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**Exploring Associations Among Teacher Training, School Readiness, and Instructional
Practices in Transitional Kindergarten Classrooms**

by

Emanuel J. Pérez

A dissertation submitted in partial satisfaction of the requirements for the degree of Doctor
of Philosophy in Counseling, Clinical, and School Psychology

Committee in charge:

Professor Matthew Quirk, Chair

Professor Erin Dowdy

Professor Jon Goodwin

June 2026

The dissertation of Emanuel J. Pérez is approved.

Erin Dowdy

Jon Goodwin

Matthew Quirk, Committee Chair

Exploring Associations Among Teacher Training, School Readiness, and Instructional
Practices in Transitional Kindergarten Classrooms

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by

Emanuel J. Pérez

ACKNOWLEDGEMENTS

I am immensely grateful to the individuals in my life who have guided and supported me throughout my graduate school journey. When I began graduate school, I arrived on campus during the tail end of the COVID-19 pandemic, when schools were closed, and the Santa Barbara community faced ongoing disruptions due to the global public health crisis. I spent countless hours attending Zoom classes and fulfilling my responsibilities as a resident assistant, organizing virtual—and later in-person—events for graduate students. During this time, I was fortunate to receive guidance and support from fellow graduate students in my program who were also resident assistants. They helped prepare me for important program milestones and became some of my closest friends. I am deeply thankful to Isabel Lopez, Alessandra (Allie) Mittelstet, Jackie Chin, Arnold Rodríguez-Robles, and Lakhvir Kaur for their friendship and support throughout graduate school.

I am also grateful for the friendships I formed in my program, including those with Julian McGuiness, Meghna Paul, and Reilly Caldwell. Thank you for the many games of ping pong, tennis, and pickleball, as well as for engaging with my research ideas. I appreciate each of you. I also thank my friends from the UCSB tennis community, including Kai Shek (Clayton) Qwah, Nazerke Turtayeva, Seonmin “Will” Heo, Eunwoo Yoo, and Harsh Shah, for welcoming me into your group and allowing me to contribute to a community that will continue to benefit future students. I am also grateful to Qianqian Chen for the date nights, walks at Goleta Beach, and warm meals. Thank you, Qianqian, for your care and for sharing this journey with me. I am especially grateful to my parents, who have always encouraged me to follow my dreams and have provided unwavering emotional support throughout my life. —*Gracias a mis padres por siempre apoyarme, motivarme a seguir mis sueños y brindarme amor y apoyo*

incondicional.— I am also grateful to my brothers, Ricardo and David Pérez, for providing me with emotional support and for being my best friends. Finally, I thank my faculty for their time, mentorship, and commitment to my development as a psychologist. I am especially grateful to Dr. Deborah Umansky for her supervision during my internship year and her invaluable life advice; to Drs. Jonny Goodwin and Shane Jimerson for their enthusiasm and support; and to Drs. Erin Dowdy and Matthew Quirk for welcoming me to UCSB and creating opportunities to serve the Santa Barbara community. I am eternally grateful to each of you. Thank you!

DEDICATION

To my parents, Rosa María Soria and José Pérez, thank you for instilling in me the value of family. I am deeply grateful for your sacrifices to create a better life for our family. I will love you always. *A mis padres, Rosa María Soria y José Pérez, gracias por inculcarme el valor de la familia. Les estoy profundamente agradecido por sus sacrificios para brindarnos una mejor vida. Los amaré siempre.*

VITA OF EMANUEL J. PÉREZ
EDUCATION/TRAINING

Santa Barbara Psychology Internship Consortium (SB-PIC) August 2025-June 2026
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School-Based Track

- **School District:** Carpinteria Unified School District (CUSD)

University of California, Santa Barbara (UCSB) June 2026

Ph.D., Clinical, Counseling, and School Psychology (Emphasis)

M.Ed., School Psychology June 2023

- **Psychology GPA:** 4.0

University of California, Los Angeles (UCLA) June 2020

Bachelor of Arts, Psychology

Minor in Applied Developmental Psychology

- **Psychology GPA:** 3.5
- **Certifications:** Child Development Site Supervisor Credential (Issued 2020)

AWARDS

- 2024 UCSB Ray E. Hosford Research Fellowship (**\$1,100**)
- 2023 UCSB Outstanding Service Award for Graduate Student Housing
- 2022 UCSB Outstanding Service Award for Graduate Student Housing
- 2021 Hispanic Scholarship Fund Scholar (**\$500**)
- 2020 Research Opportunities Program Scholar (**\$2,500**)
- 2018 Sal Castro Memorial Scholarship for Aspiring Educators (**\$1,000**)
- 2017-2018 UCLA Residential Association Leader Award (**\$900**)
- 2016 Hispanic Scholarship Fund Scholar (**\$500**)
- 2016 Cien Amigos IME Scholarship Education Fund (**\$300**)
- 2016-2018 UCLA Dean's List (3 quarters)

TEACHING EXPERIENCE

Teaching Assistant

University of California, Santa Barbara (UCSB)

- **Career-average** teaching evaluation score: **1.25 (Excellent range;** 1 = Excellent, 2=Very Good, 3=Fair, 5=Poor)
- Counseling, Clinical, and School Psychology (CNCSP) 101- **Helping Skills** Fall 2022
- Counseling, Clinical, and School Psychology (CNCSP) 112- **Positive Psychology** Winter 2023

- Counseling, Clinical, and School Psychology (CNCSP) 112- **Positive Psychology**
Summer 2024
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STUDENT ADVISEES

Research Mentorship & Supervision

- Mentored **Giselle V.** admitted to the M.A. in **School Psychology, Loyola Marymount University**
 - Mentored **Cherry L.** admitted to the Ed.S. in **School Psychology, Fresno State University**
 - Mentored **Ariel W.** admitted to the M.A. in **Counseling Psychology, California State Polytechnic University, Humboldt**
 - Mentored **Alexa R.** admitted to the M.A. in **Marriage and Family Therapy, California State University, Northridge**
-

CLINICAL EXPERIENCE

School Psychology Intern

August 2025-June 2026

Santa Barbara Internship Consortium – *Carpinteria, California*

Supervisor: Deborah Umansky, PhD

Patient Population: Adolescents and School-age children

Interventions:

- Administer individual assessments of social-emotional, behavioral, cognitive, and academic functioning.
- Conduct bilingual (English/Spanish) cognitive and academic assessments, including evaluation of language dominance, to ensure accurate measurement of children's abilities.
- Prepare comprehensive psychoeducational reports that integrate assessment data to identify students' strengths and needs.
- Provide feedback to parents, teachers, and multidisciplinary teams regarding diagnostic assessment results.
- Conduct individual counseling with children and adolescents.
- Assist school staff with crisis intervention and risk assessment procedures.
- Participate in Individual Education Program (IEP) meetings and contribute to multidisciplinary eligibility decisions.

Family Service Agency – School-Based Therapist

April 2024-June 2025

Santa Barbara, California

Supervisor: Carol Morgan, LMFT

Patient Population: School-age children

Interventions:

- Provided direct services to high-risk children and families through direct counseling support, networking, and referral to community-based agencies.

- Assisted children in developing behavioral skills through modeling, rehearsal, coaching, and reinforcement.
- Collaborated with school-based support teams, including school psychologists, family advocates, and mental health counselors.

San Marcos High School – Advanced Practicum Student

August 2023-June 2024

Santa Barbara, California

Supervisors: Kaitlyn Bathel, M.Ed.. & Erin Dowdy, PhD

Patient Population: Adolescents

Interventions:

- Provided counseling, crisis management, and consultations.
- Completed integrated case reports independently and presented results at Individual Education Program (IEP) meetings.
- Conducted review of records, classroom observations, interviews, and assessments for special education referrals.

Isla Vista Elementary School – Practicum Student

August 2022-June 2023

Santa Barbara, California

Supervisors: Alejandra Serrano, M.S. & Jon Goodwin, PhD

Patient Population: School-age children

Interventions:

- Assisted a school psychologist with counseling, crisis management, report writing, and consultation cases at an elementary school.
- Collaborated with families, school psychologists, speech therapists, occupational therapists, and Special Education teachers to support students via an Individualized Education Program.
- Conducted Individualized Education Program meetings in Spanish and English to communicate with Spanish-speaking families and English-speaking staff about students' progress.
- Wrote full psychoeducational reports and conducted assessments with children to identify students' cognitive and academic strengths and challenges.

PUBLICATIONS

Rodriguez Robles, A., **Perez, E.**, Caldwell, R., Paul, M., McGuinness, J., & Quirk, M. (under review). *Does language influence executive functioning? A mediation analysis in school-aged children.*

Perez, E., Quirk, M., Robertson, M., Dowdy, E., Rodriguez Robles, A., McGuinness, J., Geng, A., Feinberg, D., Paul, M., Kenner, C., Terzieva, A., & Felix, E. (2025). Promoting Early School Success: Protective Factors and Parental Engagement as Pathways to Kindergarten Readiness. *European Journal of Education*, 60(4), e70291.

<https://doi.org/10.1111/ejed.70291>

Quirk, M., Terzieva, A., Robertson, M., **Perez, E.**, Geng, A., Spiess, M., Kenner, C., Dowdy, E., & Felix, E. (2025). Supporting children, families and schools: A community–university partnership to promote school readiness. *School-University Partnerships*, 18(2), 215–229. <https://doi.org/10.1108/SUP-11-2024-0029>

Robles, A. R., Quirk, M., Paul, M., **Perez, E.**, McGuinness, J., Dowdy, E., Gonzalez, E. G., Lara, C. Z., & Draper-Rodriguez, C. (2025). Culturally and Linguistically Responsive MTSS: Ethical and Actionable Strategies for Supporting Multilingual Learners in Multi-Tiered Frameworks. *Psychology in the Schools*, 62(9), 3173–3183. <https://doi.org/10.1002/pits.23533>

McGuinness, J., Paul, M., Rodriguez Robles, A., **Perez, E.**, Caldwell, R., Feinberg, D., Edelman, E., & Quirk, M. (2026). Language Growth Across Bilingual Education Models: A Longitudinal Study. Manuscript under review.

RESEARCH EXPERIENCE

Dissertation

October 2024-Present

University of California, Santa Barbara

Title: Exploring Associations Between Teacher Training, Perceptions of School Readiness, and Instructional Practices Among Transitional Kindergarten Teachers

Chair: Mathew Quirk, PhD., UCSB

- Conducting a mixed-methods study exploring associations between teacher training, perceptions of school readiness, and instructional practices among transitional kindergarten teachers.

Identifying Indicators of Preschool Quality

September 2022– June 2024

Carpinteria Children's Project & University of California, Santa Barbara

- The overarching purpose of this study was to examine the teaching practices of preschool teachers at a local school in Santa Barbara County as it relates to the learning of linguistically diverse students using three observational tools commonly used to assess classroom quality. Results on these observational tools (i.e., the CLASS, ELLCO-DLL, and the PAI) were then related to student scores on the Individual Growth and Development Indicators (IGDIs), a brief language development screener.

Dual Language Immersion Project

March 2022-June 2025

Canalino Elementary School & University of California, Santa Barbara

- Assist in a longitudinal study investigating whether a dual language immersion program implemented in a local elementary school improves students' cognitive and linguistic outcomes.
- Recruit, train, and organize a team of 17-research assistants with two graduate students.
- Assess students' Spanish and English skills utilizing the Oral Language Proficiency Test (IPT), an assessment that measures language proficiency.

First 5 Santa Barbara Evaluation and Consultation Project. September 2021-June 2025
First 5 & University of California, Santa Barbara

- This project is in response to an evaluation contract with Santa Barbara County First 5. We have been working with participating school districts on their Early Learning Planning Grants. These grants have been awarded to districts in the county in order to expand programs to support children and families during the 0-5 years. In particular, school districts are being asked to create programs that meet the needs in their local communities and develop evaluation plans to determine if these programs meet their desired impacts. Specifically, these evaluations focus on outcomes both during the preschool years but also during the early elementary grades bridging the preK and K-12 data systems. I also consult with school districts to support the development of these evaluation plans and also run data analyses and report back to stakeholders on the effectiveness of these programs. School readiness, family engagement, and social-emotional development have been focus areas.

Language and Cognitive Development (LCD) Lab September 2019-June 2020
University of California, Los Angeles

- Managed study examining how children's native language affects their ability to learn spatial relations in another language.
- Reviewed literature on spatial relational learning and found that to express relations of containment and support, English utilizes "in" and "on" respectively while Spanish categorizes these same relations more broadly such that "en" refers to both containment and support relations, and Korean categorizes containment narrowly such that "kkita" and "nehta" refer to objects fitting tightly or loosely.
- Designed stimuli for two conditions. In the first condition, children first learned novel broad spatial categories (e.g., "en"), then they learned and were tested on narrow categories (e.g., "kkita"). In the second condition, the order switched, such that children learned the narrow categories followed by the broad ones.
- Collected pilot data and found that participants may have learned the relations presented to them since the words correctly identified were higher than chance for most sets of trials.
- Wrote a 10-page research paper detailing the study's background, research questions, methodology, and results.
- Created instructional plan for three research assistants' quarterly projects to complete participant recruitment, data collection, and research assistant training.
- Successfully submitted abstracts to be presented at the Psychology Undergraduate Research Conference and the Undergraduate Research Week at the University of California, Los Angeles.

CONFERENCE PRESENTATIONS

Perez, E., Lam, C., Patron, T., Rodriguez Robles, A., Paul, M., McGuinness, J., & Quirk, M. (2026). Observed Instructional Strategies in Prekindergarten: Guidance for Educators and Psychologists. Poster accepted for presentation at the NASP Conference in Chicago, Illinois.

Rodriguez Robles, A., McGuinness, J., Paul, M., Caldwell, R., **Perez, E.**, & Quirk, M. (2026). Exploring Patterns of School Readiness Among Transitional Kindergarten Students. Poster accepted for presentation at the NASP Conference in Chicago, Illinois.

Perez, E., Lopez Sosa, D., Rodriguez Robles, A., Geng, A., Quirk, M., Dowdy, E., Terzieva, A. (2025). Empowering Futures: Latine Parental Engagement and Kindergarten Readiness. Poster Presented at the NASP Conference in Seattle, Washington.

Lopez Sosa, **Perez, E.**, D., Rodriguez Robles, A., Geng, A., Quirk, M., Dowdy, E., Terzieva, A. (2025). Empowering Futures: Latine Parental Engagement and Kindergarten Readiness. Poster Presented at the NASP Conference in Seattle, Washington.

Paul, M., McGuinness, J., Rodriguez Robles, A., **Perez, E.**, Feinberg, D., & Quirk, M. (2025). Language Growth Across Bilingual Education Models: A 7-Year Study Findings. Poster presented at the NASP Conference, Seattle, Washington.

Rodriguez Robles, A., **Perez, E.**, Paul, M., McGuinness, J., Fienberg, D., & Quirk, M. (2025). Executive Functioning Across Language Education Models. Poster presented at the NASP Conference in , Seattle, Washington.

Perez, E., Hutchinson, S. P., Rodriguez Robles, A., & Spiess, M. (2024). Exploration of parental engagement and protective factors on kindergarten readiness. Poster presented at the NASP Conference in New Orleans, Louisiana.

Hutchinson, S. P., **Perez, E.**, Spiess, M., & Hinojosa, G. (2024). Preschool matters: Making preschool accessible for all families. Poster presented at the NASP Conference in New Orleans, Louisiana.

Perez, E., Spiess, M.I., Edelman, E.R., Amirazizi, S.A., Quirk., M., Dowdy, E., & Feinberg, D.K. (2023, February). Promoting Kindergarten Readiness by Supporting Parents, Poster presented at the NASP Conference in Denver, Colorado.

Perez, E., Edelman, E.R., Quirk., M., & Feinberg, D.K.(2023, February). Identifying Indicators of Preschool Quality for Multilingual Learners, Poster presented at the NASP Conference in Denver, Colorado.

Feinberg, D.K., Edelman, E.R., **Perez, E.**, Rodriguez, A.R., Quirk, M. (2023, February). An Examination of Language Growth Across Elementary Bilingual Education Models. Poster presented at the NASP Conference in Denver, Colorado.

Edelman, E., Amirazizi, S., Quirk, M., Dowdy, E., Feinberg, D., & **Perez, E.** (2022, February). Supporting parents in the transition to kindergarten [Poster presentation accepted but unable to be presented due to COVID-19]. NASP 2022 Annual Convention, Boston, MA, United States.

Perez, E. (2020, May). The Effect of Language Experience on Spatial Relations, Paper presented at the Psychology Undergraduate Research Conference in Los Angeles, California.

Perez, E. (2020, May). The Effect of Language Experience on Spatial Relations, Paper and Poster presented at the 7th Annual Undergraduate Research Week in the University of California, Los Angeles.

Perez, E. (2020, March). The Role of Parental Education in Mediating Academic Inclinations within Timed and Untimed Conditions, Poster Presented for a course in the University of California, Los Angeles.

Perez, E. (2020, February). The Influence of Locomotion on Child-Initiated Play Behavior: How do Walking and Crawling Children Compare? Research Proposal presented for a course at the University of California, Los Angeles.

REPORTS

Spiess, M., **Perez, E.**, Quirk, M., Dowdy, E., & Felix, E. (2024). First 5 Santa Barbara County Annual Impact Reports 2023-2024. Reports submitted to First 5 Santa Barbara County.

Perez, E., Spiess, M., Quirk, M., Dowdy, E., & Felix, E. (2024). Early Learning Implementation School Districts Countywide Data Reports 2023-2024. Report submitted to First 5 Santa Barbara County.

Spiess, M., **Perez, E.**, Quirk, M., Dowdy, E., & Felix, E. (2024). Family Survey Data Reports 2023-2024. Reports submitted to First 5 Santa Barbara County and nine Santa Barbara County school districts.

Perez, E., Spiess, M., Quirk, M., Dowdy, E., & Felix, E. (2023). Kindergarten Student Entrance Profile (KSEP) Data Reports 2023-2024. Reports submitted to First 5 Santa Barbara County and nine Santa Barbara County school districts.

Spiess, M., **Perez, E.**, Quirk, M., Dowdy, E., & Felix, E. (2023). Demographics Data Reports 2023-2024. Reports submitted to First 5 Santa Barbara County and nine Santa Barbara County school districts.

Terzieva, A., Spiess, M., **Perez, E.**, Quirk, M., Dowdy, E., & Felix, E. (2023). Early Learning Implementation School Districts Countywide Data Report 2022-2023. Report submitted to First 5 Santa Barbara County.

Spiess, M., **Perez, E.**, Amirazizi, S., Terzieva, A., Quirk, M., Dowdy, E., & Felix, E. (2023). Parent Engagement (PEFL) Data Reports 2022-2023. Reports submitted to First 5 Santa Barbara County and nine Santa Barbara County school districts.

Perez, E., Spiess, M., Amirazizi, S., Terzieva, A., Quirk, M., Dowdy, E., & Felix, E. (2023). Parent Assessment of Protective Factors (PAPF) Data Reports 2022-2023. Reports submitted to First 5 Santa Barbara County and nine Santa Barbara County school districts.

Perez, E., Spiess, M., Amirazizi, S., Terzieva, A., Quirk, M., Dowdy, E., & Felix, E. (2022). Kindergarten Student Entrance Profile (KSEP) Data Reports 2022-2023. Reports submitted to First 5 Santa Barbara County and nine Santa Barbara County school districts.

Terzieva, A., Spiess, M., **Perez, E.,** Amirazizi, S., Quirk, M., Dowdy, E., & Felix, E. (2022). Demographics Data Reports 2022-2023. Reports submitted to First 5 Santa Barbara County and nine Santa Barbara County school districts.

Terzieva, A., Quirk, M., Dowdy, E., Amirazizi, S., Spiess, M., & **Perez, E.** (2022). First 5 Santa Barbara County Annual Impact Reports 2021-2022. Reports submitted to First 5 Santa Barbara County.

Spiess, M., Amirazizi, S., **Perez, E.,** Terzieva, A., Edelman, E., Quirk, M., & Dowdy, E. (2022). Parent Assessment of Protective Factors (PAPF) Data Reports 2021-2022. Reports submitted to First 5 Santa Barbara County and four Santa Barbara County school districts.

Edelman, E., Amirazizi, S., Spiess, M., **Perez, E.,** Terzieva, A., Quirk, M., & Dowdy, E. (2021). Kindergarten Student Entrance Profile (KSEP) Data Reports 2021-2022. Reports submitted to First 5 Santa Barbara County and four Santa Barbara County school districts.

Terzieva, A., Amirazizi, S., Spiess, M., **Perez, E.,** Edelman, E., Quirk, M., & Dowdy, E. (2021). Demographics Data Reports 2021-2022. Reports submitted to First 5 Santa Barbara County and four Santa Barbara County school districts.

Spiess, M., **Perez, E.,** & Quirk, M. (2021). First 5 Santa Barbara County Dual-Language Learner Expansion Grant: Year End Summary 2020-2021. Report submitted to First 5 Santa Barbara County.

PROFESSIONAL EXPERIENCE

Residential and Community Living

June 2021-June 2025

Resident Assistant, University of California, Santa Barbara, California

- Provided a welcoming environment by continually outreaching to students to create a sense of belonging and connection to the graduate student housing community.
- Assisted in the development, writing of articles, and editing of the newsletter to direct residents to events in the residential community.
- Served in an on-call duty rotation when the offices are closed to respond to the needs of residents as they arise.
- Educated residents about university and apartment policies to ensure the safety of all members of the community.

Orfalea Children's Center

May 2021- September 2021

Child Development Assistant, University of California, Santa Barbara, California

- Supported three separate classrooms of infants and toddlers between 3 months to 3 years of age by maintaining staff-to-child licensing ratios, meeting children's daily routines (e.g., feeding, sleeping, and diaper changes), and practicing an emergent curriculum emphasizing the whole child.
- Recorded children's developmental milestones in learning journals to share with families.
- Emphasized the role of nurturing relationships and play as a primary context for children's learning by respecting children's autonomy (e.g., providing children with choices and letting them know when and in what order events will occur).

Empire Union School District

November 2020-May 2021

Paraprofessional, 1:1 Moderate/Severe

- Recorded children's developmental milestones in learning journals to share with families.
- Emphasized the role of nurturing relationships and play as a primary context for children's learning by respecting children's autonomy (e.g., providing children with choices and letting them know when and in what order events will occur).
- Assisted in the training of students individually to reinforce and follow up on learning activities.
- Met with two separate children on alternate days of the week at Siphred Elementary School to implement and follow their education plans.
- Collaborated with teachers, parents, and other school professionals to create assessments that resulted in effective interventions to support children's learning in the classroom.
- Conducted assessments that measure children's behaviors, emotions of concern, and strengths to improve their learning outcomes.
- Utilized positive reinforcement strategies to engage children with behavioral and emotional difficulties in classroom learning opportunities.

SKILLS

Fluent in Spanish and English (Both written and Oral)

Proficient in SPSS, R, MS Excel, Word, PowerPoint, and Google Suite

ABSTRACT

Exploring Associations Among Teacher Training, School Readiness, and Instructional Practices in Transitional Kindergarten Classrooms

by

Emanuel J. Pérez

As transitional kindergarten (TK) expands, there is an increasing need to identify reliable measures of children's school readiness and to understand how teachers support early learning across diverse classroom contexts. The present dissertation examined how teacher training relates to both teachers' perceptions of children's school readiness and the instructional practices implemented in TK classrooms. In Study 1, multilevel modeling was used to examine whether teachers' training backgrounds were associated with their perceptions of children's school readiness at TK entry. Participants included 50 TK teachers and 829 students from a school district in Central Coastal California. Teachers completed the Prekindergarten School Entry Profile (PSEP) during the first month of the school year. Results indicated that teacher training background was not a significant predictor of school readiness ratings. However, student gender was significant, with girls receiving higher readiness ratings than boys. Although 16% of the variance in readiness scores occurred between teachers, teacher-level variables explained only a small proportion of this variance, suggesting that differences in teachers' rating patterns were not attributable to training background. These findings provide preliminary evidence supporting the reliability of the PSEP across teachers with different training pathways. In Study 2, classroom observations were conducted with 24 TK teachers using a checklist of high-quality instructional practices and supplementary qualitative field notes. Quantitative and qualitative analyses were used to identify patterns in

instructional practices across classrooms. Across both data sources, teachers most frequently implemented language and literacy practices, followed by mathematics and social-emotional practices. Thematic analysis identified three primary themes within language and literacy practices: (1) foundational literacy skills, (2) reading, and (3) writing. Mathematics practices were categorized under four themes: (1) counting and cardinality, (2) operations and algebraic thinking, (3) measurement and data, and (4) geometry and spatial reasoning. Social emotional practices were categorized under one theme, social emotional skills. When disaggregated by teacher training background, checklist findings indicated similar frequencies of instructional practices; however, qualitative analyses of coded text segments revealed more nuanced differences in the types of practices used, with teachers with early care and education experience tending to place greater emphasis on foundational concepts. Taken together, findings from this dissertation suggest that while teachers with different training backgrounds may perceive children's school readiness similarly, differences may emerge in how teachers support learning through instructional practice. These findings provide insight into the instructional practices emphasized in TK classrooms and highlight the importance of using multiple methods to capture variation in teaching practices across diverse training backgrounds.

