Research Foundation: IgniteTable by Hatch™

IgniteTable by Hatch:

In the post-pandemic classroom where many children are learning how to reengage with their peers in organized settings, the need for quality social—emotional learning materials is more critical than ever before. IgniteTable by Hatch provides an engaging, cutting-edge solution for early childhood programs by offering a collaborative learning experience for children to engage with their classmates while building social—emotional learning, communication, and prosocial skills. As young learners play together, IgniteTable automatically captures authentic work samples, data, and video clips, so teachers can spend less time administering assessments and more time focusing on which specific skill areas to develop further. By design, IgniteTable saves teachers valuable time and renders them more strategic in their pedagogy, further facilitating children's success in school and beyond.

About Hatch:

Since 1984, Hatch Early Learning has transformed the lives of young children with interactive learning solutions, progress-monitoring tools, and classroom materials, seeking to prepare them with essential skills to succeed in school and beyond. As the leading provider of early learning solutions nationwide, Hatch offers engaging, standards-aligned digital learning tools that extend teachers' reach in the classroom through powerful data stories, all while addressing the engagement and developmental needs of young learners through research-backed content and purposeful practice. When unified, the Hatch suite creates a complete classroom solution for accelerating student learning across seven domains of learning, with a focus in math, literacy, and social—emotional development.

"Students who experienced SEL programs showed improvement in classroom behavior, stress management, and attitudes about themselves and others."

Source: (CASEL, n.d.-c)

Table of Contents

IgniteTable by Hatch is a digital learning center anchored in a touch-screen interactive table that delivers engaging, research-based learning experiences across five domains of social and emotional development for children ranging in age from 3 to 5 years. Social and emotional skills are an important part of early childhood development. When children develop strong social and emotional skills, they develop the tools that they need to be ready to learn.

IgniteTable was designed with a focus on the critical development of social and emotional skills in early childhood. To inform the development of this product, we built a foundational framework backed by research.

This document walks through the intentionality of and the "why" behind the development of IgniteTable, starting with the theoretical and research foundations.

> **"CASEL's vision is for all children and adults to be self-aware, caring, responsible, and engaged, lifelong learners."**

Source: (CASEL, n.d.-e)

Theory and Research

Social and Emotional Learning

According to the Collaborative for Academic, Social, and Emotional Learning (CASEL), social and emotional learning is defined as the following:

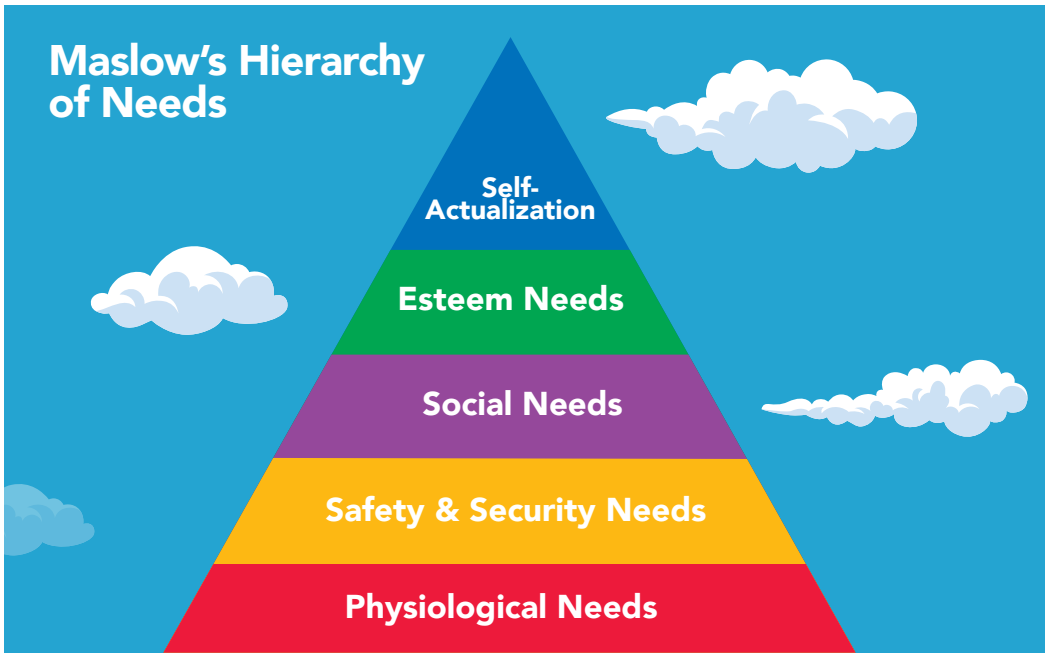
> [It is] the process through which all young people and adults acquire and apply the knowledge, skills, and attitudes to develop healthy identities, manage emotions, and achieve personal and collective goals; feel and show empathy for others; establish and maintain supportive relationships; and make responsible and caring decisions. (CASEL, n.d.-b, para. 1)

