



**Research Validating CLASS® with Child Outcomes
across Diverse Populations of Children**

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Executive Summary

The Classroom Assessment Scoring System® (CLASS®) (Pianta, LaParo, & Hamre, 2008) is the most researched and validated measure of early childhood teaching and classroom quality. Over 200 published studies show that students who attend classrooms with higher CLASS scores have better social and academic outcomes than their peers in classrooms with less effective interactions. The majority of the early childhood studies on CLASS have been conducted in diverse settings serving at-risk populations of children. There are several conclusions we can draw from this broad literature, each of which is discussed in greater detail below:

- Studies consistently demonstrate that students make greater gains in key areas of school readiness, including literacy, math, social-emotional development, and self-regulation, when they are in classrooms with more effective teacher-child interactions, as measured by CLASS scores.
- All children, including dual language learners (DLLs), benefit socially and academically from being in classrooms with high quality teacher-child interactions as measured by CLASS. There are additional teaching practices, not assessed by the CLASS, that enhance these foundational teacher-child interactions in supporting the success of DLL students.
- Evidence from two small studies in tribal communities suggests positive impacts of using CLASS for assessment and professional development, although there is more work to be done to better understand and document CLASS successes in these communities.
- A growing body of international research demonstrates the validity of CLASS across a broad set of cultural contexts.
- There is emerging evidence of the positive impact of CLASS measurement and improvement efforts from large city and state initiatives in settings with very diverse populations of children.

CLASS has proven to be an effective tool for measuring and improving learning and development outcomes for children across the United States and many other countries, and this growing body of research provides strong and compelling evidence that the teacher-child interactions measured by CLASS specifically support learning and development for children from a range of cultural and language backgrounds.

Research Connecting CLASS to Children’s Development and Learning in Diverse Settings and Populations

A growing body of research conducted in programs serving children from diverse racial and ethnic backgrounds describes the relationship between classroom quality as measured by CLASS and children’s outcomes.

In terms of children’s social and self-regulatory development, multiple studies of preschool populations find that classroom quality, as measured by the CLASS, is positively associated with fewer behavior problems and increased social competence. In practical terms, this means that children from diverse backgrounds whose classrooms scored higher on the CLASS domains Emotional Support and Classroom Organization were reported to have fewer behavior problems, as well as, in one case, lower levels of the stress hormone cortisol. Higher Emotional Support is also associated with improved child language development, including in a national sample of Early Head Start programs. Among at-risk preschoolers, higher Instructional Support scores were associated with greater gains in letter-word identification, spelling, and applied problems in a number of studies, while in others, all three domains of the CLASS were significantly associated with improved letter-word knowledge and executive function skills.

It is worth noting that effect sizes are small to moderate in most cases, as would be expected given that most of the studies assessed CLASS scores on just one day.

Table 1 below provides a summary of the key information from some of the most important validation studies conducted in programs serving children from diverse racial and ethnic backgrounds.

Table 1. Key CLASS Validation Studies among Diverse Pre-K Populations

Authors, Year Published	Location of Study Sample	Child Demographics	Key Findings
Carr, Mokra, Vernon-Feagans, & Burchinal, 2019	State-funded pre-K in Illinois, Ohio, Kentucky, Georgia, California, & New York	1,015 pre-K & K students: 42% Caucasian, 24% African American, 25% Latino, 10% other	Children who experienced higher-quality pre-K and kindergarten as measured by CLASS had improved language, literacy, and math skills; the effect of a high-quality pre-K experience was additive for children’s language and literacy outcomes in kindergarten, and multiplicative for math outcomes in children who also experienced highest quality kindergarten.

Authors, Year Published	Location of Study Sample	Child Demographics	Key Findings
Cash, Ansari, Grimm, & Pianta, 2019	State-funded pre-K in Illinois, Ohio, Kentucky, Georgia, California, & New York	1,015 pre-K & K students: 42% Caucasian, 24% African American, 25% Latino, 10% other	Children who experienced one year of higher quality Instructional Support as measured by CLASS did better academically the following year than children in classrooms with lower levels of Instructional Support. Children's academic outcomes were even greater if they also experienced a second year of higher quality Instructional Support.
Vitiello, Bassock, Hamre, Player, & Williford, 2018	5 parishes in Louisiana; public schools, child care, Head Start, charter schools, & private schools accepting subsidies	820 children: 70% African American, 21% Caucasian, 3% Hispanic, 6% other	Preschoolers in classrooms with higher quality interactions, as measured by higher overall CLASS scores, showed greater learning gains across multiple school readiness domains.
Justice, Jiang, Khan, & Dynia, 2017	Publicly-funded pre-K in 2 rural communities in Appalachia	383 children: 94% Caucasian, non-Hispanic, 6% African American, 3% other	Higher CLASS scores in preschool classrooms of low-income children were significantly related to higher levels of kindergarten readiness; classrooms with the lowest CLASS scores were associated with the highest academic, behavioral, and other risk factors for entering kindergartners.
Johnson, Markowitz, Hill, & Phillips, 2016	Public pre-K programs in Tulsa, OK	2,612 children: 35% Caucasian, 33% African American, 20% Hispanic, 10% Native American, 2% other	For preschoolers, higher levels of Instructional Support as measured by CLASS were associated with greater gains in letter-word identification, spelling, and applied problems in kindergarten.

