



Foundations for WePlaySmart™ by Hatch®: Supporting Social-Emotional Development in Early Childhood Education

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The purpose of this whitepaper is to discuss the importance of attention to social-emotional development for young learners, share the research on the positive outcomes seen in this area when children use educational technology, and provide the research-based linkages between children using a multi-touch interactive table with content and how this supports key areas of their social-emotional development within the early childhood education classroom and curriculum.



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SETTING THE STAGE FOR SOCIAL-EMOTIONAL DEVELOPMENT AND FUNCTIONING IN YOUNG CHILDREN

Young children who behave unsociably do not participate as often in classroom activities and are less accepted by peers and teachers. This begins at an early age. In preschool, these children are provided less instruction and positive feedback from their teachers, do not like school as much, learn less, and come to school less often. This compromises their success in school as they show less success on academic tasks, are more likely to be retained in the early grades, and are more likely to drop out and be involved in delinquency once older. Academic performance in first grade, over and above cognitive skills and family backgrounds, is predicted by young children's competence in the emotional, social, and behavioral realms (such as higher levels of self-control and lower levels of acting out) (Ravner & Knitzer, 2002).

Many kindergarten teachers report that half or more of their students have a number of problems transitioning to school that are related to a basic lack of social and emotional competencies (Rimm-Kaufman, Pianta, & Cox, 2000). These include not being able to follow directions (46% of K teachers report this as a problem), work independently (34%) or in a group (30%), nor communicate well with peers and teachers (20%). Yet again, these challenges for educators begin earlier. Preschool teachers are faced with a considerable number of young children (between 16 and 32 percent) who exhibit emotional and behavioral problems that compromise early school success (Peth-Pierce, 2000; Ravner & Knitzer, 2002).

It appears that one result is simply that a child is no longer welcome in the classroom. In a study of nearly 4,000 randomly-selected state-funded prekindergarten classes, 10% of teachers reported at least one expulsion during the past 12 months. A rate of almost 7 expulsions per 1,000 preschoolers was reported, three times greater than the national rate of expulsion for K-12 (Gilliam, 2008). This indicates clearly that teachers and providers are likely to find that while some children are doing very well, other children are struggling with a range of emotional and behavioral difficulties that make attending preschool very challenging for both themselves and their teachers (Boyd, Barnett, Bodrova, et al., 2005).

Some of the ways children tell us they are stressed and overwhelmed is when they exhibit certain behaviors regularly, such as:

- Having difficulty focusing on or completing a task; making decisions; following directions
- Becoming easily frustrated; avoiding new tasks
- Solving problems by hitting, biting, grabbing or pushing; not playing with other children



Research also tells us that the transition to and early years of school are more likely to be positive if a child is socially- and emotionally-prepared. Social interaction with others (both adults and peers) is a central mechanism for learning in school. This makes it imperative that children have a strong social and emotional foundation. These include the following characteristics and attributes:

- Ability to attend, concentrate on, and persist at challenging tasks; listen to instructions
- Confidence, friendliness, and positive relationships with peers
- Ability to communicate emotions appropriately and effectively (such as frustration, anger, and joy)

A more formal definition of social and emotional school readiness is offered by the National Education Goals Panel (1999):

Children's school experience is more positive and productive when they have a sense of personal wellbeing grounded in stable, caring relationships in their early lives. Unhappy, fearful, or angry children are preoccupied, unable to give their full attention and engagement to learning experiences. A solid base of emotional security and social competence enables children to participate fully in learning experiences and form good relationships with teachers and peers. In building and maintaining such relationships, key social skills are: respecting the rights of others, relating to peers without being too submissive or overbearing, being willing to give and receive support, and treating others as one would like to be treated. To the extent that children develop these social skills and attitudes, they function better in the school setting.

The manner in which teachers interact with young children can influence their social and emotional outcomes in a positive or negative way. The literature clearly shows a substantial number of children in danger of school failure beginning in preschool and continuing throughout their schooling experience which is connected to problems in their early social and emotional functioning and skills. Researchers, policymakers, and educators all stress the importance of implementing effective interventions early. It is also known that teachers of young children need a great deal of guidance and support in increasing positive social skills and behaviors while reducing those behaviors that keep children from learning and blossoming (Ravner & Knitzer, 2002). It is for these reasons that we have developed a learning system, WePlaySmart, specifically designed to build and support the social-emotional functioning of young children in the classroom setting.

