Fostering social and emotional competence: Implementing Dina Dinosaur’s social skills and problem solving curriculum in inclusive early childhood programs

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Christopher is a very active, outspoken 4 year old. He frequently engages in aggressive behavior and verbal outbursts, and to outside observers he looks angry most of the time. Most of Christopher’s challenging behaviors are related to refusing to share with another child or aggressively grabbing away for himself a toy that another child possesses. During this particular center time, Christopher has been playing with an airplane for over 20 minutes. Marcelo approaches and says to Christopher, “My turn.” Christopher doesn’t reply, but just keeps playing with the airplane. Marleco moves a little closer to ask again. Christopher yells, “No”, and pushes Marleco away. As Marleco moves to approach again, Christopher runs to hide underneath a table, still grasping the airplane. He shouts, “You can’t have it!!! Go AWAY”. Marleco tries to grab the airplane away and Christopher squeezes Marleco’s fingers hard until he screams. At this point the teacher, Miss Beth, intervenes – she crouches down next to the boys and explains that if the boys won’t share the airplane she will take it away and neither of them will have it. A physical battle over the airplane ensues and Miss Beth takes the beloved toy away. Christopher screams and falls to the floor, kicking at anyone who comes near. He is angry and sullen for the remainder of the day.

Christopher’s teacher, like many other teachers, is feeling frustrated and ineffective at dealing with Christopher’s behavior and improving his friendship skills. She tries to intervene in provocative situations to support Christopher and other students, but she ultimately focuses her time and attention on the problem behavior and feels that this is making matters worse. Moreover, one month into the new school year, Miss Beth already recognizes that a lot of her students are experiencing difficulty with social emotional skills. Miss Beth is seeking a new and effective way to support the children in her class.
This article describes an evidence-based intervention that was designed to increase children’s social and emotional competence, decrease problem behaviors, and increase academic competence. The Incredible Years Dinosaur School Social Skills and Problem Solving curriculum (Webster-Stratton, 1990, Webster-Stratton & Reid, 2003) has been shown in two randomized control group trials to decrease aggression and promote social skills in young children (Webster-Stratton & Hammond, 1997; Webster-Stratton, Reid & Hammond, 2001b). Originally designed as a small group treatment for children diagnosed with Oppositional Defiant Disorder or Conduct Disorder, a prevention/intervention classroom-based version of this curriculum has recently been evaluated for all children (ages 3-8 years) targeting high-risk populations. Findings from a randomized, control group intervention study in 160 classrooms (including Head Start and kindergarten classes) with 1746 children indicated that classrooms who offered the Dinosaur School program had teachers who were significantly more nurturing and consistent with discipline, focused more on promoting social and emotional behaviors and were less harsh and critical in their interactions with children. Compared with control classrooms, children in intervention classrooms where the Dinosaur Curriculum was delivered were more cooperative with teachers and peers, were observed to do more problem solving and had higher cognitive and school readiness scores (Webster-Stratton & Reid, 2006). Additionally, a pilot study was conducted investigating the effectiveness of this intervention for use with children with special needs, including Autism Spectrum Disorders. Results included increasing the receptive and expressive feeling word vocabulary, increasing appropriate and prosocial responses to interpersonal problem situations, as well as increasing engagement during large group circle times (Joseph & Strain, 2004).

As a universal intervention, the program is implemented for whole classrooms instead of offering “pull-out” programs for children with behavior problems. Because universal
interventions do not single out certain children, the risk of stigmatization for the children and families is reduced. Moreover, interventions offered to the entire classroom have the advantage of training peers (as well as targeted aggressive children) to manage conflict and provide a common problem-solving vocabulary for the entire classroom. More prosocial peers can act as models for children with less developed social skills and will also learn appropriate responses to use with other children’s aggressive behavior. Children who are withdrawn and shy are helped with social skills as well as children with aggressive behavior problems. Thus social competence is strengthened for the entire classroom. In addition, the curriculum fosters a classroom environment focused on increasing students’ understanding and empathy towards others who may have differing temperaments, activity levels, learning styles, cultural backgrounds, and academic abilities creating a climate of acceptance and appreciation of individual differences. The dosage of intervention is magnified as teachers provide reinforcement of the key concepts throughout the school day. Lastly, by providing the intervention to all children instead of only to those who qualify for special services, those at risk for developing social emotional difficulties receive intervention before their problems progress to a diagnosed level. Consider the difference it is making for Miss Beth and Christopher:

Christopher begins building a block castle with his peers by going to the shelf where the blocks are kept. Christopher, who is looking for a green rectangular shaped block, quickly finds that Jesse has them all in his pile. Christopher is frustrated but recalls the morning “Dinosaur School” circle time lesson where Miss Beth used a puppet named Wally Problem Solver to talk about how to stay calm and think of solutions to solve problems. Christopher was able to recognize his emotional state in this situation as frustrated. He also
was able to use a substitute strategy for expressing his frustration. Specifically, he took three deep breaths, told himself to calm down, and began to think of some fair and safe solutions to get his needs met. He decided to use the “asking with a friendly voice” solution and see if he could have one of the green blocks. When Jesse said, “no”, Christopher took another breath and then found a blue square block to use instead. At this point the classroom teacher, Miss Beth, who had been watching the interaction, offers him a “high-five” for such good problem solving. Christopher returns to playing with an undeniably proud affect.

In the remainder of this article, the goals and curricular content and objectives of the Incredible Years Dina Dinosaur’s Social Skills and Problem Solving Curriculum will be presented as well the teaching methods for delivering the program with fidelity (See Webster-Stratton and Reid (2004) article for more details regarding the classroom Dinosaur Curriculum).

**Goals of the Dina Dinosaur’s Social Skills and Problem Solving Classroom Curriculum.**

The overarching goals of the social and problem-solving curriculum are to promote children’s social and emotional competence and reduce aggressive and oppositional behaviors by strengthening children’s social and appropriate play skills (turn taking, waiting, asking, sharing, helping, and complimenting); promoting children’s use of self-control strategies such as effective problem-solving steps and appropriate anger management strategies; increasing emotional awareness by labeling feelings, recognizing the differing views of oneself and others and enhancing perspective taking; and decreasing children’s negative cognitive attributions and conflict management approaches.

The curriculum consists of seven units (each named after a dinosaur) including: 1) Apatosaurus: Making New Friends, (2) Iguanadon: Learning School Rules (3)
Triceratops: Understanding and Detecting Feelings, (4) Stegosaurus Unit: How to Problem Solve, (5) Tyrannosaurus Rex Unit: Tiny Turtle Teaches Anger Management, (6) Allosaurus Unit: Molly teaches how to be friendly, and (7) Brachiosaurus Unit: Molly explains how to talk with friends.

**Implementing Dinosaur School**

The six P’s to teaching Dinosaur School include– Proactive teaching strategies, Planning, Presenting, Practicing, Promoting generalization, and Parent involvement.

**Proactive Teaching Strategies.** It is vitally important that good classroom management be in place in order for the Dinosaur Curriculum to be maximally effective. Harsh and critical teaching approaches, a poorly managed classroom and failure to collaborate with parents to develop behavior plans can contribute to escalating classroom aggression. Effective classroom management strategies (such as high levels of praise and encouragement, predictable rules and schedules, effective limit setting, and positive behavioral support strategies) used along with a child-directed curriculum focused on promoting emotional and social competence can reduce aggression and rejection as well as contribute to children’s enhanced social and academic competence and stronger school bonding (Webster-Stratton & Reid, 2004).

**Planning.** The classroom-based version of this curriculum (Webster-Stratton 1999) for children ages 3-8 years consists of 64 lesson plans per year with three levels - preschool, kindergarten and primary grade (1-3) versions. Before the day begins, teachers plan and prepare the lesson plans noting the objectives and activities. This includes preparing the large group circle time lesson, practicing what the puppets will say, cueing videos, and preparing props and cue cards. Teachers also prepare small group activities that are designed to provide
practice opportunities on the new skill for every child. Planning and preparing is also related to individual child behavior plans. Teachers communicate with their teams about the behaviors the team should ignore and those they should praise to promote specific social skills. The teacher thinks about whether a small group activity needs some adaptation for a child with more or less advanced developmental skills.