Authors, Year Published	Location of Study Sample	Child Demographics	Key Findings
Aikens, Xue, Bandel, Caronongan, Vogel, & Boller, 2015	National sample of Early Head Start Programs	678 children	In Head Start classrooms, higher levels of Emotional and Behavioral Support as measured by the CLASS were more strongly associated with positive social-emotional outcomes. Likewise, these higher levels of Emotional and Behavioral Support on the CLASS were associated with improved child language development.
Hamre, Hatfield, Pianta, & Jamil, 2014	10 sites across the United States; community-based pre-K and Head Start	1,407 children: 47% African American, 34% Hispanic, 11.4% White, 2.4% Asian, 5.2% other	Children who experienced higher quality classrooms as measured by CLASS showed gains in social and cognitive skills, including inhibitory control, working memory, and language and literacy skills.
Hatfield, Hestenes, Kintner-Duffy, & O'Brien, 2013	14 child care classrooms in North Carolina	63 children: 42% Caucasian, 34% African American, 30% Latino, 21% mixed race	Children in classrooms with lower Emotional Support as measured by CLASS showed a spike in cortisol in the afternoon, suggesting increased stress levels; in contrast, children in classrooms with higher Emotional Support showed a decrease in cortisol levels.
Sabol, Soliday Hong, Pianta, & Burchinal, 2013	Geographically diverse state-funded pre-K in 11 states	14% Hispanic, 21% African American, 49% white, 16% other or multi-ethnic	Authors examined a variety of Quality Rating and Improvement Systems used by states for monitoring and evaluating school quality and found CLASS to be the strongest predictor of children's outcomes.

Authors, Year Published	Location of Study Sample	Child Demographics	Key Findings
Moiduddin, Aikens, Tarullo, West, Xue, 2012	National sample of Head Start programs	36% Hispanic/Latino, 34% African American, 22% Caucasian	Among at-risk preschoolers, all 3 domains of CLASS were significantly associated with improved letter-word knowledge, while the dimension of Language Modeling was positively associated with math skills, and the dimension of Positive Climate was associated with fewer teacher reports of problem behavior.
Mashburn, Pianta, Hamre, Downer, Barbarin, Bryant, and Burchinal, 2008	Geographically diverse state-funded pre-K in 11 states	14% Hispanic, 21% African American, 49% white, 16% other or multiethnic	Higher levels of Emotional and Instructional Support as measured by CLASS were associated with increased academic and language skills in preschoolers. Higher Emotional Support levels were also associated with increased social competence and decreased problem behaviors.

CLASS with DLL Students

A number of recent studies find CLASS to be a valid tool for predicting development and learning among multilingual learners. Both Burchinal et al. (2012) and Downer et al. (2011) find that CLASS has similar predictive validity for DLL children as it does for monolingual children. Average CLASS scores across domains did not vary as a function of the percentage of DLLs in the classroom (Downer et al. 2011). Furthermore, the studies found that higher Emotional Support, as measured by CLASS, is related to increased social competence in DLL classrooms (Downer et al.) as well as to higher reading and math scores (Burchinal et al., 2012). In the FACES study which provides a nationally representative sample of Head Start programs, the CLASS domain of Instructional Support was positively correlated with Head Start children’s development of both Spanish and English vocabulary (Hindman & Wasik, 2013). Langeloo, Lara, Deunk, Klitzing, and Strijbos (2019) conducted a meta-analysis to learn more about interaction practices between teachers and students who were learning a second language. Their review suggests that many of the practices delineated in CLASS, such as consistent classroom routines, clear examples that children can relate to, and adapting lessons and activities to address the needs of children, are beneficial to multilingual children.

Despite this evidence linking CLASS to positive outcomes among DLL students, it is important to note that the CLASS is a general measure that does not focus on specific practices for these

students. Limlingon et al. (2019) suggest that “programs need to find ways of adapting existing measures or supplementing the data collected from these instruments to better support and understand the specific needs of their DLL students. Given the variability in DLLs’ home language and English language skills when they enter preschool, it would be prudent to use tools that capture more complex descriptions of individual teacher-child interactions, in concert with tools that capture more global teacher-child interactions (e.g., the CLASS).” These types of tools may be particularly important for teacher professional development and coaching efforts in Head Start programs. Table 2 provides a summary of key findings from some of the most important validation studies conducted in programs serving DLL children.