THE ROLE OF EDUCATIONAL TECHNOLOGY IN BUILDING AND SUPPORTING SOCIAL-EMOTIONAL SKILLS

One concern about using technology, namely computers, is that this might lead to children having fewer interactions with others and being socially isolated. However, most researchers share consensus that the type of computer experiences available to young children, not the computer per se, determines whether technology supports or hampers development. With regard to social-emotional development and functioning, there are as many social interactions around the computer, if not more, as in other activities within the classroom and positive outcomes are associated with their use (McCarrick & Xiaoming, 2007; Clements & Sarama, 2003; Heft & Swaminathan, 2002; Haugland, 2000).

The computer area provides abundant opportunities for interaction with peers and the teacher in the form of discussion and collaboration as children work, play, and explore. Thus, rather than creating social isolation, computers can provide children opportunities to build social skills. The addition of a computer center in early childhood classrooms does not disrupt ongoing play, but rather has been found to facilitate extensive positive social interaction, new friendships, cooperation, peer teaching, and helping behaviors. In particular in preschool classrooms, a computer center fosters a positive climate characterized by praise and encouragement of peers. For example, working with computers, preschoolers ask other children to join in, seek help from one other, and look for approval and acknowledgement from their teacher. Cooperative play at the computer has been found to be equal to the amount of such play in the block center.

Language and cognitive skills improvement are regularly seen when children use technology. Working on the computer can spur new occurrences and forms of collaboration including helping or instructing, and discussing and building upon one another's ideas. Computers have been found to add a new participation dimension where children offer assistance to one another and cooperate to solve problems and complete tasks. In explaining topics to peers, children's own understanding is expanded. Preschool children demonstrate increasing levels of spoken communication and cooperation when using interactive whiteboards, and computer activity has been found to be more effective in stimulating vocalization in preschoolers than many toys.

The development and display of positive feelings when young children use technology is well documented. Children exhibit positive emotions and develop positive attitudes toward learning with computers. They demonstrate greater positive emotions and interest when they use the computer together and often show a preference for working with a peer rather than independently.



Heartening too is research showing that participation in computer activities supports social interaction between preschool children who are English Language Learners and their English-speaking peers, and between preschoolers with disabilities and their normally-developing peers. Computer software has been found to serve as a catalyst between children who do not share a common language for social interactions, language development, and learning. In a child study of children speaking many different languages, the children collaborated in a supportive way as they solved problems at the computer. Additionally, an extension of computer activities into the children's sociodramatic play was seen. The children treated the screen images in a concrete way just as they did blocks and toys (Brooker, 2002). A multi-year study with preschool age special needs children found from interviews, observational data, and scores on a developmental measure that all the children made significant gains in social-emotional development associated with their work with computers. The special needs children went from making an average gain of less than half a month's progress per month in social-emotional development when they began the computer-based program, to making an average rate of two month's progress while participating in the program (Hutinger, Johanson, & Rippey, 2000).

These experiences and skills may also transfer to more objectively-measured outcomes. Recent published research has examined the effects of computer use on children's social skills in kindergarten using data from the Early Childhood Longitudinal Study-Kindergarten Class (ECLS-K) conducted by National Center for Educational Statistics of almost 13,000 kindergarten children. The study analyzed differential effects of computer use on gains in kindergarteners' social skills. Using the Social Skills Rating System which measures Approaches to Learning, Self-Control, Interpersonal, Externalizing Problem Behavior, and Internalizing Problem Behavior, results indicated that positive effects of computers on children's social skills in kindergarten depended on their level of computer use proficiency. Children who used a computer more proficiently showed more positive social skills and fewer problem behaviors. The authors point out that "it is essential to notice that using computers more frequently in kindergarten did not result in any negative social behavior as it was argued in the previous research" (Kumtepe, 2006).