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Chapter 1: Introduction and Literature Review

Universal prekindergarten (UPK), which includes preschool for children below the age of five, is gaining momentum as a national educational priority, driven by growing recognition of the benefits of early childhood education and state-level policy initiatives to expand access. President Biden advocated for this effort during his presidential campaign and included it as an initiative in the American Families Plan (White House, 2021). In California, Governor Newsom advanced this work through the California Comeback Plan, which expands access to prekindergarten programs such as the California State Preschool Program (CSPP) for income-eligible three-year-old children and establishes Universal Transitional Kindergarten (UTK), a publicly funded bridge program between preschool and kindergarten for all four-year-old children in the state (California Department of Education, 2026; California State Portal, 2021). To meet the demand for qualified teachers during the rapid rollout of Transitional Kindergarten (TK), California permits a variety of credentialing pathways (Commission on Teacher Credentialing, 2026). More specifically, the Commission on Teacher Credentialing outlines seven distinct credentials that qualify individuals to teach TK. While these pathways have expanded the TK workforce, it remains unclear how they influence approaches to classroom instruction, given that credential types range from generalist elementary credentials to specialized early childhood credentials.

Participation in prekindergarten programs, such as TK, may support a wide range of skills, including children's mathematics, language, and socio-emotional development (California Department of Education, 2026). Emerging evidence suggests that these benefits are also likely to persist through the end of kindergarten (Manship et al., 2017). In response to the potential benefits of high-quality universal prekindergarten (UPK) programs and their

recent expansion, the California Department of Education (2026) developed the Preschool/Transitional Kindergarten Learning Foundations (PTKLF). The PTKLF outlines the developmental knowledge and skills children should achieve in high-quality prekindergarten settings and provides strategies teachers can use to support these skills. While the state created a framework for prekindergarten instruction and learning, no research has documented how TK teachers apply these strategies.

Beyond instructional approaches, early education teachers also play a critical role in evaluating children's readiness for school—a process that directly informs data-based decision-making when designing interventions to support learning and determining eligibility for services (Yell, 2019). California allows multiple credential pathways to teach TK, so teachers enter the classroom with varying degrees of preparation in child development, assessment, and early learning expectations. Teachers' varied training backgrounds may shape how they interpret and rate children's skills across developmental domains. Understanding the link between differences in teacher training and their evaluations of children's school readiness is essential, given that these ratings influence early school services and support. Investigating this relationship can ensure readiness measures are equitable and accurate for guiding instruction. Current school readiness measures typically focus on children's age or grade level, overlooking the critical role of variation in teacher training and background as a potential influence on teacher evaluations.

By documenting teachers' instructional strategies in TK classrooms and examining the relationship with their training backgrounds, this study seeks to better understand instructional decision-making. These backgrounds are critical, as they not only influence the strategies teachers use to support children's development but also shape their evaluations of children's

early learning behaviors and readiness skills. Consequently, by examining both instructional and evaluative readiness practices in relation to teacher training, this study aims to inform professional development efforts, support teacher learning, and strengthen the alignment between state guidance and classroom practice.

Although research consistently highlights the importance of early learning experiences, most studies have focused on preschool or kindergarten, with limited attention to TK due to its relatively recent statewide expansion (LaFortune & Hill, 2023). Limited available research emphasizes the specific learning goals TK teachers target or the strategies they use to support children's development (LaFortune & Hill, 2023). Even less is known about how teachers' training backgrounds influence the evaluations they make about children's readiness when they first enter TK. Therefore, additional research is needed to document both the instructional methods and evaluative readiness ratings teachers make to inform classroom instruction and early intervention efforts.

By examining the instructional strategies and school readiness evaluations teachers employ at TK entry, this study provides a crucial understanding of how teacher training and credential background shape both classroom practices and data-based decision-making. This understanding is critical for improving instructional quality and informing teacher training as the program expands. Insights from this research can also inform early education efforts in other states considering universal prekindergarten programs for four-year-old children by providing concrete examples of instructional practices currently used in TK classrooms. Furthermore, results may inform district efforts to select reliable school readiness screeners that yield valid and consistent results across teachers with varied training backgrounds. Ultimately, by providing these findings, this study directly supports educators, policymakers,

and researchers seeking to identify high-quality instructional practices and assisting schools in selecting appropriate readiness assessment tools.

Dissertation Purpose

Building on this need, the purpose of this dissertation was to investigate the relationships between teacher training, instructional practices, and the evaluations teachers make about children's school readiness as they enter TK. This dissertation was designed to examine whether teachers with different training backgrounds differ in their perceptions of children's school readiness. Because these perceptions may shape how teachers make instructional decisions and support children's learning, this dissertation then examined classroom practices; therefore, contributing to the literature by systematically documenting the instructional practices implemented in transitional kindergarten (TK) classrooms and assessing whether these practices vary by teacher training background. First, this dissertation explored how teacher training influences teachers' perceptions of children's school readiness at TK entry, while accounting for the clustering of students within classrooms. This first study drew on survey data documenting teacher training and their ratings of children's school readiness during the first month of TK. Finally, the second study examined teachers' use of evidence-based instructional practices with TK students across the mathematics, language, and social-emotional domains, and investigated how these practices relate to teacher training. Data for this second study included classroom observations utilizing a quantitative checklist of instructional strategies and complementary qualitative field notes. The research questions addressed by the dissertation were as follows:

RQ1: Do TK teachers with different training backgrounds differ in how they perceive children's school readiness at TK entry?

RQ2: What types of instructional practices do Transitional Kindergarten (TK) teachers use in the areas of mathematics, language and literacy, and social-emotional development?

RQ3: Do TK teachers with different training backgrounds differ in their use of instructional practices in the domains of mathematics, language and literacy, or social-emotional development?

History of Prekindergarten Programs in the United States

The origins of prekindergarten programs in the United States can be traced to informal childcare centers established in the 1830s to care for the children of working mothers during the first and second Industrial Revolutions (Kamerman & Gatenio-Gabel, 2007). These early programs primarily provided child supervision rather than formal education as mothers increasingly joined the workforce. Although the popularity of these early programs increased during periods of national crisis—such as the Civil War and both World Wars—enrollment consistently declined after each war ended. It was not until the mid-1960s that prekindergarten programs began to expand on a national scale, driven, in part, by increased public investment in early childhood education.

The first significant federal investment in early childhood education came with the establishment of Head Start, a free, federally funded prekindergarten program launched in 1965 by President Lyndon B. Johnson as part of his War on Poverty initiative (Puma et al., 2010). President Lyndon B. Johnson created Head Start to support children from underserved communities by providing comprehensive services, including prekindergarten education, medical and dental care, mental health support, and nutrition assistance. Since its inception, the program has served over 38 million children from birth through age five, making it one of

the longest-standing and most expansive early childhood initiatives in the United States (Head Start, 2022).

The creation of Head Start in 1965 coincided with the launch of California’s State Preschool Program (SPP), one of the first state-funded prekindergarten programs in the United States (California Department of Education, 2026; National Institute for Early Education Research, 2012). California lawmakers created the SPP to provide early educational opportunities to low-income children who did not meet Head Start eligibility criteria. Together, these programs laid the foundation for the expansion of state prekindergarten initiatives nationwide.

By the 1990s, several states had established their own publicly funded prekindergarten programs. Notably, in 1995, Georgia became the first state to pilot what many experts considered a universal prekindergarten program, offering four-year-old children access to early education regardless of family income (National Institute for Early Education Research, 2012). At the time, Georgia offered families access to the program through a lottery system. In more recent discussions, however, the definition of “universal” prekindergarten has evolved to refer to programs that guarantee free access for all eligible children, rather than offering enrollment through lotteries (Lee, 2025). While Georgia’s model did not fully meet this more recent definition, it represented a significant step toward broader access to prekindergarten education. It also served as an early example of a statewide investment in universal early education, alongside Head Start and the California SPP.

Since then, many other states have expanded their prekindergarten programs. These efforts have included increasing state investment in prekindergarten programs, expanding access to more children, supporting the early care and education workforce, and addressing

infrastructure needs such as classroom space to accommodate growing enrollment (First Five Years Fund, 2021). Over time, these investments have contributed to more states implementing universal prekindergarten programs. Table 1 presents a summary of states that have made notable progress in expanding access to prekindergarten, including those that have implemented universal programs, passed legislation, or expressed formal support for statewide expansion.

Table 1

Status of Universal Prekindergarten Expansion Across U.S. States

Outcome	States
Universal prekindergarten fully implemented for four-year-olds	Florida, Iowa, Oklahoma, Vermont, West Virginia, Wisconsin, and District of Columbia, California
Universal prekindergarten fully implemented for three-year-olds	Vermont, District of Columbia
Currently implementing universal prekindergarten policies	Georgia, Illinois, Maine, New York
Recently passed legislation to implement universal prekindergarten	Colorado, Hawaii, New Mexico
Governor-supported initiatives to expand access to prekindergarten	Michigan, New Jersey

Note. Information summarized from national early childhood education policy updates on universal prekindergarten initiatives (National Institute for Early Education Research [NIEER], 2024).

As shown in Table 1, many states have implemented initiatives to expand access to prekindergarten. While these efforts have occurred nationwide, California has simultaneously continued to develop its own SPP to the present day. The creation of the SPP in 1965 marked the beginning of the state’s long-term commitment to expanding access to prekindergarten, a commitment that has evolved through subsequent legislation.

In 2007–2008, the state established the Prekindergarten and Family Literacy Program (PKFLP), modeled after the SPP. The PKFLP offered half-day and full-day services with an added literacy component for children from low-income families, those receiving protective services, or those identified as being at risk for abuse, neglect, or family violence (National Institute for Early Education Research, 2011). In 2008, California passed Assembly Bill 2759, which consolidated funding for the state’s prekindergarten programs, including the SPP, PKFLP, and general center-based childcare programs—such as childcare centers and family childcare home networks—operated or administered by public agencies, private organizations, or local educational agencies receiving state funding. Under Assembly Bill 2759, California merged its early education programs into the California State Preschool Program (CSPP) (California Department of Education, 2026).

California continued expanding the scope of its prekindergarten programs with the passage of the Kindergarten Readiness Act of 2010 (Senate Bill 1381), signed by Governor Arnold Schwarzenegger (TK California, n.d.). The Kindergarten Readiness Act changed the kindergarten entry date from December 2 to September 1, resulting in most children being 5 years old when they entered kindergarten. It also established TK as a bridge program between prekindergarten and kindergarten for children whose fifth birthdays fell between September and December. In the 2015–2016 school year, the state expanded the cutoff range, allowing school districts to enroll four-year-olds in TK even if they turned five after the December cutoff date. At the time, California limited TK to a few school districts across the state.

In 2021, the TK program expanded rapidly after Governor Newsom signed the California Comeback Plan (Assembly Bill 130) (California State Portal, 2021). The California Comeback Plan initiated a four-year phased expansion of TK beginning in the 2022–2023

school year and continuing through the 2025–2026 school year, at which point the program would be available to all four-year-old children in the state. Overall, the combination of the California State Preschool Program (CSPP), Head Start, and other state-funded center-based childcare programs is now collectively referred to as Universal Prekindergarten (UPK).

Evaluation Efforts of Prekindergarten Programs

Head Start

In 1998, Congress mandated that the U.S. Department of Health and Human Services evaluate the impact of Head Start as a condition for continued federal funding (Puma et al., 2012). The resulting Head Start Impact Study recruited 84 Head Start programs and 5,000 three and four-year-old children and followed them through third grade. Children were randomly assigned to either a Head Start group with access to Head Start or a control group that did not have access to Head Start but was eligible to enroll in alternative prekindergarten programs. Overall, results showed immediate positive cognitive effects for both the 3-year-old and 4-year-old cohorts, as measured by standardized assessments of early language, literacy, and mathematics skills. However, these early cognitive advantages largely diminished by third grade when compared to children who did not attend Head Start. Notably, the researchers did not examine the specific instructional approaches used in Head Start classrooms, nor did they examine teacher credentials or formal training pathways as predictors of children’s academic outcomes. As a result, while short-term cognitive benefits were observed, the mechanisms through which instruction may have contributed to these effects remain unclear.

In the social-emotional domain, children in the 4-year-old cohort who attended Head Start exhibited significantly lower levels of aggressive and total problem behavior by the end of third grade, as reported by parents. Teacher-reported measures, however, indicated less

favorable relational outcomes for this cohort by third grade, including lower perceived teacher–child closeness, fewer positive teacher–child relationships, and higher levels of emotional symptoms relative to peers who did not attend Head Start. These social-emotional outcomes were assessed using behavioral rating instruments completed by parents and teachers, rather than direct observations of classroom practices, limiting conclusions about how instructional interactions or teacher preparation may have shaped these patterns. For the 3-year-old cohort, children who attended Head Start demonstrated fewer hyperactive and total problem behaviors at the end of the Head Start year than non-participants, as measured by parent-completed behavioral rating scales. However, these advantages largely faded by third grade. By the end of third grade, the only remaining social-emotional advantage for this cohort was a more positive approach to learning, as rated by teachers. Like the 4-year-old cohort, these evaluations did not link children’s outcomes to specific instructional strategies, classroom-level practices, or teacher qualifications, underscoring a broader limitation of large-scale program evaluations in identifying how variation in teacher training or instructional approaches contributes to child outcomes.

In the health domain, children in the 4-year-old cohort who attended Head Start were significantly more likely to have received dental care by the end of the Head Start year, as reported by parents. However, these health-related advantages diminished by the end of third grade. Similarly, children in the 3-year-old cohort who attended Head Start were more likely to have received dental care and were more frequently rated by parents as having excellent or good overall health at the end of the program; however, these advantages also largely faded by third grade. Importantly, health outcomes in these evaluations were assessed exclusively through parent-reported measures rather than direct assessments or observations. Although

parents reported significant health benefits for both the 3-year-old and 4-year-old cohorts at the end of Head Start, the evaluations did not examine the mechanisms underlying these outcomes. Specifically, researchers did not assess whether classroom-based practices, teacher–child interactions, or teacher training and qualifications contributed to improvements in children’s health-related outcomes. As a result, it remains unclear whether and how educators’ instructional approaches, professional preparation, or coordination with health-related services may have supported these short-term health gains, highlighting the need for research that explicitly examines the role of teacher education and training in shaping children’s health-related experiences in prekindergarten settings.

In the domain of parenting practices, children in the 4-year-old cohort who attended Head Start had parents who were significantly less likely to use time-out as a disciplinary strategy by the end of the Head Start year. By the end of third grade, parents in this cohort also reported spending more time with their children. For the 3-year-old cohort, parents of children who attended Head Start reported lower rates of spanking, more frequent shared reading, and greater involvement in cultural enrichment activities by the end of the Head Start year. By the end of third grade, parents of children in the 3-year-old cohort were more likely to report using an authoritative parenting style, characterized by high warmth and emotional responsiveness with clear boundaries. However, as in other outcome domains, these parenting practices were assessed exclusively through parent self-report. The evaluations did not examine the mechanisms through which Head Start participation may have influenced changes in parenting behaviors, nor did they assess whether teacher–family interactions, educator training, or program-level instructional practices contributed to these shifts, particularly at later follow-up points. As a result, it remains unclear how early educational experiences may have shaped

parenting practices over time, highlighting a need for research that more directly examines the processes linking early childhood programs, educator preparation, and family engagement outcomes.

The Perry Preschool Project

The Perry Preschool Project was another evaluation effort that examined the long-term effects of prekindergarten education (Schweinhart, 2004). Notably, the Perry Preschool Program operated between 1962 and 1967. During this time, researchers randomly assigned 123 African American children, aged 3 to 4, to either a program group that received prekindergarten education or a control group that did not. They collected information on the children's educational attainment, earnings, and criminal activity through age 40. The results showed that adults who attended the Perry Preschool Program had higher earnings, were more likely to hold jobs, committed fewer crimes, and were more likely to graduate from high school than those who did not attend the program.

Subsequent research sought to better understand the instructional mechanisms underlying these long-term outcomes. In a series of follow-up comparison studies, Schweinhart and Weikart (1997a, 1997b) examined outcomes for 68 children born in poverty who were randomly assigned at ages 3 or 4 to one of three different instructional approaches: (a) a direct instruction model, characterized by scripted, teacher-led instruction focused on explicitly teaching academic skills; (b) the Perry Preschool model, which emphasized child-centered learning through structured classroom routines that supported children in planning, carrying out, and reviewing their own activities across individual, small-group, and whole-group contexts; or (c) a traditional nursery school model, in which teachers responded to children's

self-initiated play within a loosely structured, socially supportive environment. The researchers interviewed each participant at age 23 to gather information about their life-long outcomes.

By age 23, outcomes for participants in the Perry Preschool and nursery school models did not differ significantly from one another across most measures; however, both groups showed several significant differences relative to the direct instruction group. Notably, only 6% of individuals in the Perry Preschool and nursery school groups required treatment for emotional disability during their schooling, compared to 47% of individuals in the direct instruction group. Additionally, a greater proportion of participants in the Perry Preschool (43%) and nursery school (44%) groups reported volunteering in the community, compared to only 11% in the direct instruction group. Differences were also observed across criminal justice and adult functioning outcomes. Only 10% of participants in the Perry Preschool group reported ever being arrested, compared to 39% in the direct instruction group, and no participants in the Perry Preschool group reported property crime arrests, compared to 38% in the direct instruction group. Participants in the Perry Preschool group also reported fewer acts of misconduct, lower perceptions of being treated unfairly by others, higher rates of marriage, and greater expectations of graduating from college relative to participants in the direct instruction group. The nursery school group similarly demonstrated advantages over the direct instruction group, including lower felony arrest rates during early adulthood and fewer work suspensions. Cognitive outcomes were also examined across instructional models. By age 10, average IQ scores across all three groups increased substantially following one year of preschool participation and later converged within the average range.

Overall, the researchers attributed many of the advantages the Perry Preschool and nursery school models had over the direct instruction group to their curricula, which

emphasized child-centered learning that allowed children to reason, negotiate, and plan as they interacted with each other and adults. However, despite attributing differences in children's life outcomes to curricular approach, the researchers did not document the specific instructional practices through which these curricula were enacted. The researchers also did not examine how teacher training might have impacted their approach to instruction, despite recognizing teacher training as a central part in identifying quality.

Abecedarian Project

The Abecedarian Project aimed to assess the long-term impact of early childhood education for children from low-income families (Campbell et al., 2002). In the first phase of the study, 111 infants were matched on a composite sociodemographic risk index and randomly assigned to receive or not receive the Abecedarian preschool intervention, which began in infancy and continued through kindergarten entry. The Abecedarian preschool intervention used a child-centered instructional approach, emphasizing structured educational games that became increasingly conceptual and skill-based as children grew older. Children in the control group did not receive the Abecedarian preschool intervention, although many attended other childcare settings available in the broader community.

In the second phase of the study, at school entry, children in both conditions were re-matched on cognitive functioning (IQ) and randomly assigned to receive or not receive the school-age intervention, resulting in four groups: preschool plus school-age treatment, preschool treatment only, school-age treatment only, and no treatment. The school-age Abecedarian intervention assigned a home-school resource teacher to serve as a liaison between the school and the home during the first three years of public school. This phase focused on increasing parental involvement by providing individualized curriculum packets

with learning activities tailored to each child, mailed to families every other week. Participants were followed longitudinally up to age 21, and 104 individuals were assessed in young adulthood on cognitive functioning, academic achievement, educational attainment, skilled employment, self-sufficiency, and social adjustment.

The researchers found that at age 21, participants who received the preschool intervention, either alone or in combination with the school-age intervention, demonstrated statistically significant differences in cognitive functioning, academic achievement, educational attainment, skilled employment, teenage parenthood, and recent marijuana use compared with participants who received the school-age intervention only or no intervention. These results underscore the importance of early intervention during the preschool years and suggest that intervention delivered prior to kindergarten entry may be more effective than support introduced after elementary school entry in terms of children's long-term outcomes.

While the researchers described the child-centered instructional approach that characterized the Abecedarian Project, they did not examine the specific instructional strategies implemented by teachers or how variation in teacher credentials may have contributed to the observed benefits among children who received the preschool intervention. Consequently, although substantial evidence exists regarding the long-term impacts of the Abecedarian program, further research is needed to identify the specific instructional mechanisms underlying these benefits. Overall, by providing these insights, teachers would be better able to replicate these interventions in their classrooms.

Chicago Child-Parent Centers

The Chicago Child-Parent Centers (CPC) examined long-term outcomes for 1,539 children from low-income families who participated in early childhood programs in Chicago

(Reynolds et al., 2001). The intervention group consisted of 989 children who attended CPC preschool, while the comparison group included 550 children who did not attend CPC preschool and instead participated in alternative early childhood programs, such as full-day kindergarten or other community-based services. Children were followed longitudinally from preschool entry through age 20.

The CPC program used a structured instructional approach focused on achieving basic skills in language arts and mathematics via whole-class and small-group activities. It featured a set of structured learning activities for teachers, low child-to-teacher ratios, and opportunities for family engagement—such as parent workshops, reading groups, classroom volunteering, school events and field trips, outreach (e.g., home visitation, resource mobilization), ongoing staff development, and health, nutrition, and school-age transition services.

Academic outcomes were assessed during elementary school and into early adolescence using school records and standardized achievement measures. Relative to the comparison group, children who attended CPC preschool demonstrated statistically significant advantages across multiple academic domains. Specifically, CPC preschool participants showed higher reading and mathematics achievement, lower rates of grade retention, and lower rates of special education placement during the school years. Juvenile justice outcomes were measured using official arrest records. CPC preschool participants had significantly lower juvenile arrest rates than the comparison group through age 18. By age 20, individuals who had attended CPC preschool demonstrated significantly higher educational attainment, including higher rates of high school completion, than individuals in the comparison group. CPC preschool participants also showed a significantly reduced need for remedial services in school by age 20.

Despite these findings, the researchers, like those in other large-scale early childhood studies, did not document the specific instructional practices teachers used in their classrooms. Thus, while the results suggest long-term benefits of preschool participation, they offer limited insight into how these outcomes were achieved at the instructional level. As a result, it remains unclear which classroom practices foster children's academic and social-emotional growth, or how teacher preparation and training influence these practices.

Tulsa Prekindergarten Project

The Tulsa Prekindergarten Project examined short-term academic outcomes for children who participated in Tulsa's state-funded prekindergarten program and Head Start (Gormley et al., 2008). The study included 1,264 children who attended the Tulsa prekindergarten program and 1,492 comparison children who were about to enter the program. In addition, the researchers examined outcomes for 327 kindergarten students who had attended Tulsa's Head Start program, along with a comparison group of 483 children who were about to enroll. Overall, results indicated that participation in both the Tulsa prekindergarten and Head Start programs was associated with significantly higher performance in letter-word identification, spelling, and applied problems, above and beyond maturational effects. Notably, participation in the Tulsa prekindergarten program placed children approximately 9 months ahead in letter-word identification, 7 months ahead in spelling, and 5 months ahead in applied problems. Participation in the Tulsa Head Start program placed children approximately 6 months ahead in letter-word identification, 3 months ahead in spelling, and 5 months ahead in applied problems. Additionally, while both the Tulsa prekindergarten and Head Start programs demonstrated positive academic outcomes, the researchers suggested that differences in children's gains may have reflected variation in instructional approaches. Notably, the Tulsa

prekindergarten program placed greater emphasis on direct instruction in letters and sounds, while Head Start emphasized imaginative play. Nevertheless, because the study did not include direct measures of classroom instruction, it remains unclear which specific practices were responsible for supporting children's early learning gains in either program. The researchers also did not examine how teacher credentials or qualifications might have impacted their approach to instruction.

Boston Prekindergarten Program

The Boston Public Schools (BPS) prekindergarten program was evaluated using a regression discontinuity design, comparing children who had completed one year of prekindergarten to slightly younger children who had not yet entered the program because they narrowly missed the age-eligibility cutoff (Weiland & Yoshikawa, 2013). Most children who did not attend the BPS program enrolled in other early education programs. Children in the treatment condition received one year of free, full-day prekindergarten in an urban public-school setting. The evaluation year represented the second year of full implementation of two district-selected, research-based curricula that emphasized social-emotional content and mathematics skills, including number concepts, arithmetic, geometry, measurement, and spatial reasoning.

