

Technical Assistance using the Pyramid Model



Goals

The goals of the Pyramid Model are to provide early care and education professionals: 1) the information and 2) skills to support the social-emotional competence in young children.

Program Features

The Center for Social and Emotional Foundations for Early Learning (CSEFEL) designed the Pyramid Model to prevent and address challenging behaviors of young children in group child care settings. The Pyramid Model builds upon a tiered mental health approach to providing universal supports to all children to promote wellness, targeted services to those who need more support, and intensive services to those who need them.

The tiered approach is depicted as a pyramid with:

- The foundation for all of the practices in the pyramid is the systems and policies necessary to ensure a workforce able to adopt and sustain these evidence-based practices.
- Universal supports for all children through nurturing and responsive relationships and high-quality environments.
- Prevention which represents practices that are targeted social-emotional strategies to prevent problems.
- Intervention which is comprised of practices related to individualized intensive interventions.ⁱ

Several of the developers of the Pyramid Model for Supporting Social-Emotional Competence in Infants and Young Children have designed techniques to enhance teachers' use of Pyramid strategies in early childhood classrooms. These technical assistance strategies include high-quality workshops, on-site coaching, and data collection.ⁱⁱ Technical assistance is provided to ensure that the Pyramid Model practices are implemented with fidelity.

For more information regarding the Pyramid Model use these links:
<http://www.challengingbehavior.org> and <http://csefel.vanderbilt.edu>.

Target Audience

Early care and education professionals

Pyramid Model Snapshot

- **EC Profile Indicator:** PLA40 - Average Star Rating for Children in 1-5 Star Care and Percent of Children in 4 and 5 star care or PLA50 - Average Star Rating for Subsidized Children in 1-5 Star Care and Percent of Subsidized Children in 4 and 5 star care
- **Research supports** use with early care and education professionals
- **Related Smart Start outcomes:**
 - Improved teacher/child interaction
 - More children on track for typical and/or enhanced development
- **Purveyor training required:** Yes
- **Staff qualifications:** North Carolina TA Level 11 and TA Endorsement
- **Suggested Assessments:**
 - Teaching Pyramid Observation Tool (TPOT)
 - The Pyramid Infant-Toddler Observation Scale (TPITOS)
- **Implementation Guidance:**
<http://csefel.vanderbilt.edu>.

Documented Outcomes

Type of Study	Child Outcomes			Teacher Outcomes			
	Social skills scores*	Problem behavior scores*	Child reading and language skills	Improved teaching practices/ use of the Pyramid Model	Percentage of quality indicators used	Rate of trials attempted	Rate of procedurally correct trials
Hemmeter et.al. (2011)	✓	✓					
McLean et.al. (2011) ⁱⁱⁱ			✓		✓	✓	✓
Hemmeter et.al. (2015) ^{iv}				✓			

This table contains outcomes found to be associated with the program or approach. Individual studies may contain additional outcomes that were tested and not found to be associated with the program or approach.

*Aligned with Smart Start outcome *More children on track for typical and/or enhanced development*

Research Evidence for the Pyramid Model

- Children of teachers implementing the model had fewer problem behaviors and more positive social skills.^v
- Coaching is associated with improved teacher practices.

Review of Experimental and Quasi-Experimental Studies

Citation	Hemmeter, M.L., Fox, L., & Snyder, P. (2011). Professional development related to the teaching pyramid model for addressing the social emotional development and challenging behavior of young children. Presentation made at the 3 rd conference of the International Society on Early Intervention, New York, NY.
Population and Sample	<ul style="list-style-type: none"> • 20 treatment teachers • 20 control group teachers • 2-3 children from each classroom
Methodology	Experimental, with random assignment
Purpose	The presentation summarized findings from a study of the effect of Pyramid Model on child social/emotional development.
Measures & Assessments	<ul style="list-style-type: none"> • Early Childhood Environment Rating Scale • Teaching Pyramid Observation Tool (TPOT) • Target Child Observation System • Social Skills Intervention System
Study Implementation	<ul style="list-style-type: none"> • Intervention teachers received 3 days of training (19.5 hours); implementation guides and materials; and weekly observation, coaching sessions, and email feedback. • Control teachers received training at the end of the study. • There were 2-3 target children in each classroom. Target children were identified using the Caregiver Teacher Report Form from the Child Behavior Checklist.
Staff Qualifications	<ul style="list-style-type: none"> • Not addressed
Key Findings	<p>Target Children</p> <ul style="list-style-type: none"> • The study team found that there were differences between treatment and control group students with regard to social skills scores, wherein the treatment group adjusted mean score was 88.6 and the control group adjusted mean score was 84 (Cohen's $d=.41$, $p=.069$). • The study team found that there were differences in mean problem behavior scores, wherein treatment group students had an adjusted mean score of 108.7 and the control group had an adjusted mean score of 115.5 (Cohen's $d=-.52$, $p=.016$). • The study team also found "statistically significant and noteworthy differences in frequency of positive social interactions for interventions classrooms at wave 4," wherein wave 4 was

the final wave of data collection.