In summary, a long running body of literature shows that positive social-emotional as well as learning outcomes are found when young children use computers. Designing a learning system especially to build on this research literature utilizing newer technologies and with a more concentrated and purposeful focus on social-emotional skills development is at the heart of WePlaySmart.



THEORETICAL AND CONCEPTUAL FRAMEWORK FOR WEPLAYSMART

WePlaySmart is a learning system designed to teach and support social-emotional development and functioning in early learners. The main overarching theorists are Urie Bronfenbrenner (Ecological Systems Theory), Albert Bandura (Social Learning Theory), and Erik Erikson (Psychosocial Theory). The learning theories of Lev Vygotsky and Jean Piaget are also incorporated. Each of the theories has as a basic premise that individuals are both influenced by and exert an influence on their environment. The two main domains are those recognized universally. They are:

1. the Social Domain having to do with relationships and interactions with others, and
2. the Emotional Domain having to do with feelings and emotions internal to oneself.

Within the two main domains are Executive Function Skills which overlay the sub-domains of Social Competence Skills, Behavioral Skills, and Emotional Skills.

Urie Bronfenbrenner—Ecological Systems Theory

Bronfenbrenner believed that children develop within a complex system of relationships affected by multiple levels of their environment. He described four systems in a series of ever-expanding rings that influence child development. These include the child's most immediate environment, including parents and other primary caregivers with interactions between the child and those adults impacting development. The second is the system where children interact with the people in their most immediate environment, including child-care programs, schools, and neighborhoods. Next are the systems which are places children do not spend time but which still impact children's development, such as the parents' workplace. Furthest out is the system that consists of the values, laws, customs, and resources of a particular culture.

The activities in WePlaySmart are designed to represent the systems for children and include:

Theme	Sub-Theme	
Our Home and School	Home	School
Our Community	Shopping Mall	Museum
Our World	Forests	Water Around Us
Beyond Our World	Outer Space	Our Imagination

As children play the games, they guide the outcomes and receive feedback so that they have opportunities to experience in a close-at-hand manner their ability to influence and be influenced by their environment, including the physical environment and the people with whom they have relationships (both peers and adults). Practice shows them that their effect is a natural occurrence and one over which they have control either through actions or feelings.



Albert Bandura—Social Learning Theory

Social learning theory focuses on the learning that takes place within a social context. It holds that people learn from one another's behavior, attitudes, and the outcomes of those behaviors and attitudes. This learning occurs through observation, imitation, and modeling. According to Bandura this helps us form an idea of how new behaviors are performed, and on later occasions this coded information serves as a guide for action. Necessary conditions for this kind of social learning are attention, memory, and motivation. Social learning theory explains human behavior in terms of continuous reciprocal interaction between cognitive, behavioral, and environmental influences. One central component of Bandura's theory that brings these three together is self-efficacy, which is a person's belief in his or her ability to succeed in a particular situation. People are more likely to engage in certain behaviors when they believe they are capable of performing those behaviors successfully.

WePlaySmart uses many components of Social Learning Theory. The learning all takes place within a group setting and the games are designed to be completed as a group of between two to four children. The purpose of the system is to demonstrate for children how socially acceptable and necessary behaviors work, with the goal that these will serve as guides for the children. Language, modeling, practice, and appropriate feedback are built into all the interactions the children have with WePlaySmart. Because modeling is tied to relating to the model, the WPS uses personalization and relatable characters. Additionally, there is extensive concentration on executive function skills to build attention and memory. The ultimate goal for children is the building of a strong self-efficacy by providing them with a vehicle for learning the skills needed for this to be possible.

Erik Erikson—Psychosocial Theory

Erikson's theory contends that all people experience psychosocial stages that significantly affect development and personality. Everyone potentially affects everyone else's experiences as they pass through the different stages. Successfully passing through each stage involves finding a healthy ratio or balance between the two opposing ends. Doing so helps the person have a better chance for unimpaired total development. During the preschool years children are in the Initiative versus Guilt stage. Initiative is the capability to create actions or projects, and a confidence and belief that it is safe to do so, even when one may fail or make a mistake. Guilt in the context of this stage is the feeling that it is wrong or inappropriate to start something of one's own creation. During this stage children want to imitate the adults around them and take initiative in creating play situations which often involve stories and trying out many roles.