Social and emotional learning is a critical component of early childhood education and was an integral part of the development of IgniteTable.

Maslow's Hierarchy of Needs

In 1943, Abraham Maslow developed one of the best-known theories of motivation. He posited that human actions are motivated by certain physiological and psychological needs (Maslow, 1943). Maslow organized these needs in order from the most basic, at the bottom of the pyramid, to the most complex, at the top of the pyramid. These needs progress as follows: (a) physiological needs (water, food, shelter); (b) safety and security needs (financial security, health, physical safety); (c) social needs (love, acceptance, belonging); (d) esteem needs (respect, self-esteem, self-worth); and (e) self-actualization (self-awareness, personal growth; Maslow, 1943).

Once a person's most basic needs are met, they can begin working on meeting more complex needs, working towards self-actualization. Children need to have their needs for physiological health, safety, and security met so that they have the capacity to work toward their social needs. These needs for love and belonging can be fulfilled through friendships, family relationships, and social and community groups. To establish and grow those relationships, children must develop and refine social and emotional skills, such as responsible decision-making and social awareness.



When a child's most basic social and emotional needs are not met, a child will not have the physical or mental capability to focus on and attend to more complex tasks, such as building self-esteem, and personal growth.

Erikson's Stages of Psychosocial Development

In 1950, psychiatrist Erik Erikson introduced his eight stages of psychosocial development. This theory describes the developmental tasks involved in the social and emotional development of children and adolescents through adulthood and the impact of social experiences throughout a person's life (Erikson, 1950).

Erikson's theory is rooted in the idea that at each stage of development, there is a conflict that an individual must experience to gain competence (Erikson, 1950). The eight stages of Erikson's theory are as follows: (a) trust versus mistrust, leading to the outcome of hope; (b) autonomy versus shame, leading to the outcome of will; (c) initiative versus guilt, leading to the outcome of purpose; (d) industry versus inferiority, leading to the outcome of competence; (e) identity versus diffusion, leading to the outcome of fidelity; (f) intimacy versus isolation, leading to the outcome of love; (g) generativity versus self-absorption, leading to the outcome of care; and (h) integrity versus despair, leading to the outcome of wisdom (Erikson, 1950).

Much like Maslow's hierarchy of needs, Erikson's stages of development require mastery at one stage to progress to the next. According to Erikson (1950), once a child has learned trust and autonomy, they begin working on the conflict of initiative versus guilt. During this stage, which takes place during the preschool years, children practice asserting power and control through social interactions. When children learn to effectively assert power and control, they develop a sense of purpose. To resolve this conflict, children need to learn and practice skills for social and emotional development.