Non-Target Children

- The study team found that there were differences between treatment and control group students with regard to social skills scores, wherein the treatment group adjusted mean score was 103.8 and the control group adjusted mean score was 96.4 (Cohen’s $d=.46$, $p=.009$).
- The study team found that there were lower mean problem behavior scores, wherein treatment group students had an adjusted mean score of 95.14 and the control group had an adjusted mean score of 99.2.

Citation	McLean, M., Snyder, P., Sandall, S., and Hemmter, M.L. (2011). Professional Development in Embedded Instruction. Presentation for the annual meeting of the American Education Research Association, April 2011, New Orleans Louisiana.
Population and Sample	The study incorporated 36 teachers at three preschool sites, with 11 to 13 teachers per site. There were 106 children across the three sites. This included two to three “target” children with disabilities, in each classroom. All children in the study had an Individualized Education Program (IEP).
Methodology	Experimental, with random assignment of teachers
Purpose	The study targeted several questions: <ol style="list-style-type: none"> (1) What is the relationship between exposure to the professional development intervention and teachers’ frequent and accurate use of embedded-instruction practices? In answering this question, the study team focused on (a) developing quality learning targets (LTRS); (b) implementing planned learning opportunities (EIOS); and (c) delivering complete learning trials (EIOS). (2) Do scores on standardized measures of key preschool indicators (pre-academic, literacy, language, and social-emotional behavior) differ among children whose teachers were involved in each of the three experimental professional development conditions? (3) What are teachers’ perspectives about embedded instruction and the professional development they received?
Measures & Assessments	<ul style="list-style-type: none"> • Test of Early Reading Ability—Third Edition (TERA-3) • Preschool Language Scale-Fourth Edition (PLS-4)
Study Implementation	<ul style="list-style-type: none"> • Embedded instruction was described as a “<i>multi-component approach to provide intentional and systematic instruction on priority learning targets during typically occurring activities, routines, and transitions to support child engagement and learning.</i>” • The study incorporated three study conditions: <ol style="list-style-type: none"> (1) Tools for Teachers workshops plus on-site coaching (2) Tools for Teachers workshops plus self-coaching (3) Wait-list control group • Teachers in both of the experimental conditions received 16.5 hours of workshops, implementation guides and materials, and a digital video camera. • On-site coaching consisted of observation, debrief, and email feedback, provided over a mean of 16 sessions. • Wait-list comparison group teachers received workshops, implementation guides, a digital video camera, and access to the web site after the study ended. • Implementation fidelity was facilitated with workshop implementation guides and tracked with a workshop fidelity checklist. The study team also examined the instructional strategies used by the trainer and compared time allocated to time spent. • Proximal outcomes were measured at five time periods: before workshops, after workshops, in the 2nd month of coaching, in the 4th month of coaching, and after the intervention. • Distal outcomes were measured at two time periods: before workshops and after the intervention
Staff Qualifications	<ul style="list-style-type: none"> • Qualifications for coaching staff were not addressed
Key Findings	<ul style="list-style-type: none"> • The study team found significant treatment effects when comparing teachers in the coaching versus teachers in the control group. More specifically: <ul style="list-style-type: none"> ○ The adjusted mean score for percentage of quality indicators (LTRS) was 70.29 for the coaching group and 56.95 for the control group (Cohen’s $d=1.32$, $p<.05$). ○ The adjusted mean score for rate of trials attempted (EIOS) was .55 for the coaching group and .24 for the control group (Cohen’s $d=1.123$, $p<.05$). ○ The adjusted mean score for rate of procedurally correct trials (EIOS) was .38 for the coaching group and .09 for the control group (Cohen’s $d=2.86$, $p<.05$).