WePlaySmart is designed to promote initiative for children by providing opportunities to take control of situations and make choices and to do so in a safe environment. As they play the games, children are encouraged to try many solutions, especially those that involve cooperation and collaboration. The situations presented to the children allow them to explore multiple roles and show them that they too are competent in solving problems and having responsibilities, as the adults they see do.

Jean Piaget—Cognitive Developmental Theory

The cognitive-developmental theory of Piaget views the child as actively constructing knowledge and cognitive development in stages. In early childhood, children are in the pre-operational stage, which is characterized by great strides in language development and use of symbolic thought. On the other hand children of this age do not always understand logical relationships, are learning how to manipulate information mentally, and struggle to understand others' points of view (both physical and psychological). Piaget believed that reasoning deepens in children as they grow, engagement in the physical and social world enhances development, and conceptual and cognitive change occurs through adapting to and also changing the environment when possible. Much of this learning happens through interactions with peers and sociodramatic play where children use lots of symbolic thought through imaginary play, often constructing and trying out various roles.

With six game types of Uncover, Sort, Find, Vote, Turns, and Connect, children are presented with information in a large variety of conceptual and cognitive formats to encourage symbolic thought and reasoning. Children are invited to explore many roles. As these interactions occur with peers, WePlaySmart follows and supports Piagetian learning principles. A central feature of WePlaySmart is presenting opportunities and situations in which children practice thinking about (considering and appropriately reacting to) the viewpoints of their peers.



Lev Vygotsky—Sociocultural Theory

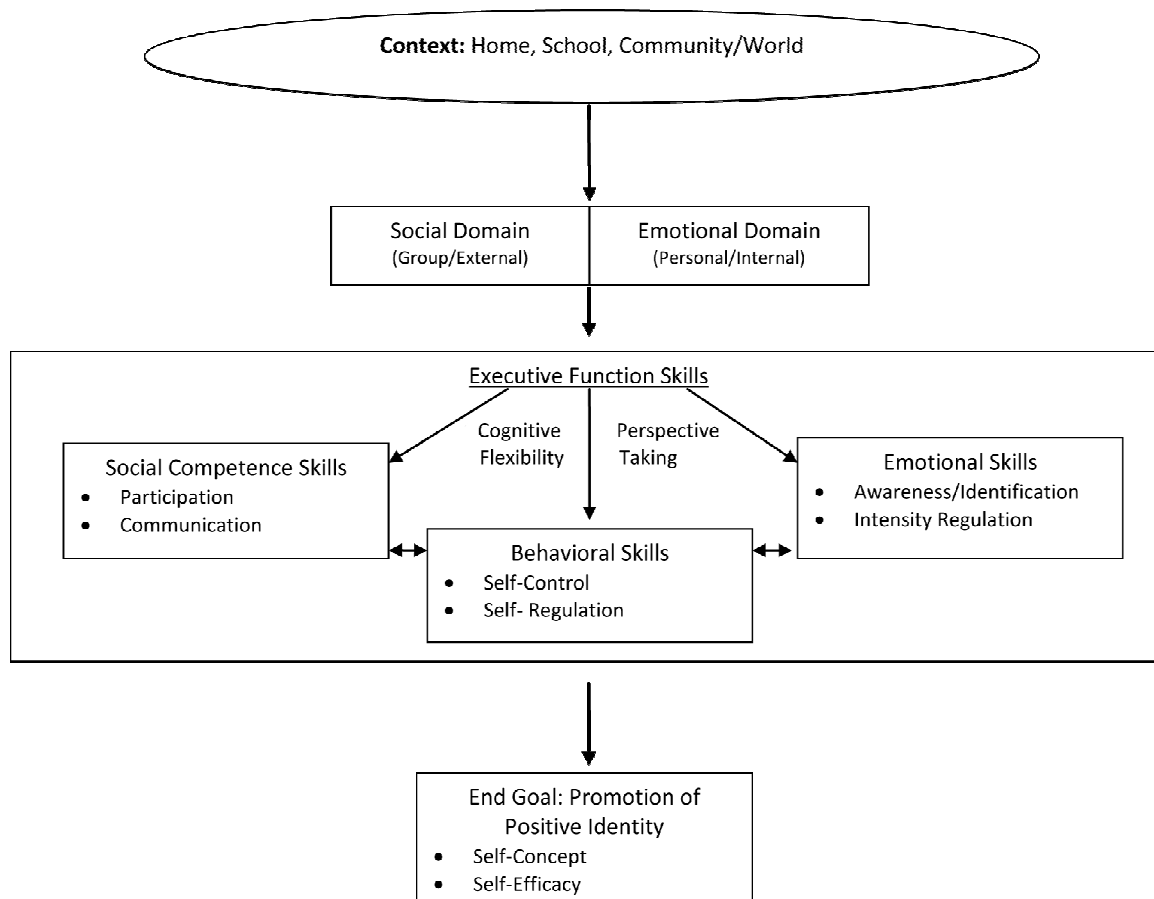
Vygotsky viewed child development as a kind of social constructivism in which development is strongly determined by cultural/societal expectations. Modeling and language play pivotal roles in a child's learning. The theory incorporates the zone of proximal development, that is, the range in children's development between their ability to perform a task independently and their ability to perform a skill with the assistance of a more competent member of society (adult or older child). Language plays a special role in guiding behavior. Starting out as external to the child, children over time transform what they hear into scripts that become internal and guide their behavior. Vygotsky, similar to Piaget and Erikson, believed that sociodramatic play with peers was a key mechanism for children's healthy growth and development.