Table 2. Key CLASS Validation Studies among Dual Language Learners

Authors, Year Published	Location of Study Sample	Child Demographics	Key Findings
Limlingan, McWayne, Sanders, & Lopez, 2019	Large national probability sample	733 Latinx/DLL 3 & 4-year-olds	Spanish language use and emotionally supportive interactions as measured by CLASS were associated with improved approaches to learning.
Hindman & Wasik, 2013	Head Start classrooms from across the country	755 DLL children (weighted), 655 weighted; 99% Hispanic/Latino background	The CLASS domain of Instructional Support was positively correlated with children’s Spanish and English vocabulary.
Burchinal, Field, Lopez, Howes, & Pianta, 2012	State-funded pre-kindergarten programs in 11 states	357 Spanish-speaking 4-year-old children	CLASS has similar predictive validity for DLL children as it does for monolingual children. Children who experienced classrooms with higher levels of Emotional Support, as measured by CLASS, had higher reading and math scores.
Downer, Lopez, Grimm, Hamagami, Pianta, & Howes, 2011	Geographically diverse state funded Pre-K in 11 states	14% Hispanic, 21% African American, 49% white, 16% other or multiethnic	CLASS has predictive validity for DLL children. Average CLASS scores across domains did not vary as a function of the percentage of DLLs in the classroom (low, medium, or high). Higher Emotional Support, as measured by CLASS, is related to increased social competence.

CLASS in Tribal Communities

While there is a need for more research and better understanding of the use of the CLASS and CLASS scores in tribal Head Start programs, some data exist. Findings from two small studies are promising. An unpublished study conducted by the Tribal Early Childhood Research Center at Michigan State University, the Inter-tribal Council of Michigan, and the AI/AN Head Start Research Center at the Centers for American Indian and Alaska Native Health (University of Colorado) shows that CLASS scores in three tribal Head Start programs representing nine tribes in Michigan are often higher than data obtained in state pre-k program samples.

However, the authors identify several considerations for using CLASS in AIAN programs, including being aware of cultural variations in behavior, understanding when it is appropriate to code, and knowing the languages being used in the classroom. Furthermore, the report stresses the importance of observers having knowledge of the tribes (Barnes, Belleau, Sarche, Farrell, Fitzgerald, Lee, & Sarche, 2012).

Roehrig, Dubosarksy, Mason, Carlson, and Murphy (2011) have added to our understanding of CLASS in tribal classrooms. They provided inquiry-based professional development to 37 tribal Head Start teachers and found a statistically significant increase in CLASS scores after two years.

In order to deepen understanding of the use of the CLASS in tribal programs, in the fall of 2018, Teachstone began to develop a Tribal Advisory Council, starting with a listening session at the Region XI Head Start Training Conference in Albuquerque, New Mexico. This work grew out of Teachstone's organizational commitment to provide and cultivate equitable and culturally and linguistically relevant experiences for the learners we serve directly and those with whom they interact. Teachstone is eager to build cultural competence and to listen with openness to the perspectives of tribal leaders so that their input can be integrated into our work. Following the listening session, Teachstone has held quarterly meetings with representatives from tribal Head Start grantees, with the purpose of improving and strengthening support for the implementation of CLASS in both assessment and professional development in tribal Head Start programs.

International Validation of CLASS

A robust and growing international literature demonstrates the validity of CLASS across cultures, including key studies in Latin America, Asia, and Europe. CLASS has also been widely used for professional development in both Ecuador and Chile, where Spanish is the primary language.

In Ecuador, the Inter-American Development Bank ran a longitudinal randomized controlled trial for over six years, using a multi-year random-assignment experiment to see how classrooms, teachers, peers, and parents affect learning outcomes in a sample of over 24,000 children. The project used CLASS to better understand the characteristics and practices of the

teachers who are most successful in closing the achievement gap between the poorest children in their classrooms and their better-off schoolmates.