Notably, this was the only project that included explicit information on teacher's qualifications. More specifically, all BPS prekindergarten teachers received curriculum-specific professional development prior to and during the school year, including multiple days of formal training on the curricula used in the study and ongoing on-site coaching. Fidelity data collected during the treatment year indicated that the curricula were implemented with moderately high fidelity across classrooms. All lead teachers were also required to hold at least

a bachelor's degree and to obtain a master's degree within five years of hire. The professional development coaches also held master's degrees and had prior experience teaching in prekindergarten classrooms. Overall, the researchers found that participation in one year of the BPS prekindergarten program had statistically significant, moderate-to-large positive impacts on children's language, literacy, and mathematics skills at kindergarten entry, relative to children who had not yet attended the BPS prekindergarten program. Despite including explicit information on teacher's qualifications and training, the researchers did not document the specific practices teachers used in their classrooms. Thus, while the results suggest that the BPS program was associated with positive academic outcomes, it remains unclear which classroom practices foster children's academic growth, or how variation in teacher preparation influences these practices.

Transitional Kindergarten in California

Recently, Transitional Kindergarten (TK) was evaluated using a regression discontinuity design that compared children who completed one year of TK with slightly younger children who had not yet entered the program because they narrowly missed the age-eligibility cutoff (Manship et al., 2017). The evaluation examined children's academic skills (language/literacy and mathematics), executive functioning, and social skills. Results indicated that children who attended TK demonstrated significantly higher academic skills in language/literacy and mathematics, as well as higher classroom engagement, as rated by teachers. No significant differences were found in executive functioning. However, consistent with other large-scale evaluations, the researchers acknowledged that the study did not examine the factors underlying these gains. Instead, they hypothesized that shared features of TK programs—such as bachelor's-level teachers with elementary teaching experience and a

program framework designed to support transitions to kindergarten (e.g., the Preschool/Transitional Kindergarten Learning Foundations)—may contribute to TK’s impact. As a result, the authors emphasized the need for future research to document specific instructional practices in TK classrooms to better understand the mechanisms through which TK and other prekindergarten programs support children’s learning.

High Quality Instructional Practices in Prekindergarten Programs

States across the country have made significant strides in expanding prekindergarten programs in response to growing evidence on the potential benefits of early education. One notable factor that may contribute to the effectiveness of these programs is that the age group they serve typically aligns with the developmental period when children’s brains are susceptible to environmental experiences (Brown & Jernigan, 2012). During this time, simple neurons and skills develop first, followed by more complex neural connections and skills. Through repeated use, children strengthen the neural connections associated with specific learning experiences and behaviors (Brown & Jernigan, 2012). As children’s brain development continues, the brain undergoes a process called synaptic pruning, a process in which it eliminates less-used neural connections to improve its efficiency. Because early experiences shape the brain’s architecture, they play a crucial role in laying the foundation for future learning and development. Prekindergarten programs may provide structured experiences that support conditions conducive to taking advantage of the brain’s heightened plasticity during early childhood.

Notably, a substantial body of evidence indicates that high-quality prekindergarten experiences can support children’s school readiness, particularly in the areas of mathematics, language and literacy, and social-emotional development (California Department of Education,

2026). These domains are widely recognized by educators and researchers as key components of school readiness (Kriegel et al., 2021; Pan et al., 2019; Snow, 2006). Furthermore, experts generally agree that these domains serve as foundational areas that support children’s broader school readiness outcomes (Meloy & Schachner, 2019). The following sections review the developmental skills that children should acquire in prekindergarten programs and the instructional practices that support their acquisition. The sections in this part of the review conclude with Table 2, which lists the instructional practices discussed below along with their potential benefits for children’s learning.

Mathematics

Experts generally agree that children are born with an innate ability to understand basic mathematical concepts (California Department of Education, 2026). In fact, without formal schooling or verbal ability, infants can discriminate between different quantities and understand basic arithmetic concepts (Christodoulou et al., 2017). Despite this innate ability, researchers also recognize that mathematics is generally a hierarchical subject in which mastery of foundational concepts is required for understanding more difficult mathematical concepts (Watts et al., 2018). Prekindergarten programs have the potential to play an essential role in supporting this progression by helping children build on their innate mathematical understanding through guided instruction from teachers (California Department of Education, 2026).

There are many high-quality practices that teachers can use to support children’s mathematical development in prekindergarten programs. For example, teachers can promote counting skills by first working with children on activities that involve reciting numbers, then using one-to-one correspondence, and finally answering “how many?” questions (California

Department of Education, 2026; Clements & Sarama, 2010). These practices align with the developmental progression of counting in the early childhood years, as children between the ages of three and four typically acquire these skills with appropriate support from teachers (Clements & Sarama, 2010).

Teachers can also support children’s ability to recognize quantities. As such, instructional practices that involve subitizing — defined as recognizing the number of items in small collections without counting — are essential because they support children’s early counting skills by providing an efficient way to recognize small groups of objects without having to count them individually (California Department of Education, 2026; Clements, 1999; Wilkins et al., 2022). Over time, subitizing can help children learn to count on from a known number rather than starting over at number one each time (Wilkins et al., 2022).

Another effective instructional practice teachers can implement is supporting children’s numeral recognition by helping them identify and name written numbers. Numeral recognition helps children connect number symbols to real quantities, allowing them to focus on solving problems instead of spending too much time trying to decipher the meaning of the numbers presented to them (Sarnecka & Carey, 2008). Children in prekindergarten age should learn to recognize numbers up to 10 (California Department of Education, 2026).

Teaching number comparison is another valuable instructional practice. When teachers encourage children to compare groups of objects—such as toys, leaves, or shells—they promote an understanding of number relationships, helping children identify whether groups are equal or different in terms of quantity and size. Teachers can use vocabulary such as “more,” “same,” “less,” or “fewer,” when comparing collections of items to help children develop their sense of number relationships (California Department of Education, 2026).

Teaching addition and subtraction is another high-quality instructional practice that helps children understand how quantities increase or decrease when items are combined or taken away—an essential skill for early arithmetic and problem-solving. Prekindergarten teachers can support children’s early understanding of addition and subtraction by asking questions about changes in quantity when adding or subtracting objects from a set. Another high-quality strategy for learning the principles of addition is modeling “counting on”, where children begin with a given number and continue counting to solve addition problems. While teachers often use everyday language to describe addition and subtraction—such as “take away,” “how many are left,” or “altogether”—they can gradually introduce formal mathematical vocabulary like “add” and “subtract.” Over time, teachers can also introduce mathematical symbols alongside this language to help children begin to connect everyday problem-solving experiences to abstract mathematical representations (California Department of Education, 2026).

Prekindergarten teachers can also help children develop organizational thinking by having them sort and classify objects based on attributes such as color, shape, and size. Sorting and classifying are critical instructional practices because they mirror the initial steps of data analysis, which typically involve grouping data into categories. In this way, sorting and classifying support children’s ability to analyze data by teaching them that information can be organized by key features to reveal relationships between categories (California Department of Education, 2026; Lewis Presser et al., 2023).

Patterning is another high-quality instructional practice because it helps children build early algebraic thinking skills (Larkin et al., 2021). A key part of algebraic thinking is learning how to identify and describe rules that explain the relationships between different things.

Patterns provide children with a way to practice algebraic thinking by noticing regularities in repeating sequences. For example, when children identify a repeating pattern, such as red-blue-red-blue, also known as an ABAB pattern, they are learning to recognize and apply a rule for a particular sequence (California Department of Education, 2026).

Teaching children to identify and describe two- and three-dimensional shapes is a high-quality instructional practice that supports spatial thinking and early geometry skills (Pritulsky et al., 2020). As children learn to recognize, compare, and describe shapes based on their attributes—such as sides, angles, and faces—they begin to develop the ability to mentally visualize and manipulate objects in space (Verdine et al., 2014). These spatial reasoning skills form the foundations for problem-solving and later mathematics learning (Mix & Cheng, 2012). Teachers can help children learn about shapes using open-ended materials, such as blocks, tangrams, or puzzles, which encourage children to rotate, flip, or combine shapes through space. Teachers can also help children learn shapes by naming them during classroom activities and labeling them by defining features (e.g., the number of sides on a square) (California Department of Education, 2026).

In summary, high-quality mathematics instruction in prekindergarten programs builds on children’s innate mathematical abilities. High-quality mathematics instruction also supports children’s progression toward more complex concepts, including counting, recognizing quantities, numeral recognition, understanding number relationships and operations, classifying and patterning, and developing geometry and spatial thinking skills. The following section examines language and literacy development as another domain of school readiness, alongside mathematics, that plays an essential role in supporting children’s overall readiness for school.

Language and Literacy

In the same way that prekindergarten programs provide opportunities for children to develop mathematical skills, they also support language and literacy development by offering frequent opportunities to practice language skills through interactions with peers and adults (California Department of Education, 2026). Language-rich social interactions are especially crucial for emerging bilingual students, as they help build a strong foundation for future language learning. Regardless of language background, researchers emphasize the importance of supporting children's oral language, phonological awareness, print knowledge, and emergent writing skills. These skills are critical, as research has shown that they have strong predictive power for children's reading abilities through fifth grade (Mancilla-Martinez & Lesaux, 2010).

Oral language refers to children's capacity to comprehend and express meaning, incorporating both vocabulary and knowledge of syntax (Goodrich et al., 2017). Teachers can support the development of aural and oral language through dialogic reading. Dialogic reading involves engaging children in conversations about a book, using strategies such as asking questions to encourage them to construct narratives and expand their language use. These interactions provide opportunities for children to practice forming sentences, use new vocabulary, and express their ideas with increasing complexity. Repeated practice with oral language increases the likelihood that children will acquire grammatical features and sentence structures in the English language (California Department of Education, 2026; Goodrich et al., 2017).

Phonological awareness refers to children's capacity to identify and manipulate the individual sound units, or phonemes, within words (Goodrich et al., 2017). Teachers can

support the development of phonological awareness by engaging children in activities such as isolating the initial sounds of words, recognizing and blending sounds, and participating in rhyming and word play. For example, teachers may ask children to identify the first sound in the word “dog” or to blend the sounds /c/, /a/, and /t/ to form the word “cat” (California Department of Education, 2026)

Print knowledge refers to children’s understanding of the names of letters and their corresponding sounds, including an understanding of print conventions (Goodrich et al., 2017). Teachers can support the development of print knowledge by organizing activities that involve identifying letters, practicing letter–sound correspondence, and modeling print conventions such as reading text from left to right by moving a finger under the words while reading aloud. Additionally, labeling items in the classroom or children’s artwork with their names can help children learn to recognize and read their names, thereby reinforcing early print awareness (California Department of Education, 20246.

Writing involves several foundational skills, including fine motor development, print awareness, and letter–sound correspondence (California Department of Education, 2026). Teachers can support children’s writing by incorporating playful activities that strengthen fine motor skills, such as using playdough, tongs, or child-safe scissors. As children’s fine motor control develops, teachers can introduce activities that focus on letter formation, recognizing print conventions, and provide opportunities for children to express their ideas through writing (Gerde et al., 2019). As children learn to form letters, they may begin to use invented spelling—writing the sounds they hear—which supports their understanding of letter–sound relationships and reinforces the idea that writing is a form of communication.

While research emphasizes the importance of developing children’s oral language, phonological awareness, print knowledge, and emergent writing skills across language backgrounds, emergent bilingual students, who are actively developing proficiency in multiple languages, present unique considerations that teachers should consider when supporting their learning (California Department of Education, 2026). First, when targeting the skills mentioned earlier, teachers should incorporate children’s home languages as much as possible. For example, classrooms may include books in children’s home languages and display key vocabulary words with translations around the room. Teachers can also try to speak in children’s native languages, even if it involves code-switching—a common practice in which individuals use words from two languages in a single conversation (Yow et al., 2017). Code-switching can support emergent bilingual children’s understanding of ideas (California Department of Education, 2026). Second, teachers can make the classroom routine predictable by using gestures to communicate intent and utilizing props, photos, and other visual aids to clarify word meanings. Finally, teachers can facilitate activities that provide students with ample opportunities to listen and speak in English (California Department of Education, 2026; Sawyer et al., 2016).

While teachers implement these instructional practices, they should also recognize that children may experience a “silent period” in which they produce little or no speech in the new language (Kan et al., 2024). During this time, children spend most of their time observing and listening to others. Although their verbal production may be limited, their comprehension abilities are typically more advanced than their expressive skills in this stage. Teachers should also expect emergent bilingual children to use a range of alternative communication strategies during this period, including nonverbal cues, silent participation, use of their first language,

and self-rehearsal, such as quietly articulating or whispering words to themselves while practicing language skills in the new language. By utilizing instructional practices tailored to emergent bilingual children, teachers can better support their understanding of their second language (California Department of Education, 2026).

In summary, high-quality language and literacy instruction in prekindergarten programs involves practices that support children’s oral language, phonological awareness, print knowledge, and emergent writing skills, regardless of their linguistic background. Teachers should further support the language development of emergent bilingual children by incorporating their home language into the classroom when possible, maintaining predictable routines, and providing frequent opportunities for them to listen to and use the second language. Emergent bilingual children also present unique considerations, such as the normative “silent period” many experience while building foundational skills in the second language. Being aware of this phenomenon is important because it enables teachers to support children’s language development through practices that facilitate comprehension and build an understanding of the second language. The following section examines high-quality social-emotional practices that support children’s readiness for school.

Social-Emotional

Children’s social-emotional development closely supports their academic readiness. More specifically, social-emotional instructional practices, including emotional modeling, which often involve teaching self-regulation, equip children with the perseverance necessary to apply their knowledge to solve complex problems, thereby increasing the likelihood that they will achieve educational milestones as they progress through their learning journeys (Jones et al., 2015). Teaching self-regulation skills can take various forms, such as modeling

mindfulness (e.g., deep breathing), providing sensory toys (e.g., fidgets), and even self-talk (e.g., children chanting, “I can write my name”)(California Department of Education, 2026; Savina, 2021).

Developing children’s emotional expression ability is another high-quality instructional practice that involves supporting children in understanding their own emotions and those of others (California Department of Education, 2026). Teachers can help children develop their emotional expression by reading books that highlight emotional vocabulary, using visual prompts (such as feeling charts) to guide emotion identification, and narrating both their own and the children’s emotions in real-time (California Department of Education, 2026; McLeod et al., 2017). Developing children’s ability to express their emotions is crucial because children with higher emotional knowledge tend to exhibit more prosocial behavior, greater empathy, and increased peer acceptance (Brazzelli et al., 2022; Lucas-Molina et al., 2020).

Preparing children for routines and transitions is another high-quality instructional practice (Banerjee et al., 2013; California Department of Education, 2026), especially since most children in prekindergarten settings spend a significant amount of their time transitioning from one activity to another (Olive, 2004). Notably, research indicates that children experience up to 15 transitions during a typical school day, and these transitions can also be challenging for some students, especially if they are unsure of what to expect next (Banerjee et al., 2013). For this reason, teachers should plan their transitions and integrate them into the broader classroom routine (Olive, 2004). Teachers can incorporate transitions into visual reminders of the daily schedule and review them as a group to reinforce the schedule. Teachers can also signal transitions using songs or timers (California Department of Education, 2026). For

example, a bell that consistently rings between activities could prompt children to chant the days of the week before switching tasks. Activities like these can help children understand what to expect during transitions and ease them into their next task.

Another instructional practice that supports children's social-emotional development involves fostering social awareness by encouraging children to support one another during classroom interactions using prosocial behaviors (Rojas et al., 2021). Developing social awareness is particularly important because one of the most critical aspects of social-emotional development is its foundation in relationships (California Department of Education, 2026). Relationships naturally involve social interactions, which often require children to navigate complex social situations, such as conflicts with peers. Teachers can help children develop social awareness by modeling prosocial behaviors, such as sharing and turn-taking (California Department of Education, 2026). Teachers can also praise children when they exhibit prosocial behaviors to reinforce their social competence (Rojas et al., 2021). Finally, when conflict arises between children, teachers can take a facilitative role by guiding them to identify and express their own needs and goals while considering those of others. This practice promotes social awareness by supporting perspective-taking between children. By encouraging children to consider others' thoughts and emotions, teachers support the development of empathy and help children understand how their actions affect others (Gilang et al., 2024).

In summary, high-quality social–emotional instruction in prekindergarten programs is widely believed to include practices such as modeling and encouraging emotional expression, preparing children for routines and transitions, and supporting the development of social awareness. Teachers should strive to utilize these strategies to support children's social-emotional development. Social–emotional development in prekindergarten is critical, given its

predictive power for longitudinal outcomes in academic skills, including reading achievement and learning engagement in kindergarten (Nix et al., 2014). Experts generally believe that social–emotional skills, such as those involved in self-regulation, support academic skills because they enable children to focus on classroom learning activities. The section that follows examines the various types of classroom curricula that often dictate the instructional practices teachers employ.

Table 2

High-Quality Instructional Practices Across Mathematics, Language & Literacy, and Social Emotional Domains

Domain	Instructional Practice	Supporting Evidence/Source(s)	Potential Benefits
Mathematics	Recite numbers, use one-to-one correspondence, and answer “how many?”	CDE (2026); Clements & Sarama (2010)	Supports developmental progression of counting.
Mathematics	Engage in subitizing to recognize small groups without counting.	CDE (2026); Clements (1999); Wilkins et al. (2022)	Supports efficient quantity recognition and counting on.
Mathematics	Identify and name written numerals.	CDE (2026); Sarnecka & Carey (2008)	Builds connections between symbols and quantities.
Mathematics	Compare groups using vocabulary (more, less, same, fewer).	CDE (2026)	Promotes understanding of number relationships.
Mathematics	Teach addition and subtraction using concrete examples and formal vocabulary.	CDE (2026)	Builds understanding of quantitative change.
Mathematics	Model counting on.	CDE (2026)	Promotes flexible addition strategies.
Mathematics	Sort and classify objects by attributes.	CDE (2026); Lewis Presser et al. (2023)	Supports categorization and early data analysis.

Mathematics	Identify and extend patterns (e.g., ABAB).	CDE (2026); Larkin et al. (2021)	Supports early algebraic reasoning.
Mathematics	Teach 2D/3D shapes using manipulatives and descriptive language.	CDE (2026); Mix & Cheng (2012); Pritulsky et al. (2020); Verdine et al. (2014)	Supports spatial reasoning and problem-solving.
Language & Literacy	Provide language-rich peer and adult interactions.	CDE (2026)	Supports overall oral language development.
Language & Literacy	Use dialogic reading strategies (questioning, narrative expansion).	CDE (2026); Goodrich et al. (2017)	Promotes vocabulary growth and syntactic development.
Language & Literacy	Engage children in phonological awareness activities (rhyming, blending, isolating sounds).	CDE (2026); Goodrich et al. (2017)	Supports early decoding and reading development.
Language & Literacy	Teach print knowledge (letter identification, letter-sound correspondence, print conventions).	CDE (2026); Goodrich et al. (2017)	Builds foundational reading skills.
Language & Literacy	Support emergent writing (fine motor activities, letter formation, invented spelling).	CDE (2026); Gerde et al. (2019)	Reinforces print awareness and written communication.
Language & Literacy	Incorporate children's home languages and use code-switching strategically.	CDE (2026); Yow et al. (2017)	Supports comprehension and bilingual language development.
Language & Literacy	Use predictable routines, gestures, props, and visuals to support emergent bilingual learners.	CDE (2026); Sawyer et al. (2016)	Supports language comprehension and classroom participation.
Social-Emotional	Model self-regulation (e.g., breathing, fidgets, self-talk).	CDE (2026); Savina (2021)	Supports executive functioning and persistence.

Social-Emotional	Support emotional expression using books, charts, and narration.	CDE (2026); McLeod et al. (2017)	Supports Emotion Identification.
Social-Emotional	Prepare children for transitions using routines and visual/auditory cues.	Banerjee et al. (2013); CDE (2026); Olive (2004)	Reduces transition-related stress and improves classroom functioning.
Social-Emotional	Model and reinforce prosocial behaviors (sharing, turn-taking).	CDE (2026); Rojas et al. (2021)	Builds cooperation and social competence.
Social-Emotional	Facilitate conflict resolution and perspective-taking.	CDE (2026); Gilang et al. (2024)	Promotes empathy and peer problem-solving.

Note. CDE = California Department of Education. Practices align with the Preschool/Transitional Kindergarten Learning Foundations (2024) and peer-reviewed research.

Prekindergarten Curricula

The curriculum adopted by prekindergarten programs often influences teachers' approaches to instruction (Nguyen et al., 2019). However, just as there are multiple types of prekindergarten programs in the United States (e.g., private preschool, Head Start, and state preschool), there are also multiple curricula rather than a single universal approach (Nesbitt & Farran, 2021). The combination of various program types and the absence of a universal curriculum have led to differences in instructional practices across prekindergarten classrooms, as curricula tend to have a specific focus.

Publishers are often responsible for creating curricula, which they sell to prekindergarten programs. However, programs may also create their own curricula. According to Nguyen et al. (2019), curricula typically fall into two broad categories: whole-child or targeted skills-specific curricula. Whole-child curricula are the most implemented in Head Start programs because federal guidelines require them as part of the program's curriculum. Three popular whole-child curricula include the Creative Curriculum, High Scope, and

Montessori. These programs all share a constructivist approach to learning, emphasizing child-centered learning, where teachers allocate most of the school day to child-initiated, free-choice activities rather than teacher-led lessons (Nguyen et al., 2019).

In contrast to whole-child curricula, skill-specific curricula focus more on improving children's learning outcomes in specific areas, such as reading or math. A common misconception is that prekindergarten programs with skill-specific curricula are predominantly teacher-directed and omit play from children's school experiences. Programs with skill-specific curricula often incorporate structured play activities into lesson plans (Nguyen et al., 2019).

Despite the widespread adoption of whole-child curricula, Nguyen et al. (2019) indicate that there is little evidence to support their benefit on children's academic skills. The primary support for whole-child curricula comes from the Perry Preschool Project (see "The Perry Preschool Project" section, pp. 11-13), which utilized the High Scope curriculum and found that children who participated in the preschool program had higher earnings, were more likely to hold jobs, committed fewer crimes, and were more likely to graduate from high school than those who did not participate in the project (Schweinhart, 2005). Weiland and Yoshikawa (2013) point to more evidence that the use of skill-specific curricula has the potential to promote children's language, literacy, numeracy, and mathematics skills. However, Nguyen et al. (2019) explains that research is still limited in comparing the impacts on child outcomes across different skill-specific curricula. Crain (2016) notes that support for many whole-child and skill-specific curricula is limited because researchers have traditionally focused more on the attitudes toward learning that curricula foster in students than on how these instructional approaches relate to school readiness outcomes. Nevertheless, research has examined the

impact of different curricula on children's outcomes. The sections below highlight what experts consider the most comprehensive studies evaluating the impact of the two most popular curriculum approaches—whole-child and skill-specific—on children's outcomes.

Evaluation Efforts of Whole-Child Curricula

The Preschool Curriculum Evaluation Research Initiative (2008) evaluated the impact of the Creative Curriculum on preschool children's mathematics, reading, phonological awareness, language development, and behavior, comparing it to a teacher-designed curriculum. The researchers implemented a randomized control trial with 21 classrooms, focusing on children from predominantly low-income backgrounds. They collected data through child assessments, teacher reports, classroom observations, and parent interviews at multiple time points. The results indicated that the teacher-designed curriculum had no significant impact on mathematics, reading, phonological awareness, or language development. However, it did significantly influence classroom quality and teacher-child interactions. The Creative Curriculum, however, demonstrated no significant impact on children's academic or behavioral outcomes, nor did it affect classroom instructional practices.

Other researchers have reported similar null results with whole-child curricular approaches, including High Scope. In a more recent study, Jenkins et al. (2019) conducted a meta-analysis to assess whether widely used prekindergarten curricula, such as Creative Curriculum and High Scope, effectively promote children's academic and social-emotional development. The study aimed to evaluate the impact of these curricula on classroom activities, quality, and children's readiness. The meta-analysis included five large-scale prekindergarten studies involving low-income children, using data from classroom observations, teacher surveys, and child assessments. Based on the curricula used, the results revealed minimal

differences in child outcomes, such as reading and math. The researchers concluded that widely adopted curricula do not significantly enhance children's development compared to classrooms without these specific curricula.

Researchers have also examined the impact of Montessori curricula on child outcomes. Culclasure et al. (2018) conducted a multi-year study of Montessori education in South Carolina's public schools, representing the most comprehensive evaluation of public Montessori education ever undertaken in the United States. The study aimed to assess the implementation fidelity and impact of Montessori education in public schools for South Carolina children from preschool through age 8. The researchers aimed to investigate whether Montessori education in public schools could enhance academic, behavioral, and affective outcomes, including creativity, social skills, work habits, and executive function, compared to traditional educational models. The researchers collected data on standardized test scores, attendance records, and discipline incidents, all of which the researchers obtained from state-maintained databases. This data also included information from classroom observations, principal and teacher surveys, and interviews. The classroom observations evaluated the fidelity of Montessori implementation, while surveys provided insights into teacher satisfaction and perceptions of the Montessori model's challenges and successes in public schools. Results indicated that Montessori students outperformed their non-Montessori peers in English Language Arts (ELA), math, and social studies, though the differences were modest. Montessori students exhibited statistically significant growth in ELA across all three years of the study, with smaller but still significant gains in math and social studies during specific years. However, their growth in science achievement was mixed, with Montessori students occasionally lagging their peers.