- The study team found significant treatment effects when comparing teachers in the self-coaching group versus teachers in the control group. More specifically:
 - The adjusted mean score for percentage of quality indicators (LTRS) was 71.26 for the coaching group and 56.95 for the control group (Cohen's $d=1.42$, $p<.05$).
- The study team found significant treatment effects when comparing teachers in the coaching group versus teachers in the self-coaching group. More specifically:
 - The adjusted mean score for rate of trials attempted (EIOS) was .55 for the coaching group and .23 for the self-coaching group (Cohen's $d=1.24$, $p<.05$).
 - The adjusted mean score for rate of procedurally correct trials (EIOS) was .38 for the coaching group and .13 for the self-coaching group (Cohen's $d=2.54$, $p<.05$).
- The study team found significant treatment effects when comparing the self-coaching and control group teachers. More specifically:
 - The adjusted mean score for the alphabet subscale of the TERA-3 was 8.87 for children in classrooms with teachers conducting self-coaching and 7.54 for children in control classrooms (Cohen's $d=.46$, $p<.05$).
 - The adjusted mean score for the meaning subscale of the TERA-3 was 6.59 for children in classrooms with teachers conducting self-coaching and 5.16 for children in control classrooms (Cohen's $d=.76$, $p<.05$).
 - The adjusted mean score for the auditory subscale of the PLS-4 was 79 for children in classrooms with teachers conducting self-coaching and 73.3 for children in control classrooms (Cohen's $d=.34$, $p<.05$).
- The study team found significant treatment effects when comparing the coaching and control group teachers. More specifically:
 - The adjusted mean score for the meaning subscale of the TERA-3 was 6.56 for children in classrooms with teachers receiving coaching and 5.16 for children in control classrooms (Cohen's $d=.74$, $p<.05$).

Review of Meta-Analyses

None

Review of Descriptive and Non-Experimental Studies

Citation	Hemmeter, M. L., Hardy, J. K., Schnitz, A. G., Adams, J. M., & Kinder, K. A. (2015). Effects of Training and Coaching With Performance Feedback on Teachers' Use of Pyramid Model Practices. <i>Topics in Early Childhood Special Education, 35</i> (3), pp. 144–156.
Population and Sample	<p>The study incorporated three teachers from an urban school district. The teachers had been control group members in a prior study.</p> <p>The study took place in blended preschool classrooms in three elementary schools. All classrooms had between 14 and 16 children, about half who had disabilities, and all classrooms had a lead teacher and an assistant teacher. Each teacher had 2 to 4 children with persistent, ongoing challenging behavior and a high percentage of children receiving free or reduced price lunch (87.5%–93.8%).</p>
Methodology	<p>Non-experimental, gains within treatment group</p> <p>Multiple probe design across sets of practices, replicated across teachers</p>
Purpose	<p>The study's goal was to assess the impact of coaching and performance feedback on implementation of the Pyramid Model practices. The study also sought to assess how well the targeted professional practices were generalized and maintained.</p> <p>The following research questions were addressed:</p> <p>Research Question 1: Is training and coaching effective for increasing teachers' use of practices related to the <i>Pyramid Model</i>?</p> <p>Research Question 2: Do teachers generalize the use of coached practices to activities other than those in which they were coached?</p> <p>Research Question 3: Do teachers maintain practices after coaching on those practices end?</p> <p>Research Question 4: Does implementing the <i>Pyramid Model</i> practices with fidelity decrease classroom-wide instances of challenging behavior?</p> <p>Research Question 5: Does implementation of the <i>Pyramid Model</i> overall improve when teachers receive</p>