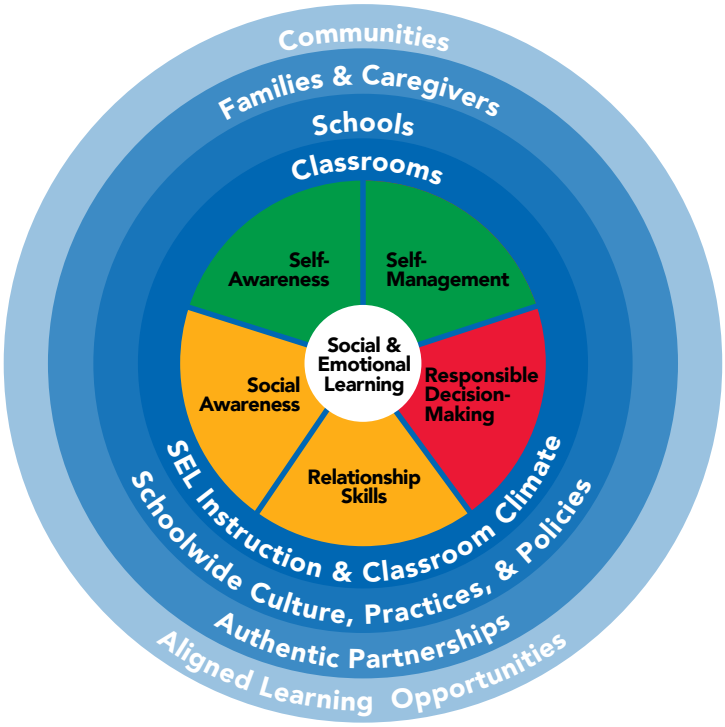
Maslow's and Erikson's theories demonstrate that intentional effort to build social and emotional competencies in early childhood education is necessary to support children in their overall development. Theoretical work by Maslow and Erikson has led to more research in the field of social and emotional learning, including research- and evidence-based frameworks for supporting the development of these skills.

Games like "Follow the Leader" give children opportunities to practice asserting control and power in social relationships.

Social and Emotional Learning Research

Social and Emotional Learning Competencies

CASEL has identified five core social and emotional competencies: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making (CASEL, n.d.-d, para. 3). Self-awareness includes an understanding of a person's own emotions, thoughts, and values as well as how they influence behavior. Self-management involves managing emotions, thoughts, and behaviors in many different situations while working to achieve personal goals. Social awareness involves understanding others' perspectives and empathizing with them. Relationship skills include the ability to establish and maintain strong, healthy relationships. Responsible decision-making involves the skills to make constructive choices about behavior and social interactions.



Research indicates that social and emotional learning programs are connected to positive outcomes for children, adults, and school communities (CASEL, n.d.-c, para. 4). These positive outcomes include a decrease in conduct behaviors, improved academic performance, a decrease in emotional distress, improved social behaviors, and improved attitudes about themselves (Durlak & Mahoney, 2019). Research supports that the benefits from social and emotional learning programs can last up to 18 years (Durlak & Mahoney, 2019).

Social and Emotional Learning and Equity

Today, people from various backgrounds and circumstances do not have access to the same resources and opportunities. This inequity extends to social and emotional learning and capabilities (CASEL, n.d.-a, para. 2). CASEL positions social and emotional learning not only as a critical educational goal for all people but also as an important part of achieving equity in education.

Equity in early childhood means that every child has the opportunity to reach their potential regardless of ethnicity, language, gender, socioeconomic status, learning ability, or other factors. Social and emotional learning supports equity for all children by helping educators create trusting and collaborative relationships with children and families. When educators are tuned in to the emotional needs and capabilities of their students, they can practice empathy, active listening, and perspective-taking that help to create a deeper awareness of their students (CASEL, n.d.-a, para. 4). Social and emotional learning instruction also supports equity in early childhood by helping children practice developmentally appropriate skills, including academic skills, that allow them to thrive and contribute to their communities (CASEL, n.d.-a, para. 5).

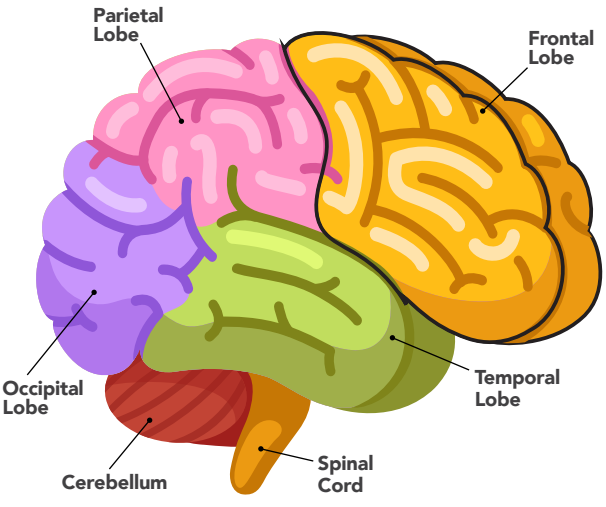
Executive Function

In addition to social and emotional learning, IgniteTable provides opportunities for children to practice and improve skills for executive function. Executive function is a group of mental processes that allow people to plan, remember things, focus their attention, and manage multiple tasks simultaneously (Harvard University, Center on the Developing Child, n.d., para. 1). The Center on the Developing Child at Harvard University (n.d.) notes that executive function and self-regulation rely on three brain functions:

- Working memory, which allows people to retain and use information over short periods of time;
- Mental flexibility, which helps people sustain or shift their attention based on different demands and helps them apply different rules to different situations; and
- Self-control, which helps people manage impulses and set priorities (para. 4).