Additionally, Montessori students had higher school attendance rates and fewer behavioral issues, such as suspensions and disciplinary incidents, than matched non-Montessori students. Regarding affective outcomes, Montessori students demonstrated higher levels of creativity and, in some years, better executive function skills; however, results for social skills and work habits were less consistent. Overall, the researchers interpreted these findings to suggest that when schools implement Montessori education with fidelity, it has a positive impact on students' academic and behavioral outcomes, with benefits for low-income and low-achieving students.

In summary, whole-child curricula prioritize child-centered learning, providing children with ample opportunities for engaging in free-choice activities and play. Three popular whole-child curricula include the following: Creative Curriculum, High Scope, and Montessori. The Creative Curriculum is associated with higher ratings of classroom quality and teacher-child interactions; however, the current research base provides limited evidence regarding its direct effects on children's academic skills. Similarly, evaluations of the High Scope curriculum have reported minimal benefits for child outcomes in areas such as reading and mathematics. Finally, research on Montessori programs suggests potential long-term benefits for children's school attendance and social-emotional outcomes. Specifically, Montessori students exhibit fewer behavioral issues, such as suspensions and disciplinary actions, compared to their non-Montessori peers through age 8. Overall, while evaluations of whole-child curricula have not consistently demonstrated benefits for children's academic skills, they suggest some positive effects on children's approaches to learning and overall social-emotional well-being.

Evaluation Efforts of Skill Specific Curricula

Experts, such as Nguyen (2019), generally recognize the Building Blocks math curriculum for its positive impact on children's learning. This skill-specific curriculum conceptualizes children's math learning as a progression through research-based learning trajectories. The curriculum focuses on developing numerical and geometric understanding through structured, sequenced activities. It offers 30 weekly lesson plans delivered through various instructional methods, including small group work, computer activities, center-based learning, whole-group instruction, and family communication through letters. Teachers also track children's progress along these math trajectories throughout the program. The intervention involves training pre-K teachers in early math content and the curriculum, providing ongoing coaching during implementation, and ensuring classroom materials are available.

Clements et al. (2013) examined the long-term impact of the Building Blocks curriculum from prekindergarten to first grade and whether demographic factors moderated the effects. The researchers collected data on 1,305 students across 42 schools in two urban, low-resourced districts. The researchers subdivided the students into three groups: those who received the Building Blocks intervention with follow-through to first grade, those who received the intervention without follow-through, and a control group that did not receive the intervention. The researchers also measured students' math achievement. Results indicated that students who received the Building Blocks curriculum through first grade demonstrated significantly higher math achievement by the end of first grade compared to the non-follow-through and control groups. The follow-through intervention was particularly beneficial for African American students, helping to reduce the achievement gap between them and their peers from other ethnic groups. Classroom culture, specifically the focus on math, was

identified as a key mediator in sustaining the positive effects of the intervention. The researchers interpreted these findings to suggest that it is critical to streamline support in prekindergarten to first grade to maintain and build upon initial gains in math achievement for prekindergarten students.

Literacy Express Preschool Curriculum is another popular skill-specific curriculum that targets children's literacy skills (Nguyen, 2019). In addition to targeting children's skills, this curriculum also focuses on providing teachers with professional development, such as learning essential literacy skills for children and supporting the delivery and implementation of the curriculum. The Literacy Express Curriculum incorporates small-group activities that enable individualized instruction with students, providing teachers with flexibility in selecting from various small-group activities to integrate into their classroom instruction. Small group activities become progressively more complex over time to meet the learning demands of children.

Goodrich et al. (2018) evaluated the impact of the Literacy Express Curriculum on Spanish-speaking children, who are at higher risk for academic struggles, particularly in early literacy. The research team aimed to determine whether the curriculum enhanced early literacy skills in English and Spanish among emerging bilingual children and whether proficiency in one language moderated literacy outcomes in the other. The study collected data from 526 emerging bilingual children and 447 monolingual children across 26 preschool centers in Los Angeles, assessing their early literacy skills before and after the intervention. The results showed that the intervention improved English code-related early literacy skills, such as phonological awareness and print knowledge, but did not affect language-related skills or Spanish literacy. English proficiency moderated the impact on Spanish oral language, while

Spanish proficiency did not affect English literacy outcomes. The researchers did not find significant differences between emerging bilingual and monolingual children in terms of the interventional effects.

The Evidence-based Program for Integrated Curricula (EPIC) is another well-known curriculum among educators in early care and education (Nguyen, 2019). This curriculum emphasizes language, literacy, and mathematics skills, including alphabet knowledge, phonemic awareness, and listening comprehension, while incorporating instructional approaches that facilitate learning through eight units organized in a developmental sequence. The EPIC curriculum also includes daily classroom routines, family involvement, curriculum-based assessments, and a learning community model for professional development, supporting teachers in delivering the curriculum effectively. Teachers also participate in learning communities, where they share teaching strategies and experiences to support one another.

Fantuzzo et al. (2011) evaluated the impact of the EPIC curriculum on mathematics, language, and literacy skills among low-income children in Head Start classrooms. In these classrooms, the researchers compared the EPIC curriculum to a control curriculum by analyzing data from 1,415 children across 70 classrooms. They assessed children's progress at four points in alphabet knowledge, vocabulary, listening comprehension, and mathematics. The results showed that EPIC significantly improved listening comprehension and mathematics outcomes, particularly for younger children. However, the researchers did not find any significant differences between EPIC and control curricula in vocabulary and alphabet knowledge.

The California Department of Education also released the Preschool Learning Foundations Report with skill-specific guidance that outlines key knowledge and skills that

most children can achieve when given the kinds of interactions, instruction, and environments that research has shown to promote early learning and development (California Department of Education, 2008). Initially, the report guided skill development in social-emotional development, language and literacy, and mathematics. However, the California Department of Education revised the document in 2024 to incorporate recent research in child development, expanding its focus to include math, language, science, social-emotional development, social science, visual and performing arts, and physical development in the California Preschool/Transitional Kindergarten Learning Foundations (California Department of Education, 2026).

The California Department of Education originally released the Preschool Learning Foundations report due to evidence showing that children benefit from participating in high-quality prekindergarten programs, alongside growing concerns about readiness gaps, particularly among children from socioeconomically disadvantaged and minority backgrounds. To address these gaps and support school readiness for all children, the California Department of Education led a year-long collaborative effort with early childhood educators, researchers, advocates, and parents to develop the learning foundations, targeting prekindergarten programs serving children at 48 and 60 months of age. The latest revision in 2024, the California Preschool/Transitional Kindergarten Learning Foundations (PTKLF), expanded its scope to cover ages 3 to 5, reflecting the expansion of universal transitional kindergarten. The document now includes examples of skill development in children between 3 and 4.5 years and 4 and 5.5 years of age.

To date, researchers have not evaluated the impact of the PTKLF on children's school readiness, nor have they examined the specific instructional practices that teachers implement

to support children's learning within this framework. One possible reason for this gap is California's relatively recent implementation of transitional kindergarten. As TK continues to expand statewide, research is needed to examine how teachers draw on the PTKLF to guide instruction and how these practices potentially benefit children's school readiness.

In summary, skill-specific curricula prioritize learning specific content areas, such as reading or math. A common misconception is that children in skill-specific programs omit play entirely from the school day. However, play activities during the school day are incorporated into most programs with skill-specific curricula. Three popular skill-specific curricula include the following: Building Blocks, Literacy Express Preschool Curriculum, and EPIC. The Building Blocks Curriculum is associated with improved mathematics outcomes through first grade. Evaluations of the Literacy Express Curriculum have reported gains in phonological awareness and print knowledge. Finally, evaluations of the EPIC curriculum have found positive effects on children's listening comprehension and mathematics outcomes. Overall, the most popular skill-specific curricula appear to demonstrate consistent benefits for children's academic skills, particularly in areas such as language and mathematics development.

Teacher Training and Instructional Approaches

While many states across the country have made significant progress in implementing universal prekindergarten programs, the fact that educational policy decisions are determined at the state level and that the United States lacks a national prekindergarten infrastructure has led to wide variation nationwide in not only curricular approaches but also in teacher training requirements. More specifically, the National Institute for Early Education Research (NIERR, 2022) reported that while state prekindergarten programs have become increasingly common, many teachers have received waivers from education and specialized training requirements in

response to teacher shortages. NIEER emphasizes that while such waivers may address immediate staffing needs, they are not a long-term solution, particularly since research shows that several of the nation’s highest-quality prekindergarten programs—such as those in Tulsa, Boston, New Jersey, and Michigan—require lead teachers to hold at least a bachelor’s degree with a specialization in early childhood education (NIEER, 2022; Wechsler et al., n.d.). Overall, nationwide expansion efforts and resulting staffing shortages have led to greater flexibility in credentialing requirements for prekindergarten teachers.

With the rapid expansion of TK, the state of California has faced growing challenges in recruiting qualified teachers and teaching assistants, particularly in rural school districts (American Institutes for Research, 2024). To address the staffing needs created by the expansion of TK, the state now permits a range of credentialing options for TK teachers. These include the Multiple Subject Teaching Credential, the PK–3 Early Childhood Education (ECE) Specialist Credential, the General Kindergarten–Primary, General Elementary, Standard Early Childhood, and Standard Elementary credentials, as well as the Specialist Instruction Credential in Early Childhood Education (Commission on Teacher Credentialing, 2024).

The California Department of Education has also recently mandated additional requirements for credentialed teachers first assigned to teach TK students after July 1, 2015. These teachers must either complete at least 24 units in early childhood education, demonstrate professional experience in a preschool classroom, or hold a Child Development Teacher Permit. Teachers who taught in a TK classroom before July 1, 2015, are exempt from this new requirement (Commission on Teacher Credentialing, 2026). Overall, these regulations reflect the state’s growing recognition of the expertise teachers bring to TK classrooms when they have early childhood education and training.

Despite variation in teacher training qualifications across states and program types, research has found that ongoing professional development has the potential to improve teachers' instructional practices and, in turn, support children's outcomes (Brendefur et al, 2013; Sheridan & Wen, 2021; Wasik & Hindman, 2011; Lane et al., 2012; Downer et al., 2011; Egert et al., 2020; Jensen et al, 2017; Conners-Burrow et al., 2017). In-service professional development is particularly beneficial because it is embedded within teachers' regular work schedules, making it easier to integrate new strategies into daily practice. The sections that follow highlight evaluation efforts of the impact of professional development on classroom quality across mathematics, language and literacy, and social-emotional practices, as well as children's skill development in each of these areas.

Professional Development in Mathematics Instruction

Research suggests that professional development has the potential to benefit children's early math skills. Brendefur et al. (2013) evaluated the impact of a math-focused professional development program designed to help teachers implement strategies that support children's mathematical development. In this study, the researchers randomly assigned Head Start centers to either the professional development or control condition. Over the course of six months, teachers in the intervention group participated in eight hours of workshops focused on four domains of early mathematics that are predictive of later achievement. The four domains included number knowledge, number relationships, measurement, and spatial reasoning. Each workshop introduced the theoretical foundations of how children learn mathematics, early learning progressions, and strategies for structuring classroom activities. Teachers also learned techniques for asking questions and responding in ways that extend children's mathematical understanding. The researchers also provided teachers in the professional development group

with classroom materials and guidance on implementing the activities in their classrooms. To measure the efficacy of this intervention, the researchers assessed children's math skills using a screening tool at the beginning and end of the school year. Results showed that while children in both groups demonstrated similar math skills at the start of the year, those taught by teachers who participated in the professional development had significantly higher math skills at the end of the school year compared to children in the control group. The results from this study highlight the potential impact that math-focused professional development can have within just six months of implementation.

While the Brendefur et al (2013) study proves efficacy in child outcomes, a study by Sheridan & Wen (2021) addressed accessibility and teacher confidence using web-based platforms. Sheridan and Wen (2021) conducted an evaluation study of an online mathematics professional development program for early childhood teachers. This professional development program is available on a website that includes eight courses introducing teachers to mathematical concepts, along with lesson plans that teachers can reference to support children's skill development. Included in the lesson plans are course evaluations, quizzes at the end of each course, qualitative feedback, and pre- and post-surveys. These resources were positively rated by teachers who utilized them. More specifically, analyses of the survey data revealed that teachers perceived the professional development as having a positive impact on their attitudes and confidence in teaching early math concepts. While the evaluation did not incorporate direct observation to confirm whether teachers incorporated skills from the professional development, this self-reported data suggests that teachers will definitely appreciate resources that demonstrate ways to support children's learning of math concepts.

Professional Development in Language and Literacy Instruction

Wasik and Hindman (2011) evaluated the *Exceptional Coaching for Language and Literacy* (ExCELL) program, a professional development model designed to train teachers in language and literacy instructional practices in order to determine whether ongoing professional development had the potential to support children's vocabulary and preliteracy skills. The program consisted of four half-day introductory sessions, followed by three- to four-week training cycles over nine months. During these cycles, teachers first learned the research base behind effective instructional methods and strategies to apply high-quality language and literacy practices in their classrooms. To adapt these practices in their classrooms, teacher reflection and planning were also incorporated. After each group training, coaches visited classrooms for up to an hour to model the practices, while teachers observed and completed checklists of key behaviors. Teachers then implemented the practices for one to two weeks, after which coaches returned to provide feedback using the same checklists. Supportive books and materials were provided during this implementation phase. The researchers collected pre- and post-data on the intervention and control classrooms, including measures of classroom quality and children's language and literacy outcomes, such as vocabulary, phonological skills, and alphabet knowledge. This data revealed that teachers in the intervention group demonstrated higher classroom quality, particularly in terms of their language use and delivery of instructional content. Children whose teachers participated in the intervention also showed greater gains in receptive vocabulary and phonological skills compared to the control group and no significant differences in alphabet knowledge were found. These results underscore the value of structured, ongoing professional development for strengthening both classroom quality and children's language and literacy development.

The benefits of professional development on children's early literacy development were addressed in a study by Lane et al. (2012) in which they evaluated the Building Blocks for Literacy professional development program, which the researchers designed to strengthen teachers' skills in supporting children's emergent literacy. This program included a 12-hour workshop focused on shared book reading to build language and vocabulary, phonological awareness, and knowledge of relationships between speech and print. To follow up on the workshop, trained mentors provided six months of support to teachers, either through in-person visits or through distance mentoring via email and phone. The study included three groups of prekindergarten programs: one that received training with live mentoring, one that received training with distance mentoring, and a control group that did not receive professional development. All three of the programs were compared using children's literacy skills before and after the intervention. Results indicated that although all of the children demonstrated gains in emergent literacy skills over time, those whose teachers had received either live or distance mentoring showed greater improvements compared to children in the control group. The fact that all children experienced gains in their early literacy, regardless of whether their teachers had participated in the professional development, suggests that the prekindergarten years are a critical time for developing these skills. However, the results also indicate that teachers who receive training in high-quality language and literacy practices can further accelerate children's growth in these areas. Surprisingly, children's emergent literacy skills did not differ between those whose teachers participated in the live or distance professional development, suggesting that language and literacy professional development does not need to be highly resource-intensive to support children's learning. These findings underscore the importance of providing

professional development opportunities that equip teachers with evidence-based strategies to optimize children's learning during this critical developmental period.

Web-based professional development can support children's emergent literacy skills. Downer et al. (2011) conducted a two-year cluster-randomized controlled trial of the MyTeachingPartner (MTP) web-based professional development program for prekindergarten teachers. The researchers assigned teachers to one of three groups: a control group, a low-support group, and a high-support group. The control group received lesson plans in both print and online formats, with a focus on alphabet knowledge, print concepts, and phonological awareness. The low-support group received the same resources as the control group, plus access to demonstrations of high-quality practices, video-based reflection activities, and a supplemental social-emotional curriculum. The high-support group received all the resources provided to the other groups, along with one-on-one consultation. During this consultation, teachers videotaped themselves conducting language activities for 30 minutes every other week, received individualized feedback on their videos, and met with a coach to discuss practices and set goals. Similar to Lane et al. (2012), the researchers assessed children's emergent language and literacy skills throughout the prekindergarten year. Findings showed that all of the children made progress; however, children taught by teachers in the high-support group demonstrated significantly stronger language skills compared to those in the control group, while no significant differences emerged between the low-support and control groups. These results suggest that individualized coaching may be crucial for helping teachers effectively implement high-quality language and literacy practices.

Professional Development in Social-Emotional Instruction

Targeting the benefits of professional development for social-emotional instructional practices and quality teacher-child interactions, the study by Egert et al. (2020) is relevant. They conducted a meta-analysis examining the impact of in-service professional development on the quality of teacher-child interactions. The analysis included 15 studies drawing on 18 program evaluations that used the *Classroom Assessment Scoring System* (CLASS Pre-K), an observational tool designed to assess teacher-child interactions in early care and education programs across three domains: emotional support, classroom organization, and instructional support. The results revealed that in-service professional development programs had a statistically significant effect on the quality of teacher-child interactions. Effects were relatively consistent across the three domains of the CLASS, with Hedge's g values ranging from .35 to .43. These findings indicated modest but consistent improvements in teachers' strategies for supporting relationships with children across emotional support, classroom organization, and instructional support. The researchers concluded that in-service professional development is generally beneficial across the three social-emotional domains measured by the CLASS.

Further studies examining social-emotional outcomes include Jenson et al. (2017). This randomized controlled trial in Danish prekindergarten programs evaluated the impact of a professional development program on children's social-emotional skills, such as peer relationships, prosocial behavior, hyperactivity, conduct problems, and emotional symptoms. The intervention consisted of 17 full-day educational workshops delivered over a two-year period, focusing on helping teachers provide individualized learning opportunities aligned with children's skill levels. Drawing on data from 396 preschools in the intervention group and 290 in the control group, the researchers used a questionnaire to assess each child's social-

emotional strengths and weaknesses. Results indicated that the professional development program significantly improved children's emotional development and reduced emotional and behavioral problems, with an effect size of .25, representing a moderate impact on children's social-emotional development.

Professional development opportunities may be particularly beneficial in prekindergarten programs where most staff do not hold a bachelor's degree. Conners-Burrow et al. (2017) conducted a pre-post study to evaluate the impact of an in-service professional development program on children's social-emotional development in a sample of prekindergarten programs where three-quarters of teachers did not have a college degree. The professional development consisted of six teacher workshops, each lasting 1.5 hours, delivered across a six-month training period. These workshops covered topics, such as defining social-emotional skills, highlighting the importance of daily schedules, using feeling words to teach emotional literacy, emphasizing the role of positive attention in shaping children's behavior, offering children choices, and identifying challenging behaviors. Each workshop provided teachers with toolkits to support classroom implementation. In addition, after each session, coaches accompanied teachers to help them practice skills of interest from the workshops, and they also met with program directors to provide technical assistance related to state quality rating frameworks. Findings indicated that the six-month program was highly engaging, with teachers reporting satisfaction with the sessions. Results also showed significant improvements in the sensitivity of teacher-child interactions, increased teacher use of targeted social-emotional strategies, and increases in children's prosocial behaviors, along with significant decreases in children's verbal aggression.

Overall, research suggests that in-service professional development has the potential to enhance children’s social-emotional development and reduce behavioral concerns. Given the widespread variation in teacher training, professional development focused on children’s social–emotional development may be especially valuable for teachers who do not hold college degrees, as it can provide them with essential knowledge and instructional strategies. Teachers also report high levels of satisfaction with professional development that targets social–emotional practices, particularly when it is sustained over time and incorporates coaching opportunities.

Summary of Professional Development in Prekindergarten Programs

Research suggests that professional development has the potential to benefit teachers’ knowledge base across mathematics, language and literacy, and social-emotional practices. This knowledge, in turn, appears to benefit children’s skill development as teachers gain knowledge of how to support children across these domains. Given the diverse training requirements across states, educators and program directors should consider adopting structured professional development opportunities for their staff, as this may help address potential knowledge gaps resulting from the education waivers many states have granted to prospective teachers to meet the growing demand for teachers nationwide.

School Readiness Measures

Despite significant variation in teacher preparation backgrounds, district leaders are increasing their reliance on classroom-based evaluations of children’s readiness or need for support. Surprisingly, despite the multiple pathways available for becoming prekindergarten teachers amid the rapid expansion of programs nationwide, researchers have yet to examine how differences in teachers’ training backgrounds may shape their interpretations and ratings

of children's skills across developmental domains. Traditionally, the focus has been on how these measures perform across diverse groups, such as those differing in linguistic background, in efforts to mitigate bias based on child characteristics, rather than on how teacher training may influence ratings (Nguyen et al., 2020). This traditional focus has left a gap in understanding regarding how teacher training and credential background may influence the interpretation of school readiness data.

Desired Results Developmental Profile

The Desired Results Developmental Profile (DRDP) is an observational instrument completed by teachers to assess children's progression of skills from infancy to third grade (California Department of Education, 2026). Initially, the DRDP was developed and tested for appropriacy as an assessment tool for children from diverse cultural and linguistic backgrounds. To ensure cultural representativeness and appropriateness, the researchers conducted a panel review to refine the content of the DRDP and carried out calibration studies to confirm that the tool functioned similarly across diverse groups of children (DRDP Collaborative Research Group, 2018). However, at the time of its creation, Transitional Kindergarten (TK) had not yet been implemented across California, so some credentialing pathways did not yet exist. Consequently, early validation efforts did not have the opportunity to examine how the instrument might function within the current TK context, in which teachers may enter the workforce through multiple training pathways.

Prekindergarten School Entry Profile

The Prekindergarten School Entry Profile (PSEP) is another observational instrument completed by teachers to assess children's school readiness. The PSEP was developed by a graduate student at the University of California, Santa Barbara, in response to the rapid

expansion of TK and the limited availability of psychometric research validating measures for prekindergarten populations—particularly for multilingual learners (Rodriguez Robles, 2025). The PSEP has demonstrated consistent functioning across culturally and linguistically diverse groups of children. In contrast to the DRDP, the PSEP offers a more streamlined format that is easier to administer and requires less time to complete, thereby enhancing its feasibility for classroom use. However, opportunities remain to deepen our understanding of how the instrument functions across teachers with diverse training backgrounds.

Classroom Quality Measures

To determine an appropriate method for documenting instructional practices in TK classrooms, existing classroom quality measures were reviewed. Several widely used instruments were identified that assess dimensions of early prekindergarten classroom quality, including teacher–child interactions, classroom organization, environmental supports, and linguistic responsiveness. Although these tools provide valuable insight into global classroom quality, none of them were created for the purposes of documenting the practices that teachers use in TK settings, given its relatively recent statewide expansion. The following sections summarize commonly used classroom quality measures and conclude by identifying the need for tools specifically designed for Transitional Kindergarten (TK), given its distinct curricular framework (i.e., the Preschool/Transitional Kindergarten Learning Foundations) and its placement within the elementary school context as the first year of a two-year kindergarten program (CDE, 2025).

The Classroom Assessment and Scoring System

One commonly employed measure by researchers to assess preschool program quality is the Classroom Assessment and Scoring System (CLASS) (Pianta et al., 2008). The CLASS

serves as an observational tool for evaluating the quality of teacher-child interactions within the classroom, specifically focusing on the process quality characteristics of preschool programs. This tool's second edition evaluates quality in three areas: emotional support, classroom organization, and instructional support. However, it is worth noting that while CLASS is one of the most extensively researched measures of preschool quality, it is expensive for educators to obtain the necessary training and certification. This extensive training lasts up to three days and bears the cost of nearly one thousand dollars per person (Teachstone, 2021). Observations can also take up to one hour and twenty minutes, meaning that educators spend a significant amount of time observing classrooms, which may disrupt their time working directly with students. Ultimately, researchers have also challenged the effectiveness of this tool in assessing the quality of preschool classrooms for linguistically diverse students, as the focus of the tool is primarily on a general level of preschool quality rather than instructional practices that foster the language development of bilingual students (Figueras-Daniel & Li, 2021).

While the CLASS is a widely used measure of preschool quality related to teacher-child interactions, researchers have found significant differences in observers' ratings using the CLASS. One group of researchers found that a substantial portion (78%–95%) of the variance in these ratings was due to differences among the observers rather than random measurement error, indicating that despite extensive and costly training, the observers were unreliable sources of classroom data (Styck et al., 2020). These findings raise concerns about the reliability and consistency of CLASS scores, suggesting that observer-related variability significantly impacts the assessment outcomes, necessitating further improvements in assessment methods to achieve more consistent ratings. Due to the differences in observer

ratings, the researchers speculated that weak associations for child outcomes have emerged when examining data. Finally, the researchers attributed the weak associations between CLASS scores and child outcomes to the differences in observer ratings.

Despite being one of the most popular preschool quality tools, researchers have found that the CLASS is unrelated to child development outcomes. McDoniel et al. (2022) related the CLASS to child development outcomes as measured by the Desired Results Developmental Profile (DRDP). They discovered that all the CLASS domains were unrelated to the DRDP. This finding suggests that researchers should exercise caution in widely using the CLASS to evaluate preschool quality and make decisions to support the developmental outcomes of preschool-aged children.

