912	-
Student Sense of Belonging	.784	.831		

Future Studies

Data from the NJ SCI Survey will continue to be aggregated and de-identified to evaluate the performance of the instrument over time and to monitor school climate outcomes across the sample of users. Continued efforts will be made to include participants representing specific underrepresented groups in future studies (e.g., schools in rural communities). As additional data are collected at different time points, normative and benchmarking data can be explored to help guide decision making.

NJ SCI Survey Development Acknowledgements

The School Climate Transformation Project acknowledges and expresses gratitude towards the many partners and practitioners that provided feedback and participated in focus groups to support the design of the NJ SCI Survey. During a comprehensive partner engagement and input process in spring 2021, representatives from statewide organizations working in related fields were invited to participate and provide feedback on the NJ SCI Pilot Survey domains and items. Individuals from the following organizations and departments agreed to provide written input (*Note:* The information below was provided by respondents at the time of participation; listed affiliations may no longer be active. This list does not represent all individuals and organizations that provided input in other formats; participants are listed in no particular order):

- Robert Morrison, Arts Ed NJ
- Lynne Azarchi, KidsBridge Tolerance Center
- Allison Connolly, Dennis Hill, Kate Okeson, and Dana Maulshagen, Make It Better for Youth
- Pritha Gopalan, PhD, Newark Trust for Education
- Stuart Green, New Jersey Coalition for Bullying Awareness and Prevention and SEL4NJ
- Danielle Hatchimonji, PhD., Rutgers Social-Emotional and Character Development Lab and Nemours Children's Health System
- Pat Wright, New Jersey Principals and Supervisors Association
- Sharon Lohrmann, PhD, New Jersey Positive Behavior Support in Schools, The Boggs Center on Developmental Disabilities, Robert Wood Johnson Medical School
- Erin Bruno, Social Decision Making, Rutgers University Behavioral Health Care; SEL Direct Instruction Instructor, Academy for Social and Emotional Learning in Schools
- Anne Gregory, PhD, Professor, Graduate School of Applied and Professional Psychology, Rutgers University
- Carolyn J. Marano, Special Olympics New Jersey
- Dr. Katherine Vroman
- Kara Ieva, PhD

Over 30 district- and school-based staff from districts across the state in the following roles submitted written input, in addition to feedback provided by participants in the School Climate Transformation Project and a selection of parents/students:

- Director of Culture and Climate
- Director of Diversity, Equity, and Inclusion
- Director of Guidance
- Data Analytics and Strategies Coordinator
- Principals
- Teachers
- School Counselors
- Student Assistance Counselors
- Social Workers

Representatives from various departments and projects at the New Jersey Department of Education participated in a feedback session and/or provided written feedback.

The SCTP is also grateful to the districts and schools that participated in the pilot and validation of the NJ SCI Survey. For access to descriptive tables summarizing the demographic characteristics of schools and individual respondents who participated in the NJ SCI Pilot and Validation samples, or questions about the results, please contact njscisupport@rutgers.edu.

For more information about the NJ SCI Survey, please visit www.njschoolclimate.org.

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