Executive Function Theoretical Foundations

The concept of executive function dates back to the mid-19th century when the brain's frontal lobe was referred to as "the regulating mind" (Best & Miller, 2010; Bilder, 2012). Karl Pribram first used the term "executive function," writing that "the frontal cortex appears critically involved in implementing executive programs when these are necessary to maintain brain organization in the face of insufficient redundancy in input processing and in the outcomes of behavior" (Best & Miller, 2010; Bilder, 2012; Pribram, 1973, p. 312).



The frontal lobe is also referred to as "the regulating mind".

As it is known today, executive function is largely based on two theories: the working memory model and cognitive complexity and control theory. The working memory model is a theory that memory is more complicated than just short- or long-term storage. Instead, the working memory model suggests that working memory "is a multicomponent system that manipulates information storage of greater and more complex cognitive utility" (Chai, Abd Hamid, & Abdulla, 2018, p. 2). The cognitive complexity and control theory suggests that the development of executive function and problem-solving skills are based on age-related increases, essentially stating that as humans age, they develop more complex mental processes (Zelazo et al., 2003). For example, a 5-year-old child can solve problems using more complex mental processes than a 3-year-old child.

The foundational theories for executive function suggest that behavior and attention control rely on critical brain processes, including working memory and awareness, and self-control. By supporting the development of these mental processes, we can help children function and succeed.

Executive Function Research

Executive function skills are not innate, but every child is born with the capacity to develop them. An individual's capacity to develop executive function skills is acquired during early childhood and continues to develop through adolescence (Harvard University, Center on the Developing Child, 2011, p. 2). Research shows that executive function skills are foundational skills that help children develop critical cognitive and social skills that make up the building blocks of school readiness. It has been identified that the development of executive function skills can be supported through practice and training (Harvard University, Center on the Developing Child, 2011, p. 8). In fact, interventions that emphasize the strengthening of executive function skills have been shown through research to be related to improved performance on social and academic tasks (Bierman, Nix, Greenberg, Blair, & Domitrovich, 2008).

Research is the first step to understanding how best to support young children, but to ensure that children are able to develop these skills, it is critical to translate that research into practice.

Gamification and Playful Learning

Research was critical in the development of IgniteTable, but just as important was developing a product that is fun and engaging. Gamification, or game-based learning, is the use of gaming concepts to create learning experiences. Traditional game components, such as experiencing mistakes, disappointment, accomplishment, knowledge, and reflection, can all be simulated through gamification while also incorporating social and emotional concepts. Using technology to build a digital play-based learning environment can increase student engagement and intrinsic motivation and address the needs of various learning styles (Rajesh, Menon, & Krishna, 2021). Gamification includes concepts like autonomy, personalization, and accomplishment.

Children experience autonomy when they vote on which game they want to play first.

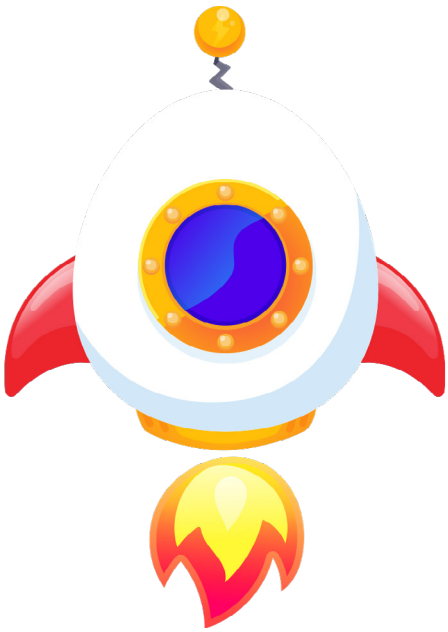
Autonomy, in the context of gamification, refers to the freedom of choice and control over one's actions. Autonomous learners tend to actively reflect on processes, which enables them to solve problems and naturally leads them to contemplate and incorporate methods and skill sets that enhance and expedite their progress. These learners are also aware of their abilities and are eager and active when they learn (Sokol, Grouzet, & Müller, 2015). Gamification research suggests that more choice or autonomy is related to greater enjoyment (Leventhal, 2018). IgniteTable includes an automatic, intelligent experience-selection engine, which ensures that each group of children playing is presented