The Early Childhood Environmental Rating System- Revised (ECERS-R)

The Early Childhood Environmental Rating Scale-Revised (ECERS-R) is another widely used measure of classroom quality, alongside the CLASS (Harms et al., 1998). The ECERS-R captures a range of developmentally appropriate program structures and interactions between children and teachers. The tool includes four scales measuring structural quality—Space and Furnishings, Personal Care Routines, Activities, and Program Structure—and two measuring process quality—Language-Reasoning and Interactions. Researchers have reported Cronbach’s alphas for the ECERS-R as high as 0.95, indicating high reliability. However, despite these reliability indicators, studies have shown that most of the domains measured by ECERS-R do not relate to children’s readiness outcomes. For example, one group of researchers related the ECERS-R to child development outcomes as measured by the Desired Results Developmental Profile (DRDP) (McDoniel et al., 2022). They found that all the domains of the ECERS-R were unrelated to every DRDP outcome in Spring when controlling

for fall skills, except for positive associations between the Interactions domain of the ECERS-R and every DRDP domain in Spring when controlling for winter skills. The associations ranged from 0.31 to 0.43, suggesting moderate relationships. These results suggest that children's interactions with their teachers may predict their school readiness outcomes once teachers have established classroom routines and children are familiar with the classroom environment at the beginning of the school year. The findings also highlight the importance of timing in measuring classroom quality. Notably, preschool quality measures would most likely relate to readiness outcomes if researchers collected data later in the school year.

The Classroom Assessment of Supports for Emergent Bilingual Acquisition

In response to concerns regarding preschool quality for linguistically diverse students, researchers developed the Classroom Assessment of Supports for Emergent Bilingual Acquisition (CASEBA) (Freedson et al., 2009). The CASEBA is an observational tool that researchers use to assess teachers' use of children's home language in English Language Learning classrooms. Thus, the CASEBA emphasizes the acquisition of vocabulary in both the home language and English (Figueras-Daniel & Li, 2021). The CASEBA evaluates preschool quality in terms of support for English acquisition, support for English print literacy, support for the home language, the creation of culturally responsive environments, and knowledge of the children's backgrounds.

Overall, the CASEBA seems to be a reliable tool for assessing preschool quality in Spanish English classrooms specifically, rather than for linguistically diverse students, because the CASEBA's norming sample draws from data on 100 preschools in New Jersey, where most students were Spanish English bilingual Learners (White et al., 2019). The CASEBA also demonstrates strong concurrent validity with the Early Childhood Environment Rating Scale,

another tool commonly employed to assess preschool quality. The correlations between these tools span from .44 to .70 across the various aspects of quality measured (White et al., 2019). Like the CLASS, the CASEBA also involves extensive observation requirements, with observation cycles lasting approximately three hours (Figueras-Daniel & Li, 2021). Another potential criticism of the CASEBA is its outdated norming sample, with no new edition available since its initial release.

Despite criticisms, Figueras-Daniel and Li (2021) found that classrooms assessed with the CASEBA tool, notably those led by Spanish-speaking teachers and assistants, showed better outcomes for emergent bilingual students in terms of linguistic and literacy development. These classrooms offered higher-quality interactions in both the home language and English, which are crucial for supporting bilingual students' language acquisition and literacy skills. The researchers found more significant positive outcomes in environments where both lead teachers and assistants spoke Spanish, highlighting the critical role of bilingual staffing in the educational success of bilingual students. It is important to note that the ECER-R was also used in this study to assess the same classrooms assessed by the CASEBA; however, it was not able to detect significant variation in classroom practices, suggesting that for preschool quality measures to be effective, they must incorporate the assessment of classroom practices that are broadly known to support the readiness outcomes of monolingual and emergent bilingual students alike, which include strategies such as providing visual aids and creating rich opportunities for linguistically diverse students to practice their emerging English skills with their monolingual peers (Espinosa & Magruder, 2015; Brodziak de los Reyes et al., 2021).

The Early Language and Literacy Classroom Observation-DLL

The Early Language and Literacy Classroom Observation-DLL (ELLCO-DLL) assesses the language and literacy experiences of Spanish English emergent bilingual students in preschool classrooms (Castro, 2005). The ELLCO is an observational measure comprising a literacy environment checklist, classroom observation, and a literacy activity rating scale. The literacy environment checklist includes ten items that focus on the availability of books in Spanish or English, as well as other Spanish or bilingual supports, such as word cards, labels, posters, and puzzles. The classroom observation consists of eight items rated on a scale from 1 (deficient) to 5 (exemplary), assessing the presence of books in Spanish and English, approaches to reading, writing, and curriculum integration. The literacy activities rating scale comprises eight items that assess the frequency with which teachers read to children in Spanish or English, using Spanish keywords during whole or small groups that may include monolingual students or in any language to individual emergent bilingual students. The Cronbach's alphas for each of the three components of the ELLCO-DLL range from .76 to .80, suggesting that the measure is reliable for assessing children's Spanish English experiences in preschool classrooms. However, like other observational measures, the data collection cycles are time-intensive, lasting 1 to 1.5 hours. Additionally, the ELLCO-DLL focuses exclusively on the classroom experiences of emergent Spanish and English bilingual learners, which means it does not address experiences that benefit emergent bilingual students who are not Spanish speakers. As the state becomes more linguistically diverse, it is crucial to establish measures to identify practices supporting students' outcomes regardless of their primary language. This broader approach will ensure that educational strategies are inclusive and effective for all students, fostering better academic and social outcomes across diverse linguistic backgrounds.

The Assessing Classroom Sociocultural Equity Scale (ACSES)

The Assessing Classroom Sociocultural Equity Scale (ACSES) is a recently developed measure designed to assess culturally responsive interactions and inclusion practices, which are often understudied in classroom quality research (Curenton et al., 2019). Trained observers rate how frequently teachers incorporate themes of social justice and non-stereotypical materials into their curricula. Observers can provide ratings using one-hour video clips from the classroom. Of its five domains, “Challenging Status Quo” was the most consistent predictor of children’s gains in math, executive function, and social competence. The other domains were inconsistent in predicting children’s outcomes. Despite being a relatively new measure, these results highlight a promising direction for researchers and educators to incorporate children’s diverse backgrounds into the curriculum. It is essential to integrate children’s identities into classroom instruction. Research has found that emergent bilingual students are less likely to be academically ready because early education programs often struggle to incorporate children’s cultural and linguistic capital into the classroom curriculum and daily interactions (Sawyer et al., 2016).

Summary of Classroom Quality Measures

In sum, various instruments exist for assessing program quality in prekindergarten classrooms. However, formal observational instruments such as the CLASS, ECERS-R, CASEBA, ELLCO-DLL, and ACSES often require extensive training, involve lengthy observation cycles, emphasize global dimensions of quality rather than discrete instructional practices, and were not developed specifically for TK classrooms, which are embedded within elementary school contexts. Some measures have also demonstrated weak or inconsistent associations with children’s readiness outcomes.

To date, no existing measure exists to systematically document the specific instructional practices implemented by TK teachers in alignment with the Preschool/Transitional Kindergarten Learning Foundations (2024). Given the present study's focus on identifying instructional practices across mathematics, language, and social-emotional development, a more targeted approach was required based on the standards established by the California Department of Education for transitional kindergarten classrooms. Therefore, a structured observational checklist was developed directly from the Preschool/Transitional Kindergarten Learning Foundations to document the presence of specific instructional practices within TK classrooms. In addition, comprehensive classroom fieldnotes were collected to capture instructional moments that may not be fully represented through structured checklist items. The qualitative data was concurrently collected with the checklist data and analyzed using the Preschool/Transitional Kindergarten Learning Foundations as a guiding framework, allowing for comprehensive examination of instructional practices within the TK context that may not be captured through quantitative data.

Conclusions

The expansion of universal prekindergarten programs in the United States reflects a growing recognition that early learning experiences play a critical role in shaping children's academic, social-emotional, and long-term life outcomes. Decades of research—from large-scale evaluations of Head Start, the Perry Preschool Project, and the Abecedarian Project to more recent studies of state-funded prekindergarten initiatives—demonstrate that participation in prekindergarten programs has the potential to support children's learning and development. However, despite decades of program evaluation, prior research has rarely documented the specific instructional practices enacted in prekindergarten classrooms or examined how

variation in teacher training and preparation shapes instructional decision-making and children's early learning experiences. Large-scale evaluations have frequently acknowledged these limitations, noting that they are unable to explain *how* prekindergarten programs produce positive outcomes.

As universal prekindergarten initiatives expand—particularly in states such as California that permit multiple credentialing pathways for Transitional Kindergarten (TK) teachers—understanding the role of teacher training has become increasingly important. Existing research suggests that teachers' instructional approaches are influenced by their professional preparation. Yet, little is known about how these differences manifest in TK classrooms, where teachers may enter the workforce with varying levels of early childhood specialization. This gap is especially significant given that teachers are not only responsible for instruction but also play a central role in evaluating children's readiness for school—evaluations that directly inform instructional planning and early intervention.

Research indicates that teacher training, including in-service professional development, has the potential to improve instructional quality and support children's learning outcomes. Although there is a substantial body of literature examining the effects of professional development, far less is known about how teachers' formal training pathways, particularly credentialing routes, relate to instructional practices and perceptions student's school readiness. This distinction is critical in TK, where multiple credentialing pathways exist and, in some cases, teachers may receive waivers for early childhood-specific training requirements. Without sufficient preparation in child development and early learning, teachers may be less prepared to identify markers of children's school readiness. Notably, prior research has shown

that more educated teachers will evaluate children's school readiness in ways that align with observed skills (Mashburn & Henry, 2005).

From a practical standpoint, teacher training has the potential not only to enhance instructional quality but also to support teachers' ability to identify and intervene when children experience academic difficulty. Despite widespread reliance on readiness screeners to inform instructional planning and early support services, little is known about whether teachers with different training backgrounds interpret children's skills in similar ways. Understanding such differences is particularly important in California's rapidly expanding TK system, where variability in credentialing pathways may contribute to variability in teachers' preparation to assess and support young learners.

The literature further highlights challenges associated with existing measures of classroom quality and school readiness. Widely used observational tools often require substantial resources to implement and demonstrate inconsistent associations with child outcomes. Moreover, many measures were developed prior to the statewide expansion of TK and have not been systematically examined in this new educational context. As a result, there is a need for research that documents concrete instructional practices aligned with state guidance, examines how these practices vary by teacher training background, and evaluates how teachers' readiness ratings may be shaped by their training.

The present dissertation addresses these gaps by examining the relationships among teacher training, instructional practices, and school-readiness evaluations in Transitional Kindergarten classrooms. Overall, this dissertation aims to provide a comprehensive account of how teacher training influences teacher's perceptions of children's school readiness and their instructional practices in the classroom. Findings from this work have the potential to

inform professional development efforts, support more equitable and accurate readiness assessment practices, and strengthen alignment between state-level guidance and classroom implementation as universal prekindergarten programs continue to expand in California and across the nation.

Research Design

The present dissertation was composed of two research studies. Multilevel analyses were conducted in the first study to examine whether differences in teacher training were associated with differences in teachers' perceptions of children's school readiness. Classroom observations utilizing a quantitative checklist of instructional strategies and complementary qualitative field notes were conducted in the second study to examine instructional practices implemented in TK classrooms and potential differences in implementation by teacher training. Because teachers' perceptions of children's readiness may shape how they organize classroom routines, analysis of classroom field notes provided insight into how perceptions of children's school readiness may translate into the instructional practices teachers use in their classrooms. The research questions addressed by this dissertation are as follows:

Table 3*Overview of Research Questions, Hypotheses, Measures, and Analytic Plan*

Research Questions	Hypothesis	Justification	Measures	Analysis
1. Do teachers with different training backgrounds differ in how they perceive children's school readiness at TK entry?	Teachers with additional child development training will rate children differently than teachers with a standard elementary credential due to being more attuned to children's developmental milestones.	Prior research shows that teachers with additional training may perceive children's school readiness differently, potentially due to greater awareness of the natural progression of children's developmental skills (Mashburn & Henry, 2005).	Prekindergarten School Entry Profile (PSEP)	Multilevel Analysis
2. What types of instructional practices do Transitional Kindergarten (TK) teachers use in the areas of mathematics, language and literacy, and social-emotional development?	Transitional Kindergarten (TK) teachers in Central Coastal California will implement language and literacy instructional practices more frequently than mathematics practices, which will in turn be implemented more frequently than social-emotional development practices.	Prior research suggests that early childhood educators often devote more instructional time to language and literacy than to mathematics and that classrooms are becoming increasingly academic (Jenkins et al., 2019; Manship et al., 2017). In contrast, social-emotional learning is largely	Quantitative checklist data Qualitative field note data	Descriptive Statistics Thematic Analysis

embedded throughout the day rather than taught through structured lessons, as children develop social-emotional skills most effectively through natural interactions. More specifically, social-emotional development is shaped in the context of ongoing relationships with adults and peers (California Department of Education, 2026).

3. Do TK teachers with different training backgrounds differ in their use of instructional practices in the domains of mathematics, language and literacy, or social-emotional development?	Transitional kindergarten teachers with only a standard elementary teaching credential (i.e., a Multiple Subject Credential) will demonstrate greater use of instructional practices that emphasize higher-order thinking skills across the domains of mathematics, language and literacy, and social-emotional development compared to teachers with additional child development training.	This hypothesis assumes that teachers with elementary school teaching experience may be more accustomed to supporting advanced academic skills, given that kindergarten classrooms have become increasingly academic in recent years (Manship et al., 2017).	Quantitative checklist data Qualitative field note data	Descriptive Statistics Thematic Analysis
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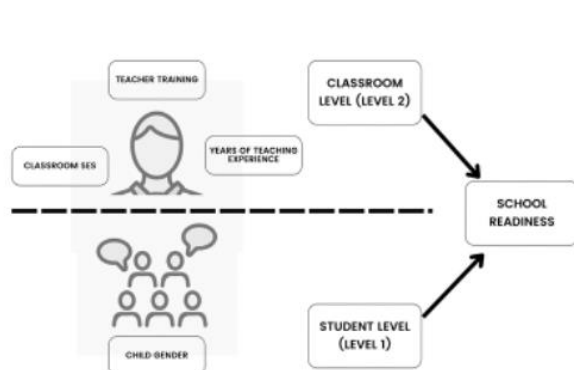
Study 1 Method

Design and Setting

This study utilized a multilevel model to examine whether teachers with different training backgrounds differed in how they rated children's school readiness at TK entry. Figure 1 presents the conceptual model for the two-level multilevel analysis, which includes variables at both the student (Level 1) and teacher (Level 2) levels. Level 1 variables represent individual student characteristics, such as gender, while Level 2 variables include teacher credentials (as a proxy for training background), years of teaching experience, and school-wide socioeconomic status, defined as the percentage of students receiving free or reduced-price lunch. Data collection took place within one school district in Central Coastal California as part of a broader project examining the instructional practices that TK teachers draw upon based on their training. At the time of data collection, the district's TK leadership team was in the process of revising instructional approaches to align with a newly developed report card for TK students. To support teacher training, particularly around student progress monitoring, district leaders were interested in examining how teacher training might influence teachers' evaluations of students on a school readiness screener.

Figure 1

Conceptual Model for the Two-Level Multilevel Analysis



Participants

Participants were 50 TK teachers employed at a single school district in Central Coastal California. Teachers had an average of 14.9 years of teaching experience ($SD = 8.2$). Most held a Multiple Subject Credential ($n = 27$), while the remaining teachers held both a Multiple Subject Credential and a Child Development Permit ($n = 23$). Collectively, the participating teachers served 829 TK students across classrooms within the district.

Measures

Two measures were utilized to address the research question of interest. The purpose of these measures was to inform professional development and support children's school readiness as part of routine district practices. The following sections provide information about each of these measures.

Demographic Questionnaires

Teacher data was collected through questionnaires. Teachers reported their years of teaching experience and credential type they held as a measure of their training experience. Additionally, the percentage of students receiving free or reduced-price lunch at each school was aggregated into the demographic data using information from the California School Dashboard, a public database that provides parents and educators with information about schools to support family engagement in children's learning (California Department of Education, 2026).

School Readiness

School readiness was measured using the *Prekindergarten School Entry Profile* (PSEP; Rodríguez Robles, 2025), a universal school readiness screener designed to measure the pre-academic, social emotional, and language/communication elements of children's readiness at

time of entry into prekindergarten. Each student in this study was rated by their classroom teacher. The PSEP has 13 items linked to the pre-academic (items 1-5), social emotional (items 6-9), and language/communication (items 10-13) domains of children's school readiness. Total readiness levels on the PSEP range from 13 to 52 on a continuous scale, with a score of 52 demonstrating mastery of all 13 items. Teachers complete the PSEP student ratings based on naturalistic observations of their students during the first month of prekindergarten. Before conducting their student ratings during the first month of TK, all teachers participated in an online video training led by the developer of the instrument to learn how to use the PSEP. Overall, the reliability of the PSEP has been substantiated in prior research, demonstrating McDonald's omegas of .80 for the pre-academic domain, 0.91 for the social emotional domain, and 0.95 for the language/communication domain. McDonald's omega was selected as the reliability coefficient because it provides a more accurate estimate of internal consistency when item loadings vary across a construct. Unlike Cronbach's alpha, which assumes tau-equivalence (i.e., that all items contribute equally to the underlying construct), omega allows for differential item contributions, making it more appropriate for multidimensional measures such as the PSEP (Deng & Chan, 2016). Further analyses have confirmed the validity of using the PSEP across different linguistic groups of children. However, research remains limited regarding whether it functions similarly across teachers with different training backgrounds. Therefore, the present study explored the use of the PSEP across teachers with different credential backgrounds to further examine its reliability as a tool for screening school readiness in Transitional Kindergarten, particularly considering recent statewide efforts to identify appropriate measures of school readiness (California Department of Education, 2026).

Procedures

The data for Study 1 originated from a broader project aimed at examining how teacher training influences instruction during the 2024-2025 academic school year. The district that participated in this project de-identified all records before sharing them with the researcher for analysis. The study and all associated procedures were approved by the Institutional Review Board at the University of California, Santa Barbara, and by the district leadership team. Following these approvals, data were collected in two stages. First, during the first month of the school year, TK teachers rated their students' school readiness using the PSEP. Then, in the spring teachers completed a questionnaire about their credentials and years of teaching experience.

Data Analysis Plan

This study examined how teacher training, defined by credential type, influenced the rating practices of TK teachers. First descriptive analysis and correlations among study variables were conducted in RStudio (R Core Team, 2023). Second, since the data (students nested within teachers) and hypotheses (the role of teacher training on the school readiness rating practices of TK teachers) were multileveled, conceptually, a Hierarchical Linear Modeling (HLM) analysis was conducted for the purposes of this phase. Student gender was included as a Level 1 variable because it represented a student-level characteristic, and students were nested within teachers. In contrast, teacher credential type, years of experience, and school-wide percentage of students receiving free or reduced-price lunch (as a proxy for socioeconomic status) were included as Level 2 variables because these characteristics varied at the teacher or school level rather than the individual student level. Teachers' years of teaching experience and the percentage of students who were socioeconomically disadvantaged were grand mean centered to support interpretation of the results.

Three nested models were estimated in HLM following recommended multilevel model building procedures (Peugh, 2010). The model-building process began with the estimation of an unconditional or null model with no predictors to calculate the intraclass correlation coefficient (ICC). The ICC further informed the decision-making process regarding the appropriateness of multilevel modeling by determining whether variation existed in children's school readiness ratings across teachers. Because the primary research question focused on a teacher-level characteristic (i.e., teacher training), the second model included teacher training as the initial Level 2 predictor. Finally, the remaining Level 2 variables (i.e., teachers' years of experience and school SES) and the Level 1 variable (i.e., child gender) were added to the final model. Deviance statistics were then compared across nested models to evaluate improvements in model fit (Peugh, 2010).

Results

RQ1: Teacher Training and Perceptions of School Readiness

A series of multilevel models were estimated to examine whether teacher training predicted their perceptions of children's school readiness. The null model indicated that 16% of the variance in readiness scores occurred between teachers ($ICC = .16$), justifying multilevel modeling as any percentage value above zero indicates that there is some difference in school readiness ratings depending on a student's teacher (Peugh, 2010). Said another way, the ICC indicated that approximately 16% of the variance in students' readiness scores was associated with the teacher they had. In Model 1, credential type was not a statistically significant predictor of readiness scores ($\beta = -2.55, p = .081$), and it only explained 1.3% of the variance in students' readiness scores. Inclusion of additional covariates in Model 2 (years of experience, school socioeconomic status, and student gender) did not substantively alter the credential

effect, which remained non-significant ($\beta = -2.42, p = .104$). Student gender was a significant predictor, with male students scoring approximately 4.48 points lower than female students ($\beta = -4.48, p < .001$). The addition of covariates reduced within-teacher variance (i.e., student-level differences) by 4.8%, whereas between-teacher variance was reduced by only 0.6%. Model fit improved significantly when covariates were added (model 2), as illustrated by the reduction in the deviance statistic. The final model explained approximately 5.4% of the variance in readiness ratings through the fixed predictors alone and 21.1% of the variance when accounting for both the fixed predictors and teacher-level clustering. Table 4 displays the results of the multilevel model. Figure 2 visually presents the results. Overall, results suggest that school readiness ratings were associated with student-level characteristics, such as gender, but were not systematically related to teacher credential pathway, years of teaching experience, or school socioeconomic status.

Table 4

Multilevel Models Predicting Perceptions of School Readiness

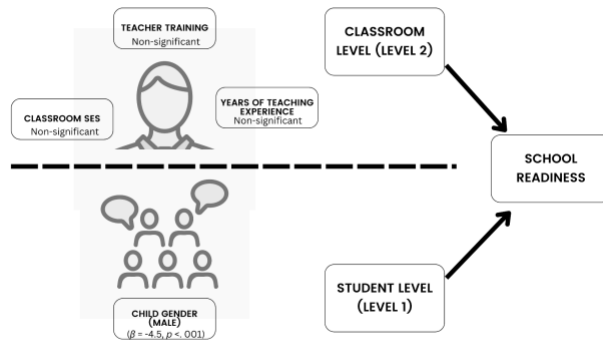
Predictor	Model 0 (null)	Model 1	Model 2
Fixed Effects			
Level 2 (Teacher-Level Variables)			
Intercept	43.55***	44.72***	46.92***
Credential Type	—	-2.55	-2.42
Years Experience (centered)	—	—	0.03
School SES (centered)	—	—	0.0008
Level 1 (Student-Level Variables)			
Gender (Male)	—	—	-4.48***
Random Effects			
Teacher Variance (τ_{00})	19.77	18.85	19.65
Residual Variance (σ^2)	103.71	103.66	98.78

Model Statistics			
ICC	.16	—	—
Level 2 PRV	—	4.7%	0.6%
Level 1 PRV	—	0.05%	4.8%
Deviance	6269.69	6266.48	6226.77
Marginal R^2	—	0.013	0.054
Condition R^2	.160	0.165	0.211

Note. PRV = proportional reduction in variance relative to Model 0. ICC calculated from the null model. * $p < .05$. ** $p < .01$. *** $p < .001$. Marginal R^2 shows how much variance is explained by the included predictors alone (fixed effects). Conditional R^2 shows how much variance is explained by the predictors plus the grouping structure captured by the random effects (e.g., differences between teachers).

Figure 2

Visual Representation of the Two-Level Multilevel Analysis



Discussion

The present study examined whether teachers with different training backgrounds differ in their perceptions of children's school readiness, while accounting for variation in teachers' school readiness perceptions, which may be influenced by classroom-level factors such as school socioeconomic status, teacher training, and years of teaching experience. Contrary to the proposed hypothesis, teachers with additional training in child development did not differ significantly in their perceptions of children's school readiness compared to those with only a standard elementary school credential (i.e., a Multiple Subject credential). These

findings differ from prior research that suggests that teachers with additional training may perceive children's school readiness differently, potentially due to greater awareness of the natural progression of children's developmental skills (Mashburn & Henry, 2005).

One potential explanation for the lack of significant differences may be the strong psychometric properties of the school readiness measure used in this study. Prior research has demonstrated the reliability of the PSEP across children from different linguistic backgrounds (Rodríguez Robles, 2025), suggesting that the measure may be structured in a way that supports consistent interpretation of children's skills. In this context, the PSEP may be accessible enough for teachers with standard elementary credentials to evaluate children's readiness similarly to teachers with more specialized training in child development.