**Presenting.** Teachers use the lesson plans to teach specific skills at least 2-3 times a week in a 10-20-minute large-group circle time. The instructional material is presented to children through the medium of child-sized human-looking puppets, (for example, Wally Problem-Solver and Molly Manners); a large dinosaur puppet, Dina Dinosaur; Tiny Turtle; and Oscar the Ostrich. These puppets are used to narrate scenes and teach about key skills. The ethnicity, gender, and ability of the child puppets can be varied to best represent the children in the classrooms.

The goal of the structured circle time is to present some ideas or content to the children so that they can begin to increase their repertoire of ideas and responses. Children who do not know words to express feelings cannot describe their feelings to others in problem situations. Children who do not have strategies to control their anger will not be able to respond to an adult’s directions to calm down. Children who have not learned the steps of problem solving or practiced solutions will not know how to generate solutions such as sharing, asking, trading or waiting for a turn, and will have difficulty using these strategies in their peer play. Presenting new material to children in a structured lesson primes teachers to notice and reinforce practice opportunities that occur naturally in the classroom throughout the day. For example a teacher might spend a lesson helping children to see different ways of figuring out how another person is feeling (facial cues, voice cues, body language). Then a
Incredible Years

teacher would promote these new skills during the rest of the day by commenting on or pointing out feelings that naturally occurred in the children’s play. In this way children learn a vocabulary for expressing feelings.

Short video vignettes are also used. In accordance with modeling and self-efficacy theories of learning (Bandura, 1989), children using the program develop their skills by watching (and modeling) videotape examples of key problem-solving and interpersonal skills. The vignettes serve as the stimulus for focused discussions, problem solving, role-plays, and collaborative learning. To enhance generalization, the scenes selected for each of the units involve real-life situations at school (e.g., playground and classroom). Some vignettes represent children behaving in prosocial ways such as helping their teachers, playing well with peers, using problem solving, or anger management techniques. Other vignettes are examples of children having difficulty in conflict situations, such as teasing, arguing, and destructive behavior. The videotapes show children of differing ages, sexes, and cultures interacting with adults (parents or teachers) or with other children. After viewing the vignettes, children discuss feelings, decide whether the child on the videotape made a happy or sad choice, and then generate ideas for more effective responses. They act out alternative positive solutions with puppets. They are provided with visual cue cards that help them remember new skills and emotional scripts, such as feeling names, problem solving steps, and Tiny Turtle Secrets for anger management.

Christopher’s class is currently learning the Triceratops Unit: Detecting Feelings. During circle time the puppet, Wally Problem Solver, accompanies Miss Beth as she begins the lesson on identifying the feelings of happy, joyful and excited as well as frustrated and angry. Miss Beth shows the children a short video vignette depicting a young girl jumping
rope and smiling. She pauses the video, allowing the children to see the details of the little
girl’s face and then Wally asks the children to raise a quiet hand if they know how the little
girl is feeling. Christopher raises his hand, and when called upon, offers, “happy...and
excited!” Wally offers Christopher a hug for being such a great “feeling detective”. Wally
then shares with Christopher that he is happy when he plays with his dog and asks
Christopher what makes him feels happy. The teachers are focused on helping Christopher
recognize times when he is happy, proud and calm because he mainly seems to be aware of
or express his anger.

Practicing. In order to provide an opportunity for children to learn the skills that have
been taught during large group circle time, it is essential to have small group practice
activities. Examples of activities include playing feeling face bingo, coloring in feeling
journals, making feeling quilts, drawing pictures of solutions, or coloring anger thermometers
(See Figure 1). Throughout the small group activity, the teaching team looks for, describes,
coaches, and reinforces children using the new skills. In addition to a structured small group
activity, practice opportunities are made available as teachers integrate Dinosaur School
concepts and activities throughout the learning centers during the free choice time.

At small group time Miss Beth is having the children color their own “Anger
thermometers.” She sits next to Christopher to help him color his thermometer.