with experiences that are most appropriate for the overall needs of that specific group while also providing children with autonomy regarding the order of digital experiences that they play. IgniteTable allows children to vote for the specific experience that they would like to start their set of experiences with, thereby giving the children more agency over their play.

Personalization in digital learning refers to an environment that is individualized to a child's knowledge or interests, where the child has agency and control over aspects of their digital learning experience (Shemshack & Spector, 2020). IgniteTable's rich reward system introduces the personalization of individual rocket ships to children when they first log in and engage with the system. The personalized rocket ship accompanies children as they progress and play through the IgniteTable experiences.

Gamification also involves accomplishment (also referred to as rewards or incentives), which can provide motivation for learners to engage in the learning experience (Dichev, Dicheva, Angelova, & Agre, 2014).

Accomplishment in gamification has been shown to increase engagement in learners (Fui-Hoon Nah, Zeng, Rajasekhar Telaprolu, Padmanabhuni Ayyappa, & Eschenbrenner, 2014). Children experience accomplishment within IgniteTable by earning a star for each experience that they complete. Upon completing a digital experience set, children receive a rocket ship accessory as their reward and then have a brief period of free play to customize their rocket ship.



Children personalize their individual rocket ships.

Inherently, gamification feels playful, but playful learning is unique in that experiences build on children's curiosity, exploration, problem-solving, and experimentation, which allows teachers to increase learning for children as they play (Zosh, Gaudreau, Michnick Golinkoff, & Hirsh-Pasek, 2022). There are three indicators of playful learning: choice (autonomy, power, and ownership); delight (excitement and joy); and wonder (curiosity and challenge; Mardell et al., 2016).

Choice, delight, and wonder are integrated throughout the IgniteTable, from child login through the end of game play. Children experience choice by selecting which digital experience to play first at the beginning of each digital experience set. Additionally, upon successfully completing a set of three experiences, children have the opportunity to choose which rocket ship accessory they want to add to their collection to customize their own rocket. Many IgniteTable digital experiences offer multiple rounds of play, providing children with the opportunity to learn from mistakes, be surprised, and experience the challenges that encompass the playful learning indicator of wonder. During each digital experience, children can focus their attention while engaging with IgniteTable's vivid animations, warm characters, and creative design—allowing them to find delight at every turn.

IgniteTable games are designed to help children experience choice, delight, and wonder.

"While playing IgniteTable children can talk to each other about the experience, express their wants and needs, encourage, and help each other."

A Unique Approach to Playful Learning

A crucial part of the development process for IgniteTable was thinking critically about how children engage with each other, learn, and grow. Unlike other early childhood digital learning tools, IgniteTable allows children to practice social and emotional competencies in the context of social or collaborative play.

Social or Collaborative Play

During the early childhood years, children learn to interact with one another in ways that are positive and successful (Bovey & Strain, 2003). Positive peer relationships are not just important in childhood but also later in life (Ladd, 1999). Social or collaborative play refers to collaborative interactions of peers during a play scenario and allows children to experience opportunities to practice important social skills (van der Aalsvoort, 2010). Children engaged in collaborative play can be observed sharing resources, assigning roles, sharing ideas, and coming together to agree upon the rules of the play scenario, all of which are significant to the development of various social and emotional skills. Research studies have shown that preschool children who play cooperative games display more prosocial behaviors and behave in cooperative ways (Bay-Hinitz, Peterson, & Quilitch, 1994; Finlinson, Berghout Austin, & Pfister, 2000).