WePlaySmart incorporates universal expectations such as cooperation, collaboration, and respect for others. Through the games, children have opportunities in a social setting to learn and practice these skills. The system is language-rich; guidance and feedback are incorporated and present throughout. The characters in the system serve as competent guides for the children. The skills within the system can also be facilitated by the teacher. Because of the importance of language as a mechanism for learning and knowing that learning has occurred, the progress monitoring component of We Play Smart consists of audio clips gathered of the children interacting with the games and each other in a purposeful and intentional manner, and then rated by the teacher regularly throughout the school year.

THE WEPLAYSMART CONCEPTUAL SCHEMATIC

The two Universally-Recognized domains are the Social Domain having to do with relationships and interactions with others, and the Emotional Domain having to do with feelings and emotions internal to oneself. Within the two main domains are Executive Function Skills, which overlay the subdomains of Social Competence Skills, Behavioral Skills, and Emotional Skills. Each of these areas is multi-directional influencing and being influenced by one another.

Schematic of Positive Social-Emotional Development for WePlaySmart





HOW WEPLAYSMART TEACHES AND SUPPORTS SOCIAL-EMOTIONAL SKILLS

With the very large number of games in WePlaySmart balanced across the skill areas (and of course many occur simultaneously and concurrently), the children have abundant exposure to learning in all four of the skill areas of executive function, social competence, behavioral, and emotional. The games are determined by the system recognizing through an authentic log-in which children are playing and which skill areas they need to have the opportunity to work in. Additionally, Beyond the Table provides a robust set of extension activities designed for teachers to implement within their program/classroom to further teach, strengthen, and support the skill areas. Each of the skill areas in WePlaySmart is described in more detail below.

Executive Function Skills

These are a set of skills that allow one to focus on multiple and simultaneous sources of information, make decisions based on available (including changing) information, revise plans as needed, monitor mistakes, and resist letting frustration result in impulsive actions. Executive function skills serve as a 'common denominator' for both social interaction and learning. Young children who cannot stay focused and resist responding impulsively (two of the most basic executive function skills) have difficulty in school and with others.

Beginning the attainment of these skills is one of the most important and also one of the most challenging accomplishments in early childhood. Therefore, ensuring young children have opportunities to do so is crucial to positive development because without strong executive function skills they have a difficult time with even the basics of day to day life; and this can continue throughout life. It is often in the early education classroom that problems with executive function skills are first seen. Not being able to control emotions, pay attention, finish tasks, and communicate effectively are identified by teachers as key indicators of a child not being ready to succeed in the school environment. The positive outcomes for success in school can be seen beginning in preschool, where children with executive function skills such as strong working memory and attention show larger gains in early math, language, and literacy development compared to children whose executive function skills are weaker (Center on the Developing Child at Harvard University, 2011).