However, it is also important to consider additional factors that may have contributed to the consistency of ratings across teacher training backgrounds, such as ongoing professional development. Prior research has shown that in-service professional development—defined as training embedded within teachers' work schedules—is effective in supporting instruction across mathematics, language and literacy, and social-emotional domains (Brendefur et al., 2013; Sheridan & Wen, 2021; Wasik & Hindman, 2011; Lane et al., 2012; Downer et al., 2011; Egert et al., 2020; Jensen et al., 2017; Conners-Burrow et al., 2017). Notably, the district that participated in the current study maintained a robust professional development infrastructure for its TK teachers, including regular in-person meetings focused on identifying high-quality instructional practices. This ongoing support may have helped teachers with a standard elementary credential develop the skills needed to accurately identify the developmental skills and dispositions children bring and eventually acquire in transitional kindergarten. It is also important to note that all TK teachers, regardless of credentials, participated in a standardized

training on completing the school readiness ratings, and ongoing consultation was available for teachers seeking additional support in identifying children's developmental milestones. Taken together, the consistency in teachers' ratings of children's school readiness may reflect not only the structure of the PSEP but also the combination of standardized training and ongoing professional development embedded within the district.

While teacher training did not significantly predict teachers' perceptions of children's school readiness, student gender was a significant predictor. Notably, girls consistently received higher school readiness ratings than boys. This pattern aligns with prior research indicating that girls tend to exhibit higher levels of school readiness in early childhood (Fidjeland et al., 2023). However, the explanation for these differences remains complex, and there is no clear consensus in the literature on why they occur. Some research suggests that these differences may reflect a combination of maturational factors and differences in how boys and girls are socialized by teachers, parents, and broader societal expectations (Fidjeland et al., 2023). For these reasons, the observed gender differences in school readiness ratings may reflect both developmental differences and contextual factors that were not directly measured in the present study. For example, factors such as variation in early learning experiences or family engagement practices may shape children's readiness for school and, in turn, influence how teachers perceive and rate these skills (Pérez et al., 2025).

It is worth noting that, although teacher-level variables in the present study did not significantly predict teachers' perceptions of children's school readiness, a meaningful amount of between-teacher variance remained unexplained. Specifically, the null model indicated that 16% of the variance in readiness scores was attributable to teacher differences, and the inclusion of teacher-level variables explained only 0.6% of this variance. This suggests that

differences in teachers' rating patterns may be driven by factors not captured in the current analyses. Notably, prior research indicates that teachers may hold strong beliefs about the skills and dispositions that reflect school readiness (Jahreie, 2025), and these beliefs may influence how teachers interpret and evaluate children's school readiness.

Overall, these results have important implications for school-wide efforts to promote student learning. With the national expansion of prekindergarten programs, there is an increasing need to identify and support children who may be at risk for academic difficulties. The present study provided preliminary evidence of the reliability of a school-readiness measure across teacher-training pathways. Although teacher training was not predictive of teachers' perceptions of children's school readiness, it may still play an important role in shaping classroom instruction to support children identified through school readiness measures.

Limitations and Future Directions

Despite the contributions to the literature on how teacher training relates to perceptions of children's school readiness, this study had limitations. First, data were collected from a single school district in Central Coastal California, which may limit the generalizability of the findings. Notably, this district had a strong professional development infrastructure and provided standardized training on the use of the PSEP. These supports may have contributed to consistency in teachers' ratings across training backgrounds. As such, it remains unclear whether similar findings would emerge in districts with fewer professional development opportunities or less structured training in school readiness assessment. Future research should examine whether these patterns replicate across more diverse districts with varying levels of teacher support and training, as districts may differ in their professional development opportunities due to funding. Future research could control for the frequency of professional

development training offered throughout the school year to better assess the non-significant relationship between teacher credentials and perceptions of school readiness. At the same time, however, prior research indicating that in-service professional development supports the development of instructional skills among teachers remains important for schools seeking to strengthen teacher capacity and continue investing in ongoing training.

Next, this study included a limited set of teacher-level variables, including credential type, years of experience, and school socioeconomic status. Although these variables were selected based on prior research, they explained only a small proportion of the variance in teachers' ratings. Notably, 16% of the variance in readiness scores was between teachers, and including teacher-level variables explained only 0.6% of this variance. These results suggest that other teacher-level factors, such as beliefs about school readiness, expectations for student behavior, or prior experiences working with young children, may play an important role in shaping teachers' perceptions. Future research should examine these factors to better understand sources of variation in teacher ratings.

Similarly, this study also included a limited set of student-level variables. More specifically, only student gender was included in the model, and although it was a significant predictor of teachers' perceptions of school readiness, other factors likely contribute to children's school readiness and how it is perceived by teachers. For example, parent engagement may lead to differences in how teachers perceive children's school readiness, as more engaged parents may be better equipped to support their children's learning by being knowledgeable about different engagement practices (Pérez et al., 2025).

Finally, it is important to acknowledge the distinction between perceived skills and those directly assessed. While the present study sought to extend evidence of reliability by

examining consistency across teacher training backgrounds, the PSEP is based on teachers' naturalistic observations rather than a direct assessment of children's skills. Although this approach is practical given the time demands placed on teachers, it reflects teachers' perceptions of children's abilities rather than their performance on standardized tasks. Future research could examine the extent to which school readiness ratings on the PSEP align with measures that directly assess children's skills. Establishing this relationship would provide additional evidence of the PSEP's validity.

Conclusion

This study examined the relationship between teachers' training and their perceptions of children's school readiness. Findings provided preliminary support for the PSEP's reliability across two distinct teacher training groups represented in the data. As California continues to expand transitional kindergarten and broaden pathways into TK teaching, school systems are increasingly tasked with identifying reliable measures to support early identification of children who may benefit from additional support before beginning kindergarten. This includes selecting measures that function consistently not only across children from diverse racial and linguistic backgrounds, but also across teachers with varying levels of training.

At the same time, the findings from this study highlight the importance of how school readiness measures are used within school systems. Although teacher training was not associated with differences in readiness ratings, training may still play an important role in how teachers respond in their instructional practices to support children with identified needs. Therefore, school readiness measures should be considered not only as tools for identification but also as part of a larger system of support that includes professional development, progress monitoring, and instructional decision-making.

Study 2 Method

Lead Researcher's Positionality

I was motivated to conduct this study by my appreciation and gratitude for teachers. I would not be where I am today without the support and guidance of the educators I encountered throughout my educational journey. These teachers cared deeply about me, challenged me, and provided the scaffolding I needed to grow into the student and professional I am today. My appreciation for teachers and my desire to support others led me to the helping profession, first as a prekindergarten teacher working with children from 3 months to 3 years of age, and eventually to this study.

My interest in this study emerged as California began expanding Universal Transitional Kindergarten (TK). Although I shared an early childhood education background with many TK teachers, I recognized that TK occupies a distinct position within California's public education system and that I had never served as a TK teacher myself. As I spoke with teachers, I found that while many were eager about the opportunity to teach California's youngest learners, they were also managing new expectations and had questions about how best to support children's learning and development within this newly established grade level prior to kindergarten. Given the rapid expansion of TK, I became interested in understanding the instructional practices teachers were using.

Overall, I conducted this study in the hope that it would be helpful for my fellow teachers. Teachers were often enthusiastic about this project, sharing that they were curious about what their colleagues were doing in their classrooms. However, due to the demands of teaching and their own classroom responsibilities, they rarely had opportunities to observe and learn from one another. This study strives to help teachers learn from one another by

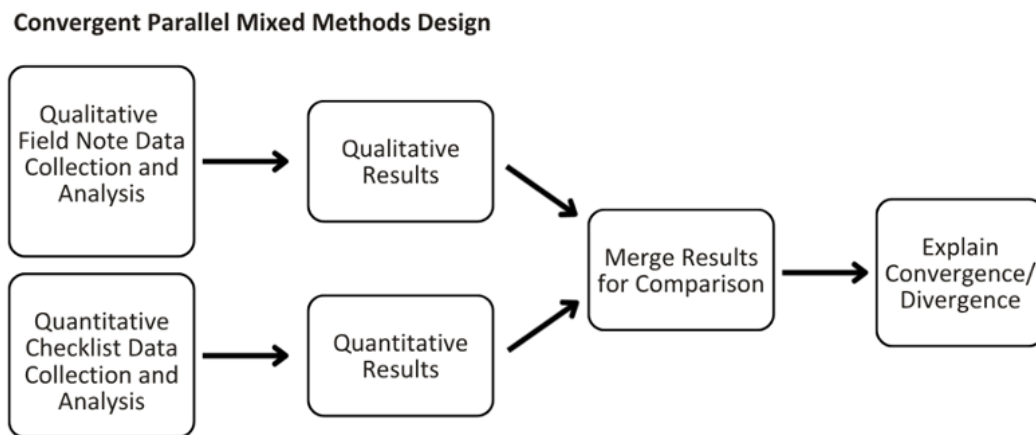
documenting the range of practices across TK classrooms. In sum, I recognize that each teacher contributes unique experiences to the classroom, and I hope this work supports the ongoing sharing of knowledge among teachers. As a former teacher, I had nothing but gratitude for the opportunity to learn about classroom practice from the teachers actively involved in transitional kindergarten.

Design and Setting

This study utilized a convergent parallel mixed methods design to document the instructional strategies that TK teachers implemented across the domains of mathematics, language and literacy, and social-emotional development. Differences in instructional practices based on teacher's backgrounds were also examined. Figure 3 illustrates the conceptual model for the convergent parallel mixed methods design.

Figure 3

Conceptual Model for the Convergent Mixed Methods Design



To document instructional practices, both quantitative and qualitative data were concurrently collected during the same classroom observations. A quantitative checklist, developed using a deductive approach from the PTKLF (California Department of Education, 2026), was used to capture the presence of specific instructional strategies. At the same time,

the lead researcher collected qualitative field notes to document more detailed descriptions of teacher prompts, child responses, and the overall instructional context.

Both the checklist and the qualitative field notes were organized using the same PTKLF-aligned framework to ensure consistency across data sources. The PTKLF sets learning standards for young children across the state of California and includes strategies that teachers can use to support children's growth in different domains. It was ultimately selected as the guiding framework for this study due to its relevance in shaping instructional practices in TK classrooms across California.

The checklist consisted of a subset of instructional strategies explicitly listed in the PTKLF and was designed to capture observable practices likely to occur during typical classroom routines. A codebook was developed from the PTKLF to categorize the qualitative field notes. The field notes were deductively coded based on this codebook, with data categorized using the PTKLF as the predefined theoretical framework (Stuckey, 2015). In this study, both checklist data and qualitative field notes were organized into three domains: mathematics, language and literacy, and social-emotional development. This method enabled triangulation of findings and supported the alignment of quantitative and qualitative data within the convergent parallel design.

Data collection took place in three public school districts located in Central Coastal California. The study was conducted in partnership with First 5 Santa Barbara County, a local commission funded by California's Proposition 10 that supports the health, development, and school readiness of children from birth to age five. The lead researcher previously collaborated with First 5 on a county-wide evaluation project aimed at developing strategic plans to promote positive outcomes in early childhood and early elementary education. As part of this Early

Learning Initiative (ELI), First 5 contacted district leaders across the region to identify school districts interested in participating in research focused on TK instruction. Three districts responded with interest and subsequently shared the opportunity with their TK teachers. Participation was voluntary, and teachers decided individually whether to participate in this project. The study and all its associated procedures were approved by the Institutional Review Board at the University of California, Santa Barbara. According to the Deputy Director of First 5 Santa Barbara, there were approximately 82 transitional kindergarten classrooms across the three participating school districts at the time of data collection. Of these, 24 TK teachers participated in the study, yielding a recruitment rate of approximately 29%.

Participants

Participants included 24 TK teachers across Central Coastal California with an average teaching experience of 17.6 years ($SD = 9.7$). The teachers were from three different school districts. Of the total sample, most teachers held only a Multiple Subjects credential ($n = 15$), while the remaining teachers held both a Multiple Subjects credential and a Child Development Permit ($n = 9$). The sample also included 14 full-day programs and 10 half-day programs.

Measures

This phase utilized three measures to address the research questions of interest. The purpose of these measures was to collect information on teacher's training and document their instructional practices utilizing the PTKLF as a guiding framework. The following sections provide information about each of these measures.

Demographic Questionnaires

Teacher and classroom demographic data were collected through questionnaires completed by teachers who consented to participate in the study. The information collected is

provided in the participants section of this study. Teachers reported their years of teaching experience, credential type, program length (full-day or half-day), and class size.

Quantitative Checklist

The researcher developed an observation checklist to quantify the instructional strategies implemented by Transitional Kindergarten (TK) teachers during classroom observations. The checklist was created using a deductive approach, drawing directly from the Preschool/Transitional Kindergarten Learning Foundations (PTKLF; California Department of Education, 2026). The PTKLF outlines developmentally appropriate instructional strategies across nine developmental domains; however, for the purposes of this study, only the domains of mathematics, language and literacy, and social-emotional development were selected for the checklist. These three areas were selected based on prior research identifying them as critical components of school readiness for prekindergarten students (Kriegel et al., 2021; Pan et al., 2019; Snow, 2006).

To ensure feasibility of use during a single classroom visit, the checklist included a subset of strategies explicitly listed in the PTKLF that were both observable and likely to occur during typical instructional routines. In addition to cross-referencing the PTKLF, the researcher reviewed empirical studies on high-quality early childhood instructional practices to identify strategies commonly implemented by teachers in prekindergarten settings. Specifically, three studies were consulted that examined the frequency of teachers' use of evidence-based instructional strategies across the language, social-emotional, and mathematics domains: Ban et al. (2024), Heo et al. (2014), and Hawken et al. (2005). Each of these studies used teacher self-report surveys to assess the frequency of specific instructional practices in early childhood classrooms. The researcher selected a subset of items from each of these

surveys that demonstrated variability in teacher-reported use, adapting them for observational purposes and ensuring alignment with the PTKLF. Because the selected strategies were supported by both the PTKLF and prior empirical research, the checklist demonstrated strong evidence of content validity for use in this study.

The final checklist included 17 items, with 8 items in mathematics, 5 items in language and literacy practices, and 4 items in social-emotional development. Observations were structured into six 15-minute cycles, resulting in 90 minutes of observation per classroom. Teachers identified the times of day that reflected core instructional periods for language and literacy, mathematics, and social-emotional development, and observations were scheduled accordingly. During each cycle, observers marked whether each strategy was observed (1 = observed, 0 = not observed) at any point during the 15-minute period. Sample items included: “Children participate in activities focused on sorting objects,” “Children participate in activities focused on reading,” and “Children participate in activities focused on art.”

A trained graduate student participated in a structured training process prior to conducting checklist observations with the lead researcher to ensure consistency and accuracy in the use of the checklist. The training involved reading and reviewing the PTKLF domains relevant to this study—mathematics, language and literacy, and social-emotional development—to develop a shared understanding of the specific instructional strategies targeted. The trained graduate student also received detailed instructions on the checklist procedures. Training sessions included reviewing definitions of each strategy, discussing examples and non-examples, and practicing with sample field notes. The trained graduate student was required to achieve full agreement with the lead researcher on practice data before proceeding to independent classroom observations.

While the checklist was used in all participating classrooms, interrater reliability was assessed using percent adjacent agreement in a subset of five classrooms. Percent adjacent agreement is a common measure of interrater reliability among observational measures in education, which is often used due to ease of interpretability (Graham et al., 2012). The researcher and a trained graduate student conducted simultaneous but independent observations using the same checklist. Across instructional practices, agreement between raters was generally high. In the language and literacy domain, percent adjacent agreement across items ranged from 80% to 100%. In the social-emotional domain, agreement ranged from 80% to 100%. In the mathematics domain, agreement ranged from 60% to 100%. The only item demonstrating agreement at the lower bound (60%) was one-to-one correspondence; however, the percentage of ratings that differed at most by ± 1 for this item was still above chance. Overall, these findings indicate that raters were consistently aligned in their coding of instructional practices using the quantitative checklist. See Appendix A for the complete observation checklist.

Qualitative Field Notes

In addition to completing the observation checklist, the lead researcher collected qualitative field notes during each classroom observation. The field notes were composed of descriptive and reflective notes (Creswell & Guetterman, 2019). Descriptive notes documented classroom activities, including anything the teacher did to support student learning. These notes generally focused on teacher prompts, child responses, and broader instructional activities. The researcher also paid attention to activities related to the PTKLF domains of interest in this study. Additionally, the researcher used reflective notes to document personal insights and emerging impressions about the classroom context and instructional strategies

from the observations. Field notes were later deductively coded using the same PTKLF-aligned framework applied to the checklist, supporting the triangulation of findings within a convergent parallel mixed methods design.

Procedures

Following approval from the Institutional Review Board at the University of California, Santa Barbara, the researcher implemented the study in collaboration with three public school districts in Central Coastal California. Recruitment was facilitated through an ongoing partnership with First 5 Santa Barbara County as part of their Early Learning Initiative (ELI). District leaders shared information about the research opportunity with their Transitional Kindergarten (TK) teachers, and participation was voluntary. Teachers who consented to participate received a \$50 Amazon gift card as compensation, funded by the Hosford Memorial Fellowship at the University of California, Santa Barbara. Participating classrooms included both half-day and full-day programs, each providing at least three hours of daily instruction.

The researcher began the recruitment process in the Winter of 2025, and data collection occurred during the Spring of 2025. Teachers selected a day and time for a classroom observation that they believed reflected core instructional periods in mathematics, language and literacy, and social-emotional development. The lead researcher coordinated data collection days and times via email with interested teachers. Observations were conducted in both full-day and half-day TK programs, with all classrooms providing at least three hours of daily instruction.

Data collection involved both quantitative and qualitative components, which were collected concurrently in a convergent parallel mixed methods design (Creswell & Guetterman, 2019). Each classroom was observed for a total of 90 minutes, structured into six 15-minute

observation cycles during a single day. During each cycle, the lead researcher completed both the observation checklist and qualitative field notes for all participating classrooms. The checklist was used to examine the presence or absence of specific instructional strategies derived from the Preschool/Transitional Kindergarten Learning Foundations (PTKLF), while the field notes documented detailed additional contextual information about classroom activities, teacher-child interactions, and the broader instructional environment.

To establish interrater reliability for the checklist, a trained graduate student independently completed the checklist in a subset of five classrooms alongside the lead researcher. The graduate student was responsible for completing the checklist only and did not complete field notes. The field notes were completed by the lead researcher only. Training for the graduate student who assisted the lead researcher in establishing interrater reliability on the checklist involved reviewing the PTKLF domains relevant to the study, practicing with the observation checklist, and reviewing definitions of instructional strategies. The lead researcher and graduate student helper practiced coding sample data until they reached full agreement on the checklist items before observing real-world classrooms.

All classroom observations were conducted in a non-participant role, with the lead researcher and graduate student maintaining minimal interaction with teachers or students to avoid influencing classroom activities (Creswell & Guetterman, 2019). Following each observation, the lead researcher organized the checklist and field note data for later analysis. The specific procedures for analyzing the data are detailed in the *Data Analyses Plan* section of this paper.

Data Analysis Plan

The researcher utilized a convergent parallel mixed methods design to address the two research questions of interest. A convergent parallel mixed methods design was used as the quantitative and qualitative data were collected simultaneously to identify the instructional practices that TK teachers used and to examine whether the frequency of these practices differed based on their training (Creswell & Guetterman, 2019).

RQ2: Classroom Instructional Practices in TK

The second research question of this dissertation investigated the instructional practices implemented by TK teachers across mathematics, language and literacy, and social-emotional development. This question was addressed using the quantitative and qualitative components of the classroom observations. Quantitative data were derived from the checklist developed based on the PTKLF (California Department of Education, 2026). For each classroom, the presence or absence of the instructional strategies included in the checklist was recorded dichotomously (observed = 1, not observed = 0). Checklist data were aggregated across six observation cycles per teacher to calculate the total average frequency of instructional practices within each domain (i.e., mathematics, language and literacy, and social-emotional development). Each teacher also received a domain-specific average frequency score, reflecting how often instructional practices within a specific domain were observed across all cycles. This analysis addressed Research Question 2 by documenting the different practices that TK teachers implemented in each of the three targeted domains.

Qualitative data were derived from field notes that the researcher collected concurrently with the quantitative checklist data. All field notes were handwritten during classroom observations by the lead researcher and later transcribed into three separate digital text files using Microsoft Word (2024). Each team member—one doctoral-level graduate student (lead

researcher) and two post-baccalaureate research assistants—received a complete file containing all the field notes to facilitate the coding and eventual triangulation of findings.

In total, the lead researcher conducted 144 classroom observations, representing data from 24 teachers. Each teacher was observed across six 15-minute observation cycles conducted during a single 90-minute classroom visit. Altogether, this amounted to 2,160 minutes (36 hours) of observation time across all classrooms. At the start of each observation, the lead researcher was introduced to the class by the teacher. Beyond this brief introduction, all observations were conducted in a non-participant role to minimize classroom disruption. During each observation cycle, the researcher recorded both structured checklist data and qualitative field notes. The checklist captured the presence or absence of specific instructional practices aligned with the Preschool/Transitional Kindergarten Learning Foundations (PTKLF), while the field notes documented instructional activities that students engaged in throughout the duration of the observations. Overall, the 144 field notes derived from the classroom observations exceeded the recommended minimum of approximately 30 qualitative texts needed to support thematic analysis and generate reliable themes (Fugard & Potts, 2014). The research team then engaged in a step-by-step, five-phased method for thematic analysis to examine and thematically organize the instructional activities recorded in the fieldnotes using an analytic framework (Goldsmith, 2021; Klingberg et al., 2024). The five steps included researchers familiarizing themselves with the data, identifying a thematic framework, coding all study data against the framework, charting data into a framework matrix, and interpreting the data (Goldsmith, 2021; Klingberg et al., 2024)

The research team began by familiarizing themselves with the data, repeatedly reading their assigned text files containing all the field notes. During this phase, team members recorded

initial impressions, including questions, insights, and preliminary coding ideas to revisit in later phases of the analysis (Lincoln & Guba, 1985). In sum, the purpose of this step was to achieve full immersion in the data.

Then the team generated initial codes and themes using a deductive approach, identifying the PTKLF (California Department of Education, 2026) as the guiding framework. The PTKLF domains and learning standards provided the a priori categories for the codebook (Stuckey, 2015). This approach was selected because the PTKLF outlines developmental domains and provides concrete examples of instructional strategies that teachers should use, as well as the corresponding learning outcomes children may achieve in high-quality programs.

For the purposes of this study, the codebook was intentionally designed to mirror the hierarchical organization of the PTKLF. Within each developmental domain (i.e., mathematics, language and literacy, and social-emotional development), the PTKLF strands served as the overarching themes for coding. For example, within the mathematics domain, themes included strands such as Counting and Cardinality and Operations and Algebraic Thinking. Within each strand, the PTKLF substrands functioned as subthemes representing more specific developmental skill areas. For example, within the Counting and Cardinality strand, substrands included Counting Principles, Recognizing Quantities, Numeral Recognition, and Number Relationships. Each of these subthemes was listed with a corresponding definition to guide coding decisions and maintain consistency across the research team.

At the most specific level, the PTKLF foundations were treated as the individual codes within the codebook. The foundations represent the most detailed level of the PTKLF framework and describe specific skills, behaviors, and instructional practices associated with each substrand. Thus, the individual codes directly reflected the specific instructional practices

outlined in the PTKLF foundations. For example, within the Counting Principles substrand, individual codes included practices such as reciting numbers, demonstrating one-to-one correspondence, and understanding cardinality. These foundations were incorporated into the codebook as examples of how each skill might be observed in a classroom setting.

The purpose of structuring the codebook to include the strand as the theme, the substrand as the subtheme, and the foundations as examples of instructional practices was to create a clear and replicable framework for coding the observational field note data. Additionally, this methodology also ensured that the coded data of instructional practices aligned with state-defined standards of high-quality prekindergarten instruction. Finally, because the PTKLF was developed using research-based instructional strategies and expert input from the field of early childhood education, the instructional practices included in the codebook demonstrate evidence of content validity.

Each team member independently coded the same set of field notes. More specifically, codes were applied to text segments and charted using Microsoft Excel (2024), with coding conducted one domain at a time to reduce the cognitive load that would likely arise from coding all domains simultaneously. The research team applied a specific coding rule to guide the analysis of instructional moments documented in the field notes. For this study, a text segment was defined as a distinct period of teacher- or student-led activity in which one or more practices supported a foundational skill in mathematics, language and literacy, or social-emotional development, as outlined in the PTKLF (California Department of Education, 2026).

Each row in the Excel file represented one distinct activity. When different groups of children engaged in different activities simultaneously, each activity was recorded in its own row as a separate instructional segment. For example, if one group of children was building

with blocks, another group was using Magnatiles, and a third group was constructing with Legos, each activity was coded separately. Coders were instructed not to combine multiple activities into a single row, nor to break a continuous activity into multiple parts. This rule ensured that the coding process captured the breadth of students' instructional experiences while maintaining clarity and consistency across codes.

Field notes text segments describing frequently observed instructional practices not listed in the PTKLF were open coded to identify additional strategies beyond the framework used in this study. For example, the team included *Sequencing Numbers* as an instructional practice to reflect common teacher behaviors observed during math lessons. These additions were made through team discussions to ensure the codebook captured authentic classroom practices while remaining grounded in the PTKLF framework. For example, the practice of *Sequencing Numbers* was added because it aligned with the mathematics domain, specifically under Counting and Cardinality and the Number Relationships substrand.