IgniteTable provides opportunities for children to practice various skills for social and collaborative play. Digital experiences offer children opportunities to get a peer's attention, offer or ask to share something, and say something nice about a classmate as they play. Children are presented with many opportunities to collaborate by communicating their needs, celebrating together, asking for help, or helping others.

Language Development Through Collaborative Play

The American Speech-Language-Hearing Association notes that language is "the heart of life's experience, particularly for children who are developing language critical to cognitive development and learning" (PBS, n.d., para. 4). But the skills and understanding of language are also "fundamental for academic and professional success" (Colorado Department of Education, 2020, para. 1). Research studies show that preschool children have demonstrated increasing levels of spoken communication and cooperation when using interactive technology, and technology has been found to be more effective than many toys in stimulating vocalization in preschoolers (McCarrick & Xiaoming, 2007).

IgniteTable offers children varied opportunities to practice language skills. Modeling, practice, guidance, and feedback are built into all the interactions that the children experience with IgniteTable. The importance of language as a mechanism for learning and knowing that learning has occurred is built into a unique and powerful progress-monitoring feature, which consists of audio and video clips that capture the children's interactions with purpose and intentionality. Additionally, curricular experiences, which provide educators access to offline, hands-on, teacher-facilitated activities, provide concrete instructional techniques to further support and strengthen language and communication learning.

Developmentally Appropriate Child-Led Learning

As part of IgniteTable's development, it was important to also take into consideration the developmental appropriateness of screen time. The National Association for the Education of Young Children & Fred Rogers Center for Early Learning and Children's Media at Saint Vincent College (2012) state that childcare and preschool environments should limit screen time "to fewer than 30 minutes per day for children in half-day programs or less than 1 hour per day for those in full-day programs" (p. 3). IgniteTable was developed with this recommendation in mind and is designed to be played for 25 minutes per week. This recommendation also aligns with a typical preschool classroom schedule in which IgniteTable can be used as a center activity that children can rotate through daily or weekly.

In addition to being an engaging product, IgniteTable is designed to promote independence within a digital learning platform by allowing children to log in and navigate without the support of an adult. The design of IgniteTable's child-led learning environment saves teachers time and guides young learners through every step of their IgniteTable journey. For example, children are presented with our patented, two-step authentication process, which requires children to choose their own photograph to log in and begin play. As children play, familiar characters provide verbal and visual tutorials, consistent positive redirection, and ongoing just-in-time guidance.

There are currently 23 subdomains, consisting of three specific, observable skills that are a part of the six social and emotional learning competencies. These observable skills are referred to in IgniteTable as skill descriptions. Each digital experience is designed to address one skill description, providing children with the opportunity to practice that specific competency.

Purposeful Social and Emotional Learning Practice

Purposeful social and emotional learning practice refers to the intentional, planned, and intelligently designed opportunities for children to experience concrete learning opportunities. The IgniteTable framework, or scope of learning, was designed with purpose and intention to support and scaffold the development of social and emotional learning competencies.

IgniteTable Framework: Social and Emotional Learning Skills

The following image shows the IgniteTable framework, which consists of six domains of learning that are aligned with CASEL's core competencies.

Domains	Subdomains	Round 1	Round 2	Round 3
Relationship Skills	Participation	Demonstrates willingness to participate in a group activity	Demonstrates ability to initiate positive peer interactions while working within a group	Demonstrates ability to sustain cooperative interactions within a group
	Engagement	Engages in prosocial behaviors with other children	Sustains interactions with at least two or more other children for increasing periods of time	Engages in joint play (i.e., coordinating goals, planning, and following rules) with more than one child at a time
	Social Problems	Demonstrates sharing successfully	Demonstrates sharing and compromising successfully	Demonstrates sharing, compromise, and/or negotiating successfully
	Active Listening	Follows visual and physical prompts with assistance (at least two movements) during a group activity	Follows visual and physical prompts (at least three movements) during a group activity	Follows visual and physical prompts (at least four movements) during a group activity
	Communication	Identifies ways people communicate	Explores basic signs of nonverbal communication	Engages in play using alternative forms of communication
Social Awareness	Takes Turns	Takes turns successfully when prompted	Successfully demonstrates taking turns without prompts	Successfully initiates taking turns, without prompts, to complete a group goal
	Understands Basic Needs of Others	Identifies basic needs of others	Demonstrates meeting the basic needs of others	Takes responsibility for meeting the basic needs of others
	Understands Basic Feelings of Others	Describes the feelings of others based on physical characteristics	Describes the feelings of others based on the environment/ situation	Predicts/identifies causes of others' feelings
	Acceptance of Others	Demonstrates understanding of diverse people	Explores different types of communities by building a neighborhood	Explores ways to make communities inclusive