WePlaySmart includes activities in three main areas related to executive function skills.

Controlling Attention

The games are designed to teach and support children's attention control, including switching attention when a difference in stimuli or response is presented.



Positive Approaches to Learning

Curiosity, flexible thinking and persistence are systematically promoted within WePlaySmart games.

School-Readiness Cognitive Skills

The games are set in the context of important school readiness skills in the key areas of language/literacy, mathematics, and general knowledge.

Social Competence Skills

Social competence is an overall descriptor of a child's social effectiveness. This is the ability to develop and keep relationships that are of high quality and satisfying to all members of the relationship, as well as being able to avoid negative treatment or victimization. Key characteristics that influence the level of children's social competence are their social skills and awareness. Using a range of behaviors that fit well in a particular relationship situation and are seen positively by others are social skills. When children are socially aware they can correctly read social cues and are accurately perceptive about how other people are feeling and responding. When social skills and social awareness come together, children are viewed as socially competent. How children treat and are treated by their classmates (cooperatively or aggressively, helpfully or demandingly, etc.) has a substantial impact on the relationships they develop. The need for children to become socially competent in early childhood is critical. Research shows that children must achieve basic social competence by around age 6 to avoid a high chance of negative outcomes in adulthood (Ladd, 2000).

Regular opportunities to develop, strengthen, and maintain social competence skills for young children are related to long term outcomes that are social, emotional, academic, and cognitive in nature (Boyd et al., 2005). Many of the best kinds of opportunities for building social competence are with peers during play, particularly symbolic and pretend play. In the context of peer interactions, young children engage in fantasy play that allows them to assume different roles, learn to take another person's perspective, and develop an understanding of the social rules and conventions of their culture. In addition, relationships with peers typically involve more give-and-take than relationships with adults, and thus provide a more robust opportunity for the development of social competencies such as cooperation and negotiation.

WePlaySmart includes games in three main areas related to social competence skills.

Positive Group Participation

WePlaySmart includes games that teach and support taking turns; respecting others' space; and being friendly, polite, and respectful. They encourage pro-social behaviors and communication. Various situations are presented to children (such as one-on-one or in a group) to help them learn about and practice the skills of sharing; cooperating; compromising; responding to suggestions and actions of



others positively with evidence of social perspective taking; and expressing thoughts, feelings, and ideas through appropriate language and gestures.

Self-Efficacy

Through playing the games in WePlaySmart, children are supported in understanding and expressing the belief that they are capable of attaining goals based on developing an accurate opinion of their own abilities and limitations.

Behavioral Skills

Behavioral skills refer to appropriate types of behavior or feelings under normal circumstances. One of the most central skills is self-control/regulation which involves the capacity to inhibit impulsive behaviors and engage in thoughtful, interpersonally-sensitive, goal-oriented behavior. Self-control is the ability to control one's emotions, behavior, and wants in order to obtain some reward later. When children have self-control they show confidence, enthusiasm, and engagement in school. As discussed above, there is abundant research that challenging behavior on the other hand is related to negative outcomes that compromise school success, including early and ongoing rejection by peers and more negative contacts with teachers.

It is important to note that self-control is a function to some degree of maturity. For example, young children have limited perceptual abilities and therefore do not have a full concept of time, so they seem to 'live in the moment'. As they mature they gain an understanding of how their actions are related to consequences and why to delay gratification. There are many practices in early education settings that can help children learn appropriate behaviors related to self-control/regulation (and other social-emotional areas as well). These can include positive reinforcement, using instructional techniques, and arranging the environment to be supportive of learning and practicing skills (Fox, Dunlap, Hemmeter, et al., 2003).

WePlaySmart includes games in two main areas related to behavioral skills.

Self-Control

Self-control is promoted in WePlaySmart by teaching and guiding the children around choosing appropriate over inappropriate actions, such as following rules and directions and learning to delay gratification.