	<p>training and coaching on specific <i>Pyramid Model</i> practices?</p> <p>Research Question 6: What are teachers’ perspectives of the coaching process, coaching relationship, and sustainability of the <i>Pyramid Model</i> practices?</p>
Measures & Assessments	<ul style="list-style-type: none"> • Pyramid Model checklists • Class-Wide Challenging Behavior Observation Tool • Teaching Pyramid Observation Tool (TPOT)
Study Implementation	<ul style="list-style-type: none"> • Coaching in the Pyramid Model wherein there was a baseline phase (the coach did not provide any feedback) and an intervention phase (the coach provided coaching and performance feedback focused on a specific practice). The intervention required the teachers to become proficient; coaching was provided until the teacher could demonstrate the desired professional practice to specifications. The coaching strategies included: (a) providing materials, (b) modeling, (c) helping in the classroom, (d) problem-solving, (e) reflective conversation, (f) environmental arrangement, (g) side-by-side verbal or gestural support, (h) goal setting and planning, and (i) graphing. • Observations took place in the classrooms during the regular school day. Coaching sessions took place in the classroom, during naptime or after school. • The primary behaviors of interest were the teacher’s use of specific practices associated with the <i>Pyramid Model</i>. These behaviors were measured through the use of researcher-designed checklists that were based on an earlier version of the TPOT. Nine checklists were developed, and each checklist contained 7 to 10 indicators related to the practice, with precise criteria for receiving credit for each indicator. These data were collected approximately 1 to 2 times per week. During each observation, the coach collected data on the teacher’s current set of targeted practices. In addition, the coach collected intermittent probe data on the other sets of targeted practices during at least 30% of data collection observations. • A different data collector observed and collected data periodically throughout the intervention phase for each targeted practice. The teacher was unaware of the purpose of these observations, and the coach was not present during these observations. These data will hereafter be referred to as alternate observer checks. In addition, inter-observer agreement (IOA) data were collected on at least 33% of the observation sessions to ensure that the coach’s data were reliable. • During the study, IOA data were collected for all teacher, classroom, and child measures. At least 30% of observations using each measure were conducted with a primary and reliability data collector. The percentage agreement between the two data collectors was calculated using a point-by-point formula: • The number of agreements divided by the number of agreements plus disagreements was multiplied by 100. • Procedural fidelity data were collected on at least 20% of each type of coaching session for each coach (i.e., goal setting, training and action planning, debriefing, email, closing). All coaching sessions were audio recorded, and all coaching emails were saved. Coaching sessions and emails were randomly selected to be reviewed by a procedural fidelity data collector. The data collector used a checklist when listening to the audio recordings and viewing the emails to determine if the coach followed the protocol for each type of session. Procedural fidelity percentages were calculated by dividing the number of items present by the number of items possible and multiplying by 100. • In addition, to ensure procedural fidelity was completed reliably, another data collector independently completed the procedural fidelity checklists for at least 20% of all sessions that were reviewed for procedural fidelity. IOA between the two procedural fidelity data collectors was calculated using point-by-point agreement.
Staff Qualifications	<p>Before the study began, data collectors were trained on each tool and practiced using each tool in non-participating classrooms. They were required to be reliable on each tool prior to collecting data for the study. For teacher checklists, each data collector was required to complete two observations (paired with two different observers) at 80% reliability for each checklist to be considered reliable. To be considered reliable on classroom and child measures (i.e., TPOT and CCBOT), each data collector had to complete three observations with an already trained data collector, with at least 80% agreement on the measure being used.</p>
Key Findings	<ul style="list-style-type: none"> • An intensive and individualized coaching model (coaching provided at least 2-3 times per week in person or by email) is effective at improving teacher use of targeted Pyramid Model practices. • Teachers did not uniformly translate targeted practices into areas in which they had not received specific support. • Teachers can maintain targeted practices after receiving coaching; check-ins and reminders may facilitate maintenance of desired practices. • Group coaching also may be a viable model for improving teacher practices.

End Notes

ⁱ Center on the Social and Emotional Foundations for Early Learning. (n. d.). Center on the Social and Emotional Foundations for Early Learning (CSEFEL). Retrieved from: <http://csefel.vanderbilt.edu/>.

ⁱⁱ Snyder, P., Hemmeter, M. L., & Fox, L. (2011). Coaching to support fidelity of implementation of evidence-based practices in inclusive early childhood settings. Presentation made at the 3rd conference of the International Society on Early Intervention, New York, NY.

ⁱⁱⁱ McLean, M., Snyder, P., Sandall, S., and Hemmter, M.L. (2011). Professional Development in Embedded Instruction. Presentation for the annual meeting of the American Education Research Association, April 2011, New Orleans Louisiana.

^{iv} Hemmeter, M. L., Hardy, J. K., Schnitz, A. G., Adams, J. M., & Kinder, K. A. (2015). Effects of Training and Coaching With Performance Feedback on Teachers' Use of Pyramid Model Practices. *Topics in Early Childhood Special Education*, 35(3), pp. 144–156.

^v Hemmeter, M.L., Fox, L., & Snyder, P. (2011). Professional development related to the teaching pyramid model for addressing the social emotional development and challenging behavior of young children. Presentation made at the 3rd conference of the International Society on Early Intervention, New York, NY.

Note: Research summaries could include verbiage directly reproduced from the research literature. Quotes and italics may be used to show a direct quote but not always.

Published: July 2018