Miss B: Christopher, remember yesterday when you went out to play after snack?
C: Yeah. When I got into the fight with Marleco.

Miss B: Yes, that time. Do you remember how you feeling when you went outside? Because,
I remember seeing you with a smile on your face.
C: I was happy.
Miss B: I thought so. Let’s write that word down here at the bottom of the thermometer. H-A-P-P-Y. There, now you can color that a calm color, like blue. But then something happened. Do you remember what that was?

C: Yeah, I wanted to ride on the red bike, but Marleco got it first.

Miss B: oh. Well how did you feel then?

C: Sad.

Miss B: And maybe a little disappointed. I’ll write those words here. What color should we make this part of the thermometer?

Miss Beth continues to help Christopher until his Anger Thermometer is colored and feeling words are scribed.

START PULL OUT BOX—

The anger thermometer is used to teach children self-control and to monitor their improvements. Children can decorate the thermometer with pictures of feeling faces from “happy” and “relaxed” in the blue (or cool) section of the thermometer - all the way up to “angry” or “stressed out” in the red (or hot) section of the thermometer. We also put Velcro down the side and have a yellow arrow with Velcro that can be moved up and down when they practice taking deep breaths to calm down. The teacher can then ask children to describe a recent conflict and together with the child retrace the steps that led to the angry outburst.

The teacher writes down the child’s actions, thoughts and words that indicated an escalating anger pattern (e.g., thinking “he always takes my toys” yelling, kicking). Then the teacher discusses with the child the thoughts, words and actions that the child can use to reduce their anger. As the teacher retraces the steps of the angry outburst – s/he helps the child identify
the time or situation that caused him or her to start getting angry. This is marked as the
“Danger Point” on the thermometer and pointed to with the yellow arrow. Once the child has
established their danger point – they give it their own name (e.g., chill out, cool down, code
red, hot engine, etc.). This code word can be the teacher and child’s signal that anger or stress
has reached the threshold, which triggers the use of an agreed upon calming strategy – such
as taking three deep breaths

END PULL OUT BOX

Promoting Generalization of Skills Taught. Once a particular skill has been taught in
circle time, then teachers look for opportunities during recess, free choice times, meals, or
bus rides to promote the specific skills. Ideally, as each new skill is taught, it is then woven
throughout the regular classroom curriculum so that it provides a background for continued
social and academic learning. The teacher promotes the newly taught skills throughout the
day in both informal and formal ways. Informally, the teacher catches the child using a new
skill and offers a high five, a hug, a smile, a pat on the back, praise, and acknowledgement.
Formally, the teacher promotes the new skill by giving certificates, stickers, awards,
friendship capes, notes home to parents, and announcements of a child’s accomplishment at
the end of the day. This promotion time is crucial to solidifying children’s newly learned
skills, however, if the new skills have not been presented first during a structured learning
time, it is difficult to increase children’s repertoire of possible responses. It is the
combination of formal learning in circle time, structured practice in small groups, and
promotion during planned and spontaneous “teachable moments” that makes learning
successful. Utilizing an activity matrix helps to organize these planned learning opportunities
(see Table 1).
During outside time, Christopher is waiting for a turn on the slide. The child in front of him is taking quite a bit of time deciding whether or not to go. Christopher’s jaw appears a little tense and his fists begin to clench. He closes his eyes, takes a breath and says, “I am getting frustrated.” Miss Beth’s assistant, Mr. Jim, observes Christopher using this new skill and encourages him saying, “Way to Christopher! You used your words, I know you are frustrated, but you are staying so calm and using your waiting muscles.” A few minutes later when Christopher gets his turn going down the slide, Mr. Jim comments again, “You look so happy now, you are having fun with your friends. You made a good choice to use your waiting muscles.”

Christopher has a behavior plan, which includes the teachers helping Christopher to recognize times when he is calm, happy, patient and friendly. Less attention is given to his angry outbursts as these have received a great deal of attention in the past. The goal is to help him have a wider range of positive emotional feelings as well as to recognize and label when he is beginning to be frustrated.