Among its findings, the study found that

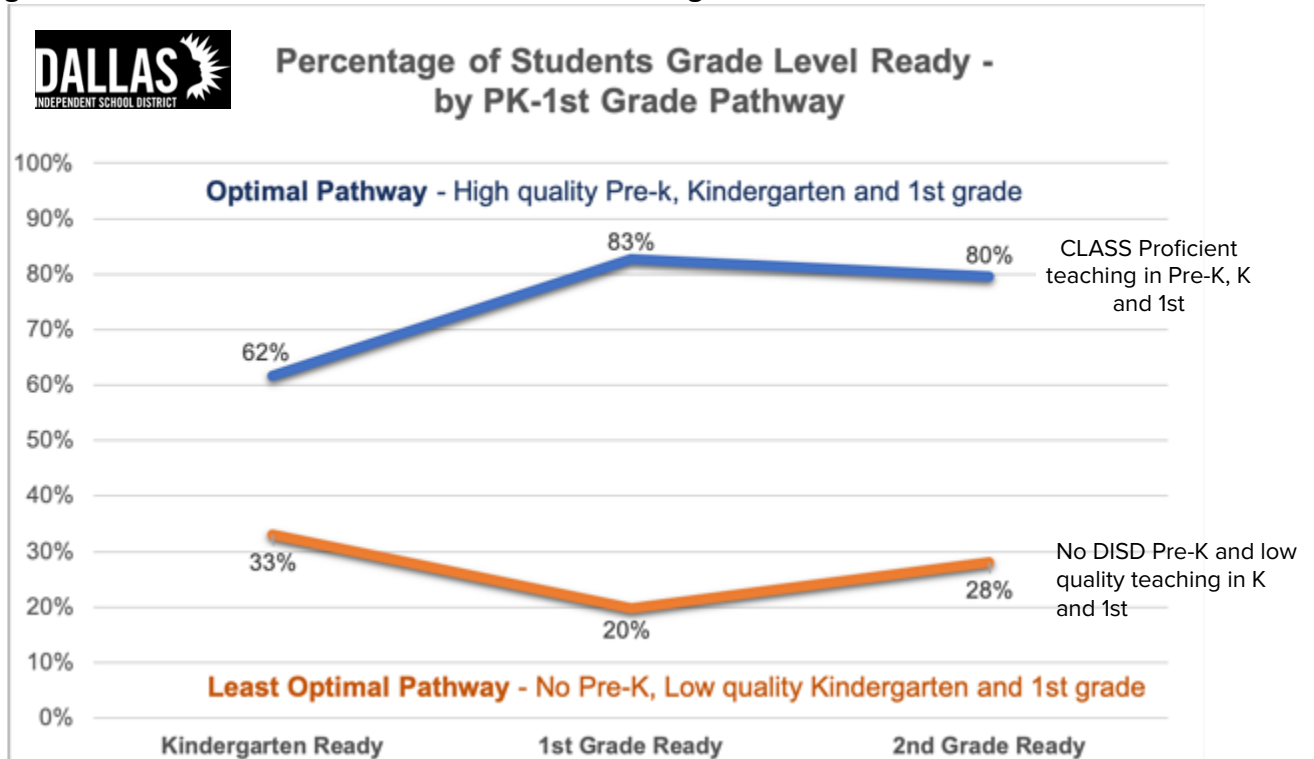
- Teachers have substantial impacts on children's learning outcomes in math, language, and executive function;
- Teacher characteristics, on which much of the current selection, evaluation, and compensation systems in Latin America are based, account for very little of the variability in teachers' performance;
- Other uncommonly measured characteristics, including IQ and personality traits, are also poor predictors of teacher effectiveness;
- In contrast, teachers' classroom behaviors and practices as measured by CLASS are strongly associated with better learning outcomes;
- All children benefit from classrooms with higher CLASS scores, with no distinction between girls and boys, or among children of differing socioeconomic status; and
- The effects of teachers with higher CLASS scores in kindergarten and first and second grade classrooms have lasting impacts on children's learning outcomes. These results drove the development of one of the most innovative CLASS-based professional development programs to be piloted in the region (Araujo et al., 2016).

Use of CLASS in State and Local Quality Improvement Efforts

In addition to the adoption of the CLASS for classroom quality assessment by the Office of Head Start, the CLASS is used as part of more than 24 state quality rating and improvement systems (QRIS), and by school districts and early childhood programs around the world to support teacher effectiveness.

Within the United States, a number of large-scale CLASS implementations demonstrate the association between CLASS and child outcomes, including implementations in First 5 California, the Dallas Independent School District, the Florida Office of Early Learning, the Georgia Department of Early Care and Learning, and the Louisiana Department of Education. The demographics of each of these locations is diverse, and Dallas, Florida, and California each have large numbers of DLLs in their schools and early care programs. Dallas ISD, whose enrolled population is majority minority, with 69% Hispanic children, 20% African American, and 10% other, saw CLASS scores increase in their pre-K programs over the course of two years. As shown in Figure 1, the district demonstrated that children in classrooms with more effective teacher-child interactions as measured by CLASS across preschool, kindergarten and first grade were almost 3 times as likely to be "on-track" in their academic performance as were children who experienced less effective interactions over this period (CORE, 2018).

Figure 1. Children achieve more in classrooms with higher CLASS scores in Dallas ISD.



Conclusion

CLASS has proven to be an effective tool for measuring and improving learning and development outcomes for children across the United States and many other countries, and this growing body of research provides strong and compelling evidence that the teacher-child interactions measured by CLASS specifically support learning and development for children from a range of cultural and language backgrounds.

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