Each text file was coded independently by the three team members. During these meetings, team members shared how they applied codes to specific instructional practices and explained the rationale behind their decisions. These discussions allowed the team to compare interpretations, clarify definitions, and resolve discrepancies. All the instructional practices identified in the coding were named by their respective domain and code and reviewed until consensus was reached across the three team members. The PTKLF was used as a supporting document whenever making decisions regarding how a practice should be coded. Overall, the process used for analyzing the field notes supported triangulation of findings by first coding the data independently and then meeting to compare interpretations and resolve differences (Anderson, 2010). Through this process, the researchers engaged in an iterative refinement of

the codes, collaboratively discussing each coding decision and sharing the reasoning behind their choices. These steps helped reduce the influence of individual bias while strengthening the consistency and trustworthiness of the analysis.

The research team met for two hours each week over the course of 15 weeks to reach consensus on all codes across the three domains of interest. Coding began with the mathematics domain, followed by social-emotional development, and concluded with language and literacy. Overall, this process spanned approximately 15 weeks. Table 5 defines the themes that emerged from the qualitative field notes.

Table 5

Theme Definitions

Theme Subtheme	Definition
Foundational Literacy Skills	Includes phonological awareness and alphabetics and print.
Phonological Awareness	Children isolate initial sounds, blend sounds, and engage in rhyming or word play.
Alphabetics and Print	Children identify letters, learn letter–sound/sign correspondence, and learn print conventions.
Reading	Includes children reading stories or other kinds of informational text.
Comprehension and Analysis of Age-Appropriate Text	Children read stories/informational text.
Writing	Includes children working on fine motor or early writing skills.
Writing Skills	Children work on developing their fine motor skills by representing sounds or writing their own name.
Counting and Cardinality	Includes counting principles, recognition of quantities, identifying numbers, and learning number relationships.

Counting Principles	Children engage in reciting numbers, one-to-one correspondence, or cardinality to promote counting principles.
Recognizing Quantities	Children engage in subitizing to recognize quantities.
Numeral Recognition	Children identifying numbers.
Number Relationships	Children sequence numbers to promote understanding of number relationships.
Operations and Algebraic Thinking	Includes number operations and classifying and patterning practices.
Number Operations	Children compose and decompose numbers and solve addition and subtraction problems.
Classifying and Patterning	Children sort, classify, and recognize, duplicate, or extend patterns.
Measurement and Data	Includes comparing objects and learning about data.
Comparing and Ordering Objects	Children compare measurable attributes of objects or measure length.
Data	Children learn how to represent or interpret data.
Geometry and Spatial Thinking	Includes learning shapes and spatial thinking tasks.
Shapes	Children identify or compose two- and three-dimensional shapes.
Spatial Thinking	Children participate in building activities.
Social Emotional Skills	Includes self-awareness, emotional knowledge, emotion regulation, social awareness, self-expression, and peer interactions.
Self-Awareness	Children participate in activities that support student confidence.
Emotional Knowledge	Children participate in activities that involve understanding their feelings in themselves and others.
Regulating Emotions and Behaviors	Children learn how to regulate emotions and follow routines and transitions.

Social-Awareness	Children participate in dramatic play.
Self-Expression	Children make art.
Peer Interactions	Children learn conflict resolution skills.

RQ3: Differences in TK Instructional Practices by Training Background

The third research question investigated whether teachers' training was associated with differences in the frequency of instructional practices across the domains of mathematics, language and literacy, or social-emotional development. To address the third research question, the research team compared how often teachers with different training backgrounds used instructional practices across mathematics, language and literacy, and social-emotional domains. For the quantitative checklist data, average frequency counts of instructional practices observed in each domain across the six observation cycles were calculated and disaggregated by credential type. For the qualitative field notes, themes representing instructional practices were identified and compared across credential types. Overall, analyses for both quantitative and qualitative data compared teachers who held only a Multiple Subject Teaching Credential with those who also held a Child Development Permit, as these were the two training backgrounds that emerged from the sample of TK teachers who participated in this study.

Results

Quantitative Results

RQ2: Classroom Instructional Practices in TK

To provide a snapshot of the breadth of instructional practices TK teachers used across domains, the total frequency of observed practices was calculated from a quantitative checklist of instructional practices. In contrast to the qualitative fieldnotes, which could code for

multiple instances of an instructional practice within an individual observation cycle (six observation cycles were conducted), the checklist recorded whether a practice occurred at least once within a given observation cycle. The number of cycles in which a practice was observed was then aggregated across cycles to create a continuous score. Therefore, each instructional practice on the checklist could be recorded up to six times (once per observation cycle).

Although this approach may have resulted in undercounts, the purpose of the checklist was not to document every instance of a practice, but rather to provide an efficient proxy for the types of instructional practices TK teachers used in the classroom. Across the observation periods, 736 instructional practices were observed across the mathematics, language and literacy, and social-emotional domains. When grouped by domain, language and literacy practices were observed most frequently ($n = 346$), followed by mathematics practices ($n = 246$) and social-emotional practices ($n = 144$). When adjusted for the number of teachers observed ($N = 24$), teachers demonstrated an average of 14.4 language and literacy practices, 10.3 mathematics practices, and 6.0 social-emotional practices across the six observation periods. Within the language and literacy domain, the most frequently observed practices across the six observation periods included opportunities for writing ($n = 73$; $M = 3.3$; $SD = 1.8$), identifying letters ($n = 53$; $M = 3.1$; $SD = 1.6$), and rhyming activities ($n = 73$; $M = 3.0$; $SD = 1.6$). Practices that occurred less frequently included learning letter sounds ($n = 68$; $M = 2.8$; $SD = 2.0$) and reading activities ($n = 53$; $M = 2.2$; $SD = 1.5$).

Next, within the mathematics domain, the most frequently observed practices included learning numbers ($n = 70$; $M = 2.9$; $SD = 1.5$), building activities ($n = 58$; $M = 2.4$; $SD = 2.1$), and one-to-one correspondence ($n = 41$; $M = 1.7$; $SD = 1.6$). Less frequently observed practices included learning shapes ($n = 28$; $M = 1.2$; $SD = 1.7$), learning patterns ($n = 19$; $M = 0.80$; SD

= 1.0), learning addition and subtraction ($n = 12$; $M = 0.50$; $SD = 0.7$), sorting activities ($n = 11$; $M = 0.46$; $SD = 0.9$), and measuring activities ($n = 7$; $M = 0.29$; $SD = 0.7$). Finally, within the social-emotional domain, teachers most frequently engaged in managing routines and transitions ($n = 58$; $M = 2.41$; $SD = 1.8$), followed by art activities ($n = 35$; $M = 1.5$; $SD = 1.7$), learning social-emotional knowledge ($n = 26$; $M = 1.1$; $SD = 1.1$), and dramatic play ($n = 25$; $M = 1.0$; $SD = 1.2$). Table 6 displays the full breadth of instructional practices documented through the quantitative checklist data.

Table 6

Frequency and Average Use of Instructional Practices Observed in Transitional Kindergarten Classrooms Based on Checklist Data (N = 24 Teachers)

Instructional Practice	Total Practices (n)	<i>M</i>	<i>SD</i>
Language and Literacy	346	14.4	4.6
Opportunities for writing	73	3.30	1.8
Identifying letters	53	3.10	1.6
Rhyming activities	73	3.00	1.6
Learning letter sounds	68	2.80	2.0
Reading activities	53	2.20	1.5
Mathematics	246	10.3	4.6
Learning numbers	70	2.90	1.5
Building activities	58	2.40	2.1
One-to-one correspondence	41	1.70	1.6
Learning shapes	28	1.20	1.7

Learning patterns	19	0.80	1.0
Learning addition and subtraction	12	0.50	0.7
Sorting activities	11	0.46	0.9
Measuring activities	7	0.29	0.7
Social Emotional	144	6.00	2.9
Managing routines and transitions	58	2.41	1.8
Art activities	35	1.50	1.7
Learning social-emotional knowledge	26	1.10	1.1
Dramatic play	25	1.00	1.2

Note. Total Practices represent the number of times each instructional practice was observed across observation cycles. Mean (M) reflects the average number of cycles in which the practice was observed per teacher across the six observation cycles (N = 24 teachers).

RQ3: Differences in TK Instructional Practices by Training Background

To examine whether teachers with different training backgrounds differed in how frequently they implemented instructional practices across the domains of language and literacy, mathematics, and social-emotional development, the mean frequency of observed instructional practices was calculated from the checklist data across the six observation periods. For reporting purposes, subscript 1 will correspond to teachers holding only an elementary credential, whereas subscript 2 will correspond to teachers holding both an elementary credential and a Child Development Permit when reporting means. Across both credential pathways, teachers most frequently implemented language and literacy instructional practices, followed by mathematics practices and social-emotional practices. After adjusting for the number of teachers within each training pathway, teachers who held both a standard

elementary school credential and a Child Development Permit implemented instructional practices slightly less frequently across language and literacy and mathematics domains than teachers who held only the standard elementary school credential, including language and literacy ($M_2 = 13.4$, $M_1 = 15.0$), mathematics ($M_2 = 9.7$, $M_1 = 10.6$). Teachers from both training backgrounds implemented social emotional practices similarly ($M_2 = 6.0$, $M_1 = 6.0$).

Overall, the checklist data indicated that teachers implemented instructional practices with similar frequency across credential pathways. However, some differences emerged. Specifically, teachers holding only the standard elementary school credential more frequently implemented activities related to reading ($M_1 = 2.5$, $M_2 = 1.8$) and identifying shapes ($M_1 = 1.4$, $M_2 = 0.8$). In contrast, teachers holding both the standard elementary school credential and a Child Development Permit more frequently implemented activities related to identifying numbers ($M_2 = 3.3$, $M_1 = 2.7$) and one-to-one correspondence ($M_2 = 2.1$, $M_1 = 1.5$). Table 6 presents the full breadth of instructional practices documented through the checklist by teacher credential pathway.

Table 6

Mean Frequency of Observed Instructional Practices by Teacher Credential Type Based on Checklist Data (N = 24 Teachers)

Practice	Elementary Credential M_1 (SD)	Elementary & Child Development Permit M_2 (SD)
Language and Literacy	15.0 (4.6)	13.4 (4.9)
Opportunities for writing	3.3 (1.8)	3.1 (1.9)
Identifying letters	3.1 (1.5)	3.0 (1.9)
Rhyming activities	3.2 (1.7)	2.8 (1.3)

Learning letter sounds	2.9 (2.0)	2.8 (2.0)
Reading activities	2.5 (1.6)	1.8 (1.4)
Mathematics	10.6 (5.3)	9.7 (3.5)
Learning numbers	2.7 (1.6)	3.3 (1.3)
Building activities	2.5 (2.0)	2.2 (2.3)
One-to-one correspondence	1.5 (1.8)	2.1 (1.2)
Learning shapes	1.4 (1.7)	0.8 (1.6)
Learning patterns	0.9 (0.7)	0.6 (1.3)
Learning addition and subtraction	0.6 (0.7)	0.3 (0.5)
Sorting activities	0.7 (1.1)	0.1 (0.3)
Measuring activities	0.3 (0.8)	0.2 (0.4)
Social Emotional	6.0 (3.3)	6.0 (2.2)
Managing routines and transitions	2.3 (1.9)	2.6 (1.9)
Art activities	1.4 (1.6)	1.6 (2.0)
Learning social-emotional knowledge	1.1 (1.4)	1.0 (0.7)
Dramatic play	1.1 (1.2)	0.9 (1.4)

Note. Teaching Credential = Multiple Subject credential; Teaching Credential + Child Development Permit = Multiple Subject credential with a Child Development Permit. In California, the Multiple Subject credential is the standard teaching credential for elementary school teachers.

Qualitative Results

RQ2: Classroom Instructional Practices in TK

In addition to the quantitative checklist, the lead researcher completed field notes to gather qualitative data on the instructional practices TK teachers use across language and literacy, mathematics, and social-emotional development. Overall, a variety of themes and subthemes emerged from coded text segments. Table 7 at the end of this section presents the full range of codes that emerged from the qualitative data. These codes were later grouped into categories that formed the themes and subthemes reported in Table 5. Analyses focused on subthemes, since these encompassed related instructional practices that could be grouped into broader themes and answered the research questions of interest.

Foundational Literacy Skills.

Phonological Awareness. The subtheme *phonological awareness* was defined as children engaging in teacher practices that involved isolating initial sounds, blending sounds, and engaging in rhyming or word play. These practices were most often observed within whole-group instruction and implemented through songs, chants, and movement-based activities. Teachers guided students in identifying beginning sounds, segmenting words into individual sounds, and blending sounds to form words, often pairing these tasks with gestures to support understanding. These patterns suggest that phonological awareness instruction is delivered through highly interactive approaches that emphasize repetition whole-group instruction.

For example, in one classroom, a teacher asked students, “Pig, dig—does it rhyme?” and students responded using gestures such as thumbs up or down. In another instance, students practiced blending sounds such as /c/–/a/–/t/ to form words like “cat,” while the teacher used

arm movements to represent each sound. Similarly, children manipulated sounds by adding or deleting phonemes to form new words. During whole-group instruction, one teacher prompted students, “Say *an* and add *cuh*—what word do you have?” and students responded as a group, “*can*.”

Alphabetics and Print. The subtheme *alphabetics and print* was defined as children engaging in teacher practices that involved identifying letters, learning letter–sound/sign correspondence, and learning print conventions. These practices were often observed during both whole-group and small-group instruction (i.e., stations). Teachers frequently introduced a “letter of the week,” guiding students in identifying uppercase and lowercase letters, producing sounds, and recognizing letters in words. These patterns suggest that alphabet instruction is structured and repetitive, emphasizing reinforcement across multiple contexts and days. For example, in one classroom, students identified letters such as “u” and said aloud words associated with the sound, while in another classroom, students practiced “air-writing” letters and connecting them to words. Students were also observed tracing and writing letters during small-group instruction. In another classroom, a teacher promoted an understanding of print conventions by saying, “We write from left to right,” as children wrote their names on a worksheet during a small-group activity.

Reading.

Comprehension and Analysis of Age-Appropriate Text. The subtheme *comprehension and analysis* of age-appropriate text was defined as children engaging in teacher practices that involved children reading stories or other kinds of informational text. Reading activities were implemented through read-alouds, shared reading (between students), and small-group instruction. Teachers prompted students to respond to questions, repeat phrases or words, and

identify details from the text in small groups and during read-alouds. During independent reading time, children also explored books together, often creating their own stories based on the pictures. These patterns suggest that early reading instruction in transitional kindergarten classrooms emphasizes engagement with not only the teacher but also with peers. In other words, early reading instruction is highly interactive. For example, in one classroom, a teacher read a book about washing farm animals and prompted students to describe the illustrations. During the read-aloud, the teacher asked, “Who went in the tub in the book?” and revealed that they had placed a student's photo in the illustration. The students responded collectively by naming their peer whose photo was in the book, and several asked whether their photo would be included in future readings. This example illustrates the interactive and engaging nature of read-aloud practices in transitional kindergarten classrooms.

Writing.

Writing Skills. The subtheme *writing skills* was defined as children engaging in teacher practices that involved developing their fine motor skills in writing. Writing instruction was observed primarily in small-group and station-based activities. Students practiced tracing letters, writing their names, and forming letters with teacher support. These patterns suggest that writing instruction emphasizes foundational fine-motor skills and individualized support. For example, in one classroom, a teacher provided one-on-one guidance as a student practiced writing the letter *S* on a whiteboard, stating, “Start at the top, make a loop, and go down the slide.”

Counting and Cardinality.

Counting Principles. The subtheme *counting principles* was defined as children engaging in instructional practices involving reciting numbers, one-to-one correspondence,

and cardinality. Counting was consistently observed across classroom routines and activities. Students often engaged in multiple counting skills within a single activity. For example, in one classroom, a teacher displayed a ten frame and placed one circle in each box while prompting students to count aloud. Through this activity, students practiced reciting numbers, one-to-one correspondence, and cardinality by identifying the total number of objects represented. Other teachers incorporated counting principles during whole-group instruction, such as counting the number of days on a calendar with students. Counting was also embedded within classroom routines. For instance, one teacher used a chant (“1–2–3, eyes on me”) to signal transitions, prompting students to shift attention and clean up their areas.

Recognizing Quantities. The subtheme *recognizing quantities* was defined as children engaging in instructional practices involving subitizing sets of objects. Teachers implemented subitizing through a variety of approaches, such as holding up fingers and prompting students to identify the quantity, using materials (e.g., tiles) while asking “how many” questions, and displaying images (e.g., stars on a whiteboard) for students to quickly recognize and report quantities. Overall, subitizing appeared to be a multimodal instructional practice that overwhelmingly centered on students answering “how many questions” independently, as a class, or in small groups.

Numeral Recognition. The subtheme *numeral recognition* was defined as children engaging in instructional practices involving the identification of numbers. Teachers implemented these practices through a variety of activities, including worksheets, writing numbers on whiteboards, and games (e.g., rolling dice and identifying the resulting number). Numeral recognition was also embedded in classroom routines, such as labeling seats with numbers and prompting students to locate and stand at their assigned number. For example,

one teacher had students count stars aloud in English and Spanish displayed on a projector. In another classroom, students stood on assigned numbered spots on the floor before being dismissed for recess. Additionally, one teacher held up a card with a number and asked, “What number do I have—5, 2, or 3?” Students responded collectively as a class by identifying the number 3.

Number Relationships. The subtheme *number relationships* was defined as children engaging in teacher practices that involved sequencing numbers. Teachers supported number sequencing by providing students with sets of numbers to arrange in order and by using materials such as numbered puzzle pieces that required students to sequence correctly. This instructional practice was inductively coded, as it emerged from the data and was not explicitly captured within the PTKLF framework.

Operations and Algebraic Thinking.

Number Operations. The subtheme *number operations* was defined as children engaging in teacher practices that involved composing and decomposing numbers and solving addition and subtraction problems. Teachers supported these skills through the use of manipulatives and guided questioning. For example, in one classroom, students engaged in a balance activity using a scale labeled 1 through 10 on both sides. Students placed number tiles on each side to create equal values, while the teacher prompted them with questions such as, “What two numbers will balance both sides of the scale?” Students tested different combinations to balance the scale, supporting their understanding of number composition and decomposition and early addition and subtraction skills.

Classifying and Patterning. The subtheme *classifying and patterning* was defined as children engaging in teacher practices that involved sorting, classifying, or recognizing,

duplicating, or extending patterns. Teachers supported these skills through a range of activities, including sorting tasks and the use of visual and verbal patterns. For example, some teachers used chants and prompted students to continue the pattern verbally, while others incorporated patterning into classroom routines, such as using a calendar with alternating-colored magnets and asking students to predict which color would come next.

Measurement and Data.

Comparing and Ordering Objects. The subtheme *comparing and ordering objects* was defined as children engaging in teacher practices that involved comparing measurable attributes of objects or measuring length. Teachers frequently used concrete materials to support these skills. For example, one teacher guided students in comparing the sizes of animals by using blocks to measure height and counting how many blocks tall each animal was. Another teacher used different shapes in the form of Magna-Tiles to demonstrate size comparisons (e.g., showing that one Magna-Tile triangle was smaller than another).

Data. The subtheme *data* was defined as children engaging in teacher practices that involved learning how to represent or interpret data. These practices were observed less frequently than more foundational skills, such as those within the *counting principles* subtheme. However, instances did emerge from the coded data, including the use of number lines and balance scales to represent and compare quantities (e.g., weight).

Geometry and Spatial Thinking.

Shapes. The subtheme *shapes* was defined as children engaging in teacher practices that involved identifying or composing two- and three-dimensional shapes. Instruction primarily focused on foundational shapes, such as circles, squares, and rectangles. In less frequent instances, teachers introduced more complex shapes, such as cubes.

Spatial Thinking. The subtheme *spatial thinking* was defined as children engaging in teacher practices that involved building activities. Students participated in a variety of building tasks using materials such as LEGO bricks, blocks, and Magna-Tiles. These activities most often occurred during free-play periods and frequently overlapped with other forms of play, including dramatic play. Building activities also intersected with other instructional practices, particularly within the subtheme of *counting principles*, as teachers often incorporated counting by prompting students to count the number of blocks (or other building materials) they were using.

Social Emotional Skills.

Self-Awareness. The subtheme *self-Awareness* was defined as children engaging in teacher practices that involved supporting student confidence in their own abilities. Teachers promoted students' confidence by assigning classroom roles (e.g., 'helper of the day') and providing positive reinforcement following task completion. For example, one teacher provided students with stickers after completing a worksheet. Circle time also served as an opportunity for individualized attention, during which teachers checked in with students and asked questions about how they were feeling, allowing students to express their thoughts and emotions in what appeared to be a supportive, nonjudgmental context.

Regulating Emotions and Behaviors. The subtheme *regulating emotions and behaviors* was defined as children engaging in teacher practices that involved learning how to regulate emotions and follow routines and transitions. Chants were often utilized to help children transition between activities. Teachers also utilized meditative practices to teach children how to regulate their emotions. For example, teachers were observed to guide students through deep breathing exercises.

Social Awareness. The subtheme *social-awareness* was defined as children engaging in teacher practices that involved dramatic play. Students participated in dramatic play often during free-play periods. In many classrooms, teachers provided designated dramatic play areas where students could dress up as adults in professional roles (e.g., nurses, police officers). Teachers also incorporated open-ended materials to support imaginative play. For example, in one classroom, a teacher used cardboard boxes to resemble cars, and students pretended to drive.

Self-Expression. The subtheme *self-expression* was defined as children engaging in teacher practices that involved creating art. Teachers frequently incorporated art activities into classroom instruction, particularly during small-group or station-based activities, by providing materials such as colored pencils, crayons, and markers for drawing. Teachers also implemented more structured art activities, such as having students create self-portraits. In addition, art activities were often organized around thematic units (e.g., seasonal themes), with one classroom engaging students in drawing Easter eggs during the spring.

Peer Interactions. The subtheme *peer interactions* was defined as children participating in teacher practices that involved learning conflict resolution skills. Teachers supported conflict resolution by guiding students to identify and express their emotions and communicate with peers. For example, in one instance, a teacher checked in with a student who appeared upset and prompted the student to use their words to express their feelings. The student then stated to a peer, “Please don’t touch me.” Overall, the *peer interactions* subtheme was observed less frequently than other subthemes. This is likely due to the coding criteria, which included only instances in which conflict occurred, which was not frequently observed during the observation periods.

Table 7*Frequency and Average Occurrence of Codes from Qualitative Fieldnotes (N = 24 Teachers)*

	Total Codes (n)	M
Coded Practice		
LANGUAGE AND LITERACY	622	25.9
Phonological Awareness		
Isolating Initial Sounds	20	0.80
Recognizing and Blending Sounds	23	1.00
Participating in Rhyming and Wordplay	114	4.50
Alphabetics and Print		
Identifying Letters	156	6.50
Learning Letter-Sound/Sign	75	3.10
Correspondence		
Understanding Print Conventions	6	0.25
Comprehension and Analysis of Age-Appropriate Text		
Understanding Stories / Informational Text	62	2.60
Writing Skills		
Developing Fine Motor Skills in Writing	136	5.70
Writing own Name	21	0.90
Writing to Represent Sounds	9	0.40
MATHEMATICS	485	20.2
Counting Principles		

Reciting Numbers	99	4.10
One-to-One Correspondence	59	2.50
Cardinality	8	0.30
Recognizing Quantities		
Subitizing	12	0.50
Numeral Recognition		
Identifying Numbers	42	1.80
Number Relationships		
Sequencing Numbers	5	0.20
Number Comparison	4	0.20
Number Operations		
Number Composition and Decomposition	1	0.04
Solving Addition and Subtraction Problems	13	0.50
Classifying and Patterning		
Sorting and classifying	11	0.50
Recognizing, Duplicating, and Extending Patterns	22	0.90
Comparing and Ordering Objects		
Comparing Measurable Attributes of Objects	7	0.30
Measuring Length	3	0.10
Measuring Length	3	0.10

Data

Representing Data	1	0.04
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Interpreting Data	1	0.04
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Shapes

Identifying Two-Dimensional Shapes	13	0.50
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Identifying Three-Dimensional Shapes	2	0.08
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Composing Shapes	84	3.50
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Spatial Thinking

Building Activities	98	4.10
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SOCIAL EMOTIONAL	201	8.4
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Self-Awareness

Supporting Student Confidence	14	0.60
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Emotional Knowledge

Understanding Emotions in Self and	9	0.40
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Others

Regulating Emotions and Behaviors

Regulating Emotions, Behaviors, and	23	1.00
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Transitions

Managing Routines and Transitions	77	3.20
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Social-Awareness

Dramatic Play	28	1.20
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Self-Expression

Art	49	2.00
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Peer Interactions

Conflict Resolution with Peers

1

0.04

Note. Total Practices represent the number of times each instructional practice was coded for across the qualitative field notes. The mean (M) shows how often, on average, each practice was coded per teacher in the qualitative data (N = 24 teachers).