Self-Regulation

WPS strengthens children's ability to self-regulate by learning to recognize the role of strategic actions such as planning, participating, monitoring, and evaluating their own progress.



Emotional Skills

The core features of emotional development include the ability to identify and understand one's own feelings, to accurately read and comprehend emotional states in others, to manage strong emotions and their expression in a constructive manner, to regulate one's own behavior, to develop empathy for others, and to establish and sustain relationships (National Scientific Council on the Developing Child, 2005). Learning to regulate emotions is one of the main tasks in early childhood and is critical because it is connected to so many other areas of social-emotional functioning, such as self-control, self-confidence, feelings of well being, and social competence. As preschoolers become older, they are able to talk about their feelings and emotions as well as those of others. They can also anticipate what feelings they might have about something and this allows them to use techniques and strategies to manage strong emotions.

When children are emotionally healthy they take part in play behaviors that are positive, develop friendships that are mutual, and are more likely to be accepted by their peers. On the flip side, continual problems (both academic and social) in elementary school are associated with being rejected by peers when children are younger. Learning how to work in teams and cooperate with others happens as children play together. How their teachers view them and how their peers treat them is a function of how children behave and interact. Beginning in preschool, the relationships children form can have a lasting impact on their academic achievement by contributing to more positive feelings about school and promoting a desire to participate fully in classroom activities, which can result in higher achievement.

To become emotionally competent, young children do require assistance in understanding, interpreting, and regulating their feelings. This includes understanding the causes and consequences of emotions, coaching about the emotional behavior that is appropriate in social situations and in strategies for managing their emotions in a way that matches the situation, and bringing out the feelings that underlie self-concept (Thompson, Espinosa, Barbarin, et al., 2002).

WePlaySmart includes games in two main areas related to emotional skills.

Identify Emotions

Through the games in WePlaySmart, children learn and practice identifying emotions in themselves and others (such as happiness, excitement, empathy, sadness, fear, anger, and frustration).

Intensity of Emotions

WPS supports the understanding and matching of emotions with a wide variety of situations for children to gain competence in this area.



The Role of Progress Monitoring in WePlaySmart

As in other areas of development, progress monitoring for informing instruction is essential for young children to be able to attain and maintain skills within the social-emotional domain. The progress monitoring areas in WePlaySmart are informed by the research literature as well as by reliable and valid measures (Denham, Ji, & Hamre, 2010; Zins, Bloodworth, Weissberg, & Walberg, 2007).

WePlaySmart has a unique and powerful approach to progress monitoring. Throughout the year the system takes short recordings of the children's language as they are playing the games. The teacher is able to bring up recordings and rate the children on their level of proficiency within the 10 areas described above. Then in the fall, winter, and late spring the system generates a variety of reports that show the level at which each child is functioning in each skill area as well as at the classroom level. A teacher support feature – Teachable Moments – is provided to assist teachers in understanding the skill areas and expectations; as well as providing concrete instructional techniques and activities to further support and strengthen skills.

HOW THE DESIGN AND CONTENT OF WEPLAYSMART WAS INFORMED

WePlaySmart is grounded in child development theory, research findings, and best practices, and aligned with nationally-recognized early childhood standards.

Best practices are informed by the Center on the Social and Emotional Foundations for Early Learning (Vanderbilt), the Technical Assistance Center on Social Emotional Intervention for Young Children (USDOE), the Prevention Research Center (Penn State), and the Collaborative for Academic, Social, and Emotional Learning.

The standards and outcomes with which WePlaySmart is aligned include the Head Start Outcomes (2003), the Head Start Child Development and Early Learning Framework (2010), the National Association for the Education of Young Children Accreditation Standards (2008), and the Classroom Assessment Scoring System (Pianta, La Paro, & Hamre, 2008)

Many of the activities are set within a context that supports cognitive and academic outcomes and are based on recommendations from the National Early Literacy Panel (2008), the National Research Council's Committee on Early Childhood Mathematics (2009), and the National Education Goals Panel (1999).

For more information about the WePlaySmart, visit Hatch Early Childhood at www.hatchearlychildhood.com

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