**Promoting Parent Involvement.** Widespread support for involving parents in their children’s learning grows out of convincing evidence suggesting that family involvement has a positive effect on children’s academic achievement, social competence and school quality (Webster-Stratton, 1998; Webster-Stratton, Reid, & Hammond, 2001a). Teachers send Dinosaur newsletters home weekly to inform parents about what is being taught in Dinosaur School and make positive phone calls about individual children’s successes. Dinosaur School homework is another way to promote parent involvement. Children receive a page of Dina’s Home Detective Activities with each lesson. They work on the activities with their parents so that parents can learn the problem solving language and reinforce their child’s new social
skills at home and in the community. If parents are unable to complete homework with their children at home, the children are provided with opportunities to complete the activities during the school day. Our experience to date suggests that about 85% of the parents are very involved with their children in doing the homework activities and report that they and their children enjoy this time together. This is true of parents of children with disabilities as well. Home activities can be easily modified to be appropriate for children with special needs.

Parents are also involved in Dinosaur School through parent meetings, which are held in the evening to provide information about what skills are being taught in Dinosaur School as well as through volunteer opportunities and during “celebrations” of their child’s accomplishments. Parents’ input is also solicited when individual behavior plans are developed for their child. Because research has suggested that many of children’s emotional problems are affected by parenting practices, it is important to offer parent programs that aim to reduce families’ use of inconsistent and harsh parenting and strategies for parents to strengthen social competence at home work collaboratively with teachers regarding behavior plans.

*When Christopher’s mom, Janet, drops him off in his classroom she hands Ms. Beth the Dinosaur School homework that she completed with Christopher the prior night. Christopher asks excitedly if he can put his homework into Dina’s mailbox. While he rushes to the mailbox, Ms. Beth checks in with Janet about how the behavior plan is working at home. Janet relays that Christopher is making great strides in his ability to control his anger when dealing with his sibling, “the other day when his little sister was getting into his stuff, I saw Christopher take a deep breath and just keep playing! I couldn’t believe it! So I told him that we would tell Ms. Beth and Wally Problem Solver about using Wally’s secret.”*
Promoting integration of academic skills.

Since we know that academic learning and emotional adjustment are intertwined, (e.g., behavioral problems interfere with learning, and reading and language delays trigger behavioral problems) it is important that the social emotional curriculum integrate components designed to foster reading and writing skills. While Dinosaur School is a social skills curriculum, important pre-academic language, literacy, and math skills are also promoted. Teachers are trained in “dialogic reading” an interactive reading approach developed by Whitehurst that has been shown to increase children’s language and literacy skills (Whitehurst et al., 1999). Also, parents are taught to read to their child each night using the same interactive reading approach (reading time is recorded on paper Dinosaur cut-outs and brought to school). Teachers display the paper dinosaurs around the room and offer incentives such as class parties or special prizes when a goal for reading a certain number of books is met. Through activities such as “Feeling Face Bingo” children’s matching and sorting skills are enhanced.

Over 40 laminated cue cards are used for teaching feelings, social skills, anger management, and problem solving. These cards include a picture of the key word (e.g., teamwork or sharing) and pair words of the key concept with the picture. Teachers use the cue cards during circle time and encourage children to read the word and see the connection between the written word, verbal word, and picture depicting the word’s meaning. During small group activities with art projects using some of the materials that are related to the key skill being taught (e.g., making anger thermometers) teachers are encouraged to ask the children questions and to transcribe the words and ideas of children who don’t write yet to help them understand the connection between the verbal and written word. Children are
encouraged to write (or dictate) or draw pictures about problems they have solved, write to Dina with suggestions for how to solve problems, or write about a problem they want help with. Since both the anger management and problem-solving strategies have a series of steps, each of which is depicted on a cue card, games can be played that involve sequencing the order of the steps on the cards and the story it depicts. Art projects include materials with differing shapes, colors, letters, and numbers so that the academic skills can be talked about as well as the social skill.

**Training and Preparation to deliver the Dinosaur Curriculum with Fidelity**

Training, implementation, and evaluation of Dinosaur School are important to considerations to plan for in advance in order to deliver the program with fidelity. Delivering a curriculum with fidelity is important because it means that teachers are more likely to achieve effective outcomes similar to those published. The important components of achieving fidelity include:

- **Adherence**: The entire program is delivered using all the core components following the recommended protocols and lesson plans.