RQ3: Differences in TK Instructional Practices by Training Background

To examine whether teachers with different training backgrounds differed in their use of instructional practices across the domains of language and literacy, mathematics, and social-emotional development, qualitative codes were also disaggregated by teacher training group. Table 8 presents the full range of disaggregated codes that emerged from the qualitative data. Overall, results from the qualitative fieldnotes indicated that teachers holding both a standard elementary school credential and a Child Development Permit implemented a greater frequency of instructional practices across the domains of language and literacy, mathematics, and social-emotional development compared to teachers holding only a standard elementary school credential. However, analysis of specific codes within subthemes revealed areas in which teachers with only a standard elementary school credential demonstrated higher frequencies of certain practices. The following sections present notable differences in instructional practices across teacher credential groups.

Within the subtheme of *phonological awareness*, for example, teachers with only a standard elementary school credential more frequently implemented activities related to phonics, such as rhyming and word play. While both groups engaged in these practices in similar contexts (e.g., transitions, whole-group instruction), teachers with both credentials demonstrated higher overall frequencies of rhyming and word play activities. In addition,

teachers with both credentials more often implemented activities that required higher-order thinking, such as determining whether specific words rhymed. For example, one teacher holding only a standard elementary school credential asked students to determine whether words rhymed, stating, “Pig, dig—does it rhyme? Cat or rat—show me with your hands, thumbs up if it rhymes.” In contrast, one teacher holding both credentials prompted students to repeat the popular nursery rhyme, *the wheels on the bus*.

Within the subtheme of *alphabetics and print*, teachers holding both credentials more frequently implemented instructional practices related to foundational literacy skills, such as letter identification and learning letter sounds. Notably, teachers across credential groups implemented these practices in similar instructional contexts (e.g., small-group and whole-group instruction). However, teachers with both credentials demonstrated a higher frequency of these practices, suggesting a greater emphasis on foundational literacy skills, including letter recognition and letter–sound correspondence. For example, in one classroom, a teacher with both an elementary school credential and Child Development Permit asked students to stand on the letter *K* marked on the carpet and asked, “What sound does it make?” Students responded, “Kuh,” and the teacher said, “That’s right—it sounds like *kangaroo*.”

Within the subtheme of *writing skills*, teachers holding only a standard elementary school credential more frequently implemented instructional practices involving early writing, such as having students write their own names. For example, one teacher specifically instructed students, “At the top of the worksheet, you will write your name.” In contrast, teachers holding both a standard elementary school credential and a Child Development Permit more often emphasized foundational writing-related skills, particularly fine motor development. For

instance, one teacher with both credentials organized a fine motor activity using tweezers to place small items into plastic eggs.

Additional differences emerged between teacher credential groups within the mathematics domain. Broadly, teachers holding both a standard elementary school credential and a Child Development Permit more frequently emphasized foundational mathematics concepts. These included reciting numbers and one-to-one correspondence within the subtheme of *counting principles*, identifying numbers within *numeral recognition*, and building activities within *spatial thinking*. Although both groups implemented these foundational skills, teachers with both credentials demonstrated higher frequencies of these practices. One teacher with both credentials prompted students to recite numbers while engaging in movement, stating, “Do four jump squats and count aloud.” Another teacher supported one-to-one correspondence by using a number line and toy animals, aligning one animal to each number. Another teacher with both credentials supported numeral recognition by counting visual representations of numbers (e.g., stars displayed on a projector labeled with numbers) aloud with students in both English and Spanish. In contrast, although less frequently observed, teachers holding only a standard elementary school credential implemented higher-order mathematical practices, such as sorting and classifying objects within the subtheme of *classifying and patterning*. One teacher with a standard elementary credential guided students in sorting toy bears of different colors into separate containers.

Within the social-emotional domain, teachers holding both a standard elementary school credential and a Child Development Permit more frequently emphasized practices related to managing routines and transitions within the *regulating emotions and behaviors* subtheme, engaging in dramatic play within the *social awareness* subtheme, and participating

in art activities within the *self-expression* subtheme. Across credential groups, teachers implemented these practices in similar ways. For example, routines and transitions were often managed through chants prior to beginning new activities, dramatic play was facilitated through materials such as toy animals, cooking supplies, and dress-up items, and art activities involved providing students with opportunities to draw and color using a variety of materials. A notable difference emerged in the frequency in which teachers utilized practices used to support emotion regulation. More specifically, teachers holding only a standard elementary school credential more frequently implemented meditative or reflective practices to support regulation. For example, one teacher with only a standard elementary credential instructed students, “Let’s all take a deep breath,” while another teacher prompted students to attend to sounds in the classroom, stating, “Everyone listen to the sounds of nature,” to support calming prior to an activity. In another instance, a teacher used a book about traffic lights to introduce self-regulation strategies, explaining how deep breathing can help students recognize and respond to their emotions, similar to how traffic lights signal when to stop or slow down.

Table 8

Average Occurrence of Codes disaggregated by Teacher Credential Type Based on Qualitative Field note data (N = 24 Teachers)

Coded Practice	Elementary Credential (M)	Elementary & Child Development Permit (M)
LANGUAGE AND LITERACY	24.5	28.3
Phonological Awareness		
Isolating Initial Sounds	0.93	0.7
Recognizing and Blending Sounds	1	0.9
Participating in Rhyming and Wordplay	5.2	4.0
Alphabetics and Print		
Identifying Letters	5.1	8.9

Learning Letter-Sound/Sign Correspondence	2.5	4.2
Understanding Print Conventions	0.13	0.4
Comprehension and Analysis of Age-Appropriate Text		
Understanding Stories/Informational text	2.6	2.6
Writing Skills		
Developing Fine Motor Skills in Writing	5.5	6.0
Writing own Name	1.1	0.4
Writing to represent sounds	0.47	0.2
MATHEMATICS	19.0	22.2
Counting Principles		
Reciting Numbers	3.7	4.9
One-to-one correspondence	2.0	3.2
Cardinality	0.5	0.1
Recognizing Quantities		
Subitize	0.2	1.0
Numeral Recognition		
Identifying Numbers	1.3	2.4
Number Relationships		
Sequencing Numbers	0.3	0
Number comparison	.27	0
Number Operations		
Number composition and Decomposition	0.07	0
Solving Addition and Subtraction Problems	0.6	0.4
Classifying and Patterning		
Sorting and classifying	0.7	0.1
Recognizing, duplicating, and extending Patterns	1.1	0.7
Comparing and Ordering Objects		
Comparing Measurable Attributes of Objects	0.3	0.2
Measuring Length	0.2	0
Data		
Representing Data	0.07	0
Interpreting Data	0.07	0
Shapes		
Identifying Two-Dimensional Shapes	0.3	0.9
Identifying Three-Dimensional Shapes	0.1	0
Composing Shapes	3.5	3.6
Spatial Thinking		
Building activities	3.73	4.7
SOCIAL EMOTIONAL	7.6	9.7
Self-Awareness		

Supporting student confidence	0.13	1.3
Emotional Knowledge		
Understanding Emotions in Self and Others	0.3	0.6
Regulating Emotions and Behaviors		
Regulating Emotions, Behaviors, and Transitions	1.3	0.4
Managing Routines and Transitions	2.9	3.8
Social-Awareness		
Dramatic Play	1.2	1.1
Self-Expression		
Art	1.9	2.3
Peer Interactions		
Conflict Resolution with Peers	0	0.1

Note. The mean (M) shows how often, on average, each practice was coded per teacher in the qualitative data (N = 24 teachers).

Discussion

The present study examined the instructional practices used by transitional kindergarten teachers and whether their frequency differed by training. Consistent with the proposed hypothesis, quantitative checklist data indicated that teachers most frequently used language and literacy practices, followed by mathematics practices and, finally, social-emotional practices. Similarly, qualitative field notes showed that most coded text segments reflected language and literacy practices, followed by mathematics and social-emotional practices. This pattern of results was consistent with prior research indicating that prekindergarten classrooms are becoming increasingly academic (Jenkins et al., 2019; Manship et al., 2017), which may explain why the teachers in this study relied heavily on language and mathematics instruction.

However, it is also worth noting that many prekindergarten teachers value social-emotional instruction—sometimes more so than academics—because social-emotional skills lay the foundation for children to engage with academic content (Hollingsworth & Winter, 2013). Social-emotional skills, including self-regulation techniques, such as mindfulness,

support children's ability to attend to and participate in classroom activities (California Department of Education, 2026; Savina, 2021). Similarly, during informal conversations with teachers throughout this project, many expressed a strong value for social-emotional practices.

One possible explanation for the discrepancy between what teachers say they value and the lower observed frequency of social-emotional practices is that social-emotional practices may be less readily observable. For example, teacher warmth, the sense of connection children feel with their teachers, and overall classroom climate are important components of classroom practice (California Department of Education, 2026; Rojas et al., 2021), yet they may be more difficult to quantify or capture through structured observation methods, such as a checklist. Therefore, the results of this study reflected fewer explicitly observable social-emotional practices (e.g., direct instruction in emotion identification or deep breathing) rather than a lack of overall emphasis on social-emotional development. Notably, all teachers observed during this study were responsive to children's needs, and it was evident that children were enjoying their classroom experiences alongside their peers and teachers. Nevertheless, these findings may inform opportunities for teachers to more intentionally integrate explicit social-emotional practices into their naturally embedded interactions. This may be particularly relevant, given that research suggests that social-emotional instruction is strengthened when it is embedded throughout the school day and integrated into classroom routines and interactions alongside explicit instruction (Collaborative for Academic, Social, and Emotional Learning [CASEL], 2020).

Regarding how teacher training influences instructional practice, findings were generally consistent with the proposed hypothesis that teachers with early care and education training emphasized more foundational concepts than those with only a standard elementary

credential. Quantitative checklist data indicated that teachers used practices at similar rates across domains; however, differences emerged in specific practices. Teachers holding only a standard elementary credential were more engaged in reading, learning shapes and patterns, sorting, and addition/subtraction. In contrast, teachers holding both a standard elementary credential and a Child Development Permit more frequently engaged in identifying numbers and one-to-one correspondence, while social-emotional practices were used at similar rates across credential types. Qualitative findings further supported this pattern across language and literacy, mathematics, and social-emotional instruction. Thematic analysis of field notes indicated that teachers with early care and education experience tended to emphasize foundational literacy skills, such as letter identification and letter–sound correspondence. In contrast, teachers with only a standard elementary credential tended to focus on more advanced literacy practices, including phonological awareness activities such as rhyming and word play. Within mathematics, thematic analysis of qualitative field notes similarly indicated that teachers with early care and education experience tended to emphasize foundational concepts, including reciting numbers, one-to-one correspondence, and number identification. In contrast, teachers with only a standard elementary credential tended to emphasize higher-order practices, such as sorting and classifying objects. Within the domain of social-emotional practices, thematic analysis of qualitative findings suggested subtle differences— teachers with a standard elementary credential tended to emphasize reflective or calming strategies to support emotion regulation, whereas teachers with early care and education experience emphasized foundational emotional regulation practices, such as chants to support transitions. Notably, these social-emotional findings diverged from the quantitative checklist results, which indicated similar usage across credential types.

One possible explanation for the discrepancy in instructional approaches between the two training backgrounds in the present study is the difference in measurement approaches. The checklist documented whether a practice occurred at least once during an observation period (i.e., presence vs. absence), whereas the field notes captured the frequency, context, and depth of instructional practices throughout the observation. As a result, multiple instances of a given practice could be coded for within a single observation period in the qualitative data, while the checklist recorded only whether the practice occurred at least once. Another possible explanation for differences in instructional approaches between the two training backgrounds is the rapid expansion of transitional kindergarten (TK) classrooms across California, which required districts to establish streamlined pathways to meet the demand for qualified teachers. In recognition of the expertise that early care and education teachers bring to working with young children, many preschool teachers were recruited to teach in TK classrooms and were issued Emergency Transitional Kindergarten Permits while they worked toward earning their Multiple Subject Teaching Credentials (California Commission on Teacher Credentialing, 2026). Since this study was conducted during an academic year in which TK had not yet been fully implemented statewide, many teachers may have been newly credentialed Multiple Subject teachers who previously held a Child Development Permit (which authorizes instruction in preschool settings) and were given the opportunity to transition into TK classrooms while completing credential requirements. These teachers may have emphasized more foundational practices, reflecting their experience working with younger children. This emphasis aligns with TK's intended role as a foundational year designed to support children's transition into kindergarten. In contrast, teachers who had long held a Multiple Subject

Teaching Credential and may have previously taught kindergarten may have had more experience supporting higher-order skills in older children.

However, it is also important to consider how TK has been interpreted across districts. Although the California Department of Education describes TK as the “first year of a two-year kindergarten program” that is intended to be developmentally appropriate and play-based (California Department of Education, 2026), some districts may have interpreted this guidance differently. In practice, TK may have been modeled after kindergarten, a grade level with which many teachers were already familiar, rather than a distinct early childhood education program serving as a bridge to kindergarten (Gold, 2024), which may also help explain why teachers with only a Multiple Subject Teaching Credential in the present study appeared to emphasize higher-order practices. Most recently, the California Department of Education has revised requirements for TK teachers. Educators assigned to TK classrooms after July 1, 2025, are now required to hold a Child Development Permit in addition to their primary teaching credential (California Department of Education, 2026), suggesting growing recognition of the specialized expertise that early care and education training provides teachers.

While this study is among the first to document the specific instructional practices teachers use to support children’s learning, less is known about whether these differences lead to variation in children’s school readiness outcomes. Although this is an important question with clear potential to inform professional development and improve student outcomes, it is also necessary to consider the broader context of early childhood education, which has become increasingly academic in recent years. This shift raises questions about whether focusing primarily on the predictive value of instructional practices is, at this time, the most ethically appropriate approach, particularly if such efforts risk overemphasizing academic outcomes at

the expense of fostering children's engagement and love for learning. For this reason, future predictive analyses should be conducted with careful consideration of the broader goals of transitional kindergarten, ensuring that efforts to identify effective practices do not inadvertently shift academic expectations earlier into TK, but instead preserve its role as a foundational year to support children's readiness for the increasingly academic demands of kindergarten. Aligned with this goal, results from the quantitative checklist and qualitative field notes suggested that teachers with early care and education experience placed greater emphasis on foundational skills, such as identifying numbers and one-to-one correspondence, which often serve as precursors to higher-level skills, such as addition and subtraction (California Department of Education, 2026).

Overall, the results from this study have important implications for efforts to support children's school readiness. Prior research indicates that professional development has the potential to equip teachers with new instructional practices that promote student learning (insert citations). With this in mind, in-service professional development represents an integral mechanism for disseminating instructional practices that teachers can draw on to support children's learning. District leaders and teachers alike can use these findings to reflect on and refine their instructional approaches. Notably, although teachers often emphasize the importance of social-emotional development, the present study found that explicit social-emotional skill-building practices were less frequently incorporated into the school day compared to language and literacy and mathematics instruction. As such, these findings highlight an opportunity to strengthen the integration of social-emotional practices within transitional kindergarten classrooms. Additionally, this study provides concrete examples of instructional practices currently used in transitional kindergarten, which may inform

professional development efforts and be adapted for use in prekindergarten programs more broadly nationwide.

Limitations and Future Directions

Despite its contributions to the literature on the instructional practices used by transitional kindergarten teachers, this study had limitations. First, the sample consisted of 24 teachers, which may limit the generalizability of the findings. Given that the primary purpose of this study was to inform educators about high-quality instruction in TK, data were collected from three school districts that provided robust professional development for their teachers. As a result, the findings may reflect instructional practices in contexts where teachers have access to strong professional development, rather than typical practice across all TK settings.

Additionally, the small sample size limited the ability to examine whether statistically significant differences existed in the practices used by teachers with different training backgrounds, as measured by the checklist data. Nevertheless, this study provides a preliminary view of the specific instructional practices used in transitional kindergarten classrooms, particularly in the context of their relatively recent implementation. Future research could examine the instructional practices used across teachers from multiple districts, not only to get a better sense of how teachers support children's learning, but also to include more diverse training backgrounds, given that there are at least seven district credentialing pathways teachers can pursue to work in transitional kindergarten classrooms (Commission on Teacher Credentialing, 2026).

Next, although this study documented the specific instructional practices used in transitional kindergarten classrooms, it did not assess overall classroom climate, which is the focus of traditional classroom observation measures (Rojas et al., 2021). This approach was

intentional, as the goal was to identify concrete practices that teachers can use to support children's learning and provide actionable guidance. However, future research could examine the extent to which specific instructional practices relate to broader dimensions of classroom climate and student engagement.

Future research could also incorporate teacher interviews to better understand the reasoning underlying teachers' use of specific instructional practices. While this study provided concrete examples of what teachers do in the classroom, it did not examine why these practices were selected. Interview data could potentially complement the checklist and fieldnote data by providing insight into why teachers use specific practices over others. Teacher interviews could also help clarify potential differences in instructional practices associated with training backgrounds, as teachers could describe how their unique training experiences inform their instructional decision-making.

Finally, although this dissertation identified the instructional practices used by teachers, it did not examine whether specific practices are more predictive of children's school readiness than others. Prior research has examined school readiness outcomes in kindergarten (Perez et al., 2025); however, less is known about how instructional experiences during transitional kindergarten relate to kindergarten school readiness. Given that the present study documented the instructional practices children receive during transitional kindergarten—the year prior to kindergarten in California—future research could examine whether the frequency of these practices is associated with children's kindergarten readiness, as long as researchers and district leaders are careful to avoid overemphasizing academics over children's love for learning. Such work could help identify which practices are most predictive of specific

outcomes, thereby providing actionable guidance for teachers and district administrators seeking to support children's early learning trajectories.

Conclusion

This study examined the instructional practices used by teachers in transitional kindergarten classrooms and whether teachers with different training backgrounds differ in their use of specific practices. Findings provide preliminary evidence on the types of practices implemented in transitional kindergarten settings. Educators, teachers, and researchers may benefit from understanding how teachers support children's learning and from identifying specific strategies that can be adopted in classroom practice. Overall, the results of this study have the potential to inform professional development efforts to support teachers in promoting children's early school readiness.

Overarching Summary and Conclusion

The present dissertation first examined whether teachers' training backgrounds influenced their perceptions (i.e., ratings) of children's school readiness at Transitional Kindergarten (TK) entry and whether training was also associated with differences in instructional practices. In addition, this dissertation also examined the breadth and frequency of instructional practices used in TK classrooms and whether variation in instruction was associated with differences in teacher training.

Regarding the evaluation of children's school readiness, the findings indicated that the measure used in the present study, the PSEP (Rodriguez-Robles, 2025), performed similarly across teacher credential types. Although prior research on school readiness measures has primarily examined whether instruments function equivalently across groups of children (e.g., by linguistic or racial background), the present study extends this literature by examining

teacher training as a potential source of variation in children's school readiness ratings. Results did not reveal significant differences in school readiness ratings between teachers holding a Multiple Subject credential and those holding both a Multiple Subject credential and a Child Development Permit.

Although approximately 16% of the variance in children's school readiness ratings occurred between teachers, these differences were not explained by teacher credential type, years of experience, or school socioeconomic context. This finding indicated clustering in the data and supported the use of multilevel modeling, as any non-zero intraclass correlation warrants consideration of nested data structures. Overall, the results showed that the school readiness measure performed similarly across teacher training backgrounds, providing preliminary evidence that the PSEP yields consistent ratings regardless of teachers' credential pathways. In other words, teachers with different professional preparation applied rating criteria in comparable ways.

While prior research has examined whether school readiness measures function similarly across student characteristics such as race and language (DRDP Collaborative Research Group, 2018; Rodriguez-Robles, 2025), fewer studies have examined whether these measures function similarly across teacher training backgrounds. This question is particularly relevant given the expansion of prekindergarten programs in many states, including California, where multiple credentialing pathways are permitted. The findings from this study provide preliminary evidence that the PSEP may be appropriate for use in settings with varied teacher preparation.

At the same time, the results suggest that the teacher-level variables included in the model (i.e., credential type, years of experience, and school socioeconomic context) did not

meaningfully explain variability in children's school readiness ratings. Specifically, the reduction in variance at the teacher level was minimal relative to the null model, whereas student-level variables accounted for a greater proportion of the variance after adding them to the model. This pattern suggests that additional student factors may play a more substantial role in explaining school readiness outcomes. For example, prior research has identified parental protective factors and parent engagement as significant predictors of school readiness (Perez et al., 2025). Other factors, such as prior school exposure (e.g., preschool attendance) or family experience navigating school systems, may also contribute to children's readiness for school. Future research should examine how these additional factors may predict children's school readiness ratings. Another notable finding from this study was that male students were rated significantly lower in school readiness than female students. This finding is consistent with prior research suggesting that differences in school readiness may reflect developmental or maturational differences, as well as differing social expectations across genders (Fidjeland et al., 2023).

Regarding instructional practices, this dissertation found that language and literacy practices were implemented most frequently, followed by mathematics, and then social-emotional practices. This pattern of results aligned with previous research indicating that TK classrooms in California are increasingly academically oriented (Manship et al., 2017). However, this finding appeared to contrast with teachers' reported emphasis on the importance of social-emotional development for supporting children's engagement in school (Public Policy Institute of California, n.d.). One possible explanation for this finding is the focus on observable, discrete instructional practices (e.g., identifying emotions), whereas much of social-emotional instruction occurs through relational processes, such as teacher-student

interactions and classroom climate. These factors were not fully captured in this dissertation, which focused on the concrete practices teachers used in their classroom instruction.

An additional notable finding was that the checklist and qualitative field notes yielded somewhat different representations of instructional practice frequency. The qualitative field notes documented (through thematic analysis of coded text segments) a greater number and range of instructional practices across domains, whereas the checklist data suggested more similar frequencies across teacher groups. This discrepancy likely reflects methodological differences—the checklist recorded whether a practice occurred at least once per observation cycle, whereas the qualitative field notes coded each instance a practice occurred during an observation cycle. Therefore, a single observation cycle could code multiple instances of a practice in the qualitative field notes, but not in the quantitative checklist. As a result, the field notes provided a more detailed representation of instructional frequency and variation, while the checklist provided a broader indicator of whether practices were present in classroom instruction. Despite these differences, consistent patterns emerged across both data sources. Teachers holding both a Multiple Subject credential and a Child Development Permit tended to emphasize foundational skills (e.g., identifying letters, reciting numbers), whereas teachers holding only a Multiple Subject credential more frequently implemented higher-order practices (e.g., sorting, rhyming, and word play). These findings suggest that teacher preparation pathways may be associated with differences in instructional emphasis, particularly in the development of foundational versus higher-order skills.

Taken together, the results of this dissertation contribute to the field of early childhood education by extending considerations of school readiness measurement beyond student-level factors to also include teacher-level factors that may influence how ratings are perceived and

applied in classroom settings. In other words, this study calls on researchers not only to ensure that measures function similarly across student-level characteristics to reduce potential bias but also to consider whether these measures function consistently across teacher-level characteristics. This consideration is particularly important in settings such as transitional kindergarten, where multiple pathways to becoming a teacher exist. As such, there is a need for measures that are accessible and interpretable across teachers with varying training backgrounds.

Furthermore, this dissertation is among the first to systematically document the specific instructional practices used in transitional kindergarten classrooms, offering insight into the breadth and frequency of practices across developmental domains. These findings provide concrete examples of instructional practices that teachers can potentially reference in their decision-making, as well as information that district leaders can use to inform the design of professional development. Finally, by situating these findings within the broader context of transitional kindergarten expansion, this study contributes to ongoing discussions regarding the role of teacher preparation, instructional quality, and developmentally appropriate practice in supporting children's transition to formal schooling as transitional kindergarten continues to evolve in the years to come.

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Appendix

Checklist	Implementation			Evidence
	Not observed	Observed	Cycle (1 2 3 4 5 6)	
A. Mathematics				
1. Children participate in activities focused on sorting objects.	0	1		
2. Children participate in activities focused on recognizing, creating, or extending patterns.	0	1		
3. Children participate in activities focused on learning shapes.	0	1		
4. Children participate in activities focused on learning numbers.	0	1		
5. Children participate in activities focused on solving addition and subtraction problems.	0	1		
6. Children participate in activities focused on counting objects using one-to-one correspondence.	0	1		
7. Children participate in activities focused on building.	0	1		
8. Children participate in activities focused on measurement and data, such as measuring length.	0	1		
B. Language/Communication				
9. Children participate in activities focused on reading.	0	1		
10. Children participate in activities focused on learning the letters of the alphabet.	0	1		
11. Children participate in activities focused on learning the sounds of letters.	0	1		
12. Children participate in activities focused on writing skills.	0	1		
13. Children participate in activities focused on nursery rhymes, chants, or songs.	0	1		
C. Social-Emotional				
14. Children participate in activities focused on managing transitions between tasks.	0	1		
15. Children participate in activities focused on developing their emotional knowledge.	0	1		
16. Children participate in activities focused on art.	0	1		
17. Children participate in activities focused on dramatic play.	0	1		