- **Exposure**: This means that the full dosage of the program is given. It is not reduced in the frequency, of which lessons are delivered, or only selected units delivered or the order of when the units are offered altered.

- **Quality**: The program is delivered using all the teaching methods and processes recommended by the developer (e.g., videotape modeling, live modeling, puppets, small group practice activities and promotion efforts).

- **Differentiation**: The program is tailored according to the individual developmental needs of children. Teachers are encouraged to make modifications and adaptations for children with special needs, for classrooms with particular issues (e.g., bullying on
playground), and for unique situations that occur in a particular community (e.g.,
experiencing an earthquake, or a parent being deployed for military service). Another way
Dinosaur School is individualized is through individual behavior plans.

In order for teachers to achieve fidelity of program delivery and fully understand the
theory and principles underlying the program, it is recommended that teachers attend an
authorized Incredible Years 3-day training led by an accredited mentor or trainer. Following
this training it is recommended that teachers set up a self-study plan using the manuals and
sample lesson tapes. Ideally meeting with other teachers, school counselors or learning
specialists to review lessons and watch the videotapes as well as to practice puppet scenarios
will be very helpful when first learning the curriculum.

Once teachers have begun to offer the lessons it is recommended that they videotape
their circle time and use these videotapes to study children’s responses to the material as well
as to observe and think about their classroom management skills. Peer review sessions can be
set up weekly with other teachers where each teacher takes turns showing some aspect of
their videotape and receiving feedback from peers. Classroom Dinosaur School checklists are
helpful to refer to when viewing tapes of lessons as they include all the key components.
Videotapes can be formally reviewed by a certified mentor or trainer for eventual
certification in this curriculum.

It is important that administrators and other school personnel are supportive to
teachers as they learn this new curriculum and provide them with the time for peer
supervision and support. School counselors, psychologist and behavior specialists may even
take a role in the circle time and play a puppet or bring a problem to the group to solve. For
example, the principal may bring a problem concerned with keeping the playground clean to
the group, or a bus driver bring a problem with teasing on the bus, or a cook a problem with choosing food for lunches to the group. The children can help these people to solve their problems.

**Summary**

In this article, the Dinosaur Social Skills and Problem-solving Curriculum developed and evaluated by Dr. Webster-Stratton for use as a prevention program in early childhood settings has been described. Dinosaur School is a comprehensive curriculum that simultaneously works to eliminate disruptive child behaviors and to foster prosocial behaviors. As with any intervention, it is most effective when provided with high fidelity, upholding the integrity of the content, process, and methods.

Many parents and teachers, faced with violence and aggression in young children, feel overwhelmed, disrespected, stressed, and helpless. By adopting a social skills curriculum that promotes social and emotional competence, as well as reductions in problem behaviors, teachers can gain control in their classroom and will have created the classroom atmosphere and the social and emotional foundation necessary for children to learn, read, write, and make academic progress.

*Christopher arrives at school elated, pulling his mom down the hall to his classroom. It is “Dinosaur School Graduation” today. The parents have been invited to celebrate their preschoolers new skills and accomplishments. Christopher sits next to Marleco at circle time and the two exchange compliments about the dinosaur school hats they are each wearing. Miss Beth brings out all the puppets, who offer congratulations to the boys and girls for all they have learned about making friends and solving problems. Dina Dinosaur asks the children if they can tell their parents something they learned in Dinosaur School.*
Christopher raises a quiet hand and waits patiently to be called upon. He offers, “I learned to take deep breaths and to solve my problems and how to talk to friends”. Dina Dinosaur offers Christopher a high-five, and Marleco gives him a hug.

At the end of the day Miss Beth looks through the cards she received from some of the parents. She comes across one from Christopher’s mom. It reads, “thanks for sending Christopher to kindergarten with both a love of books and the love of a best friend”.
References


Figure 1. Anger thermometer

"Stay Cool"

Anger Thermometer