Domains	Subdomains	Round 1	Round 2	Round 3
Self-Awareness	Delays Gratification	Delays gratification during a group task	Ignores distractors while delaying gratification during a group task	Identifies alternative ways to keep busy while delaying gratification during a group task
	Identity	Creates a self-portrait	Draws a personal interest in the world around them	Engages in appropriate self-care activity based on a given mood
	Understands Own Basic Needs	Identifies their own basic needs	Demonstrates meeting their own basic needs	Takes responsibility for meeting their own needs
Responsible Decision-Making	Focused Attention	Stays on task with cues	Works steadily with attention to task	Ignores distractors while completing a task
	Economics	Engages in pretend-play scenarios related to spending	Engages in pretend-play scenarios related to saving	Engages in pretend-play scenarios related to giving
	Accountability	Evaluates the consequences of actions in an at-home setting	Evaluates the consequences of actions in a school setting	Evaluates the consequences of actions in a community, (uncontrolled) nonschool setting
Self-Management	Follows Directions	Correctly carries out a one-step request	Accurately follows two-step directions	Correctly attends to three-step directions
	Exploration	Explores cause and effect	Makes educated guesses to solve a problem or task (hypotheses)	Tests educated guesses (hypotheses) to find the result
	Flexible Thinking	Makes plans for an imaginative play routine	Changes plans for an imaginative play routine when new ideas are proposed	Integrates new plans for an imaginative play routine unprompted
	Persistence	Demonstrates persistence	Attends to a task without displays of frustration	Works on a task until it is complete
	Recalls Information	Recalls one or more items removed from view	Recalls two or more items removed from view	Recalls three or more items removed from view
	Understands Routines	Remembers the sequence of a routine	Identifies the missing part of a routine	Completes/plans a routine
Unstructured Play	Collaborative Building	Uses digital materials (e.g., shapes) and imagination to build collaboratively	Uses digital materials (e.g., magnets) and imagination to build collaboratively	Uses digital materials (e.g., blocks) and imagination to build collaboratively
	Collaborative Art (coming soon)	Uses digital materials (e.g., paint) and imagination to create a piece of art together	Uses digital materials (e.g., mosaics) and imagination to create a piece of art together	Uses digital materials (e.g., stamps) and imagination to create a piece of art together

IgniteTable Framework: Social and Emotional Learning Skills

Social play in early childhood is believed to be an important opportunity for children to develop executive function skills (Harvard University, Center on the Developing Child, 2011). Additionally, research shows that computer-based training or classroom interventions can improve children's skills for executive function (Diamond & Lee, 2011).

IgniteTable's digital experiences were intentionally designed to promote, reinforce, and strengthen executive function skills. IgniteTable's digital learning experiences specifically focus on seven skills that the Center on the Developing Child at Harvard University notes are essential to executive skill development:

- Self-control enables children to prioritize and resist impulsive actions or responses, helping them to avoid saying or doing the wrong thing, pay attention at the right times, and switch focus when needed (n.d.).
- Working memory enables children to retain and utilize information over short periods, such as remembering details or making decisions based on their experiences (n.d.).
- Planning enables children to organize ideas to reach a goal (2011).
- Focused attention enables children to avoid distractions and retain concentration in challenging environments or situations and prevents children from acting on impulses (2011).
- Persistence enables children to set and accomplish a goal, particularly when tasks are challenging or tedious (2011).
- Flexible thinking enables children to sustain or shift attention in response to different challenges or to apply different rules in different settings (n.d.).
- Self-monitoring enables children to self-evaluate and make changes in behavior when needed (2011).

Each digital experience provides children with the opportunity to practice one or more of these skills through learning goals, experience design, and/or play mechanics.

Progress and Growth

Observation and Reflection of Social and Emotional Learning

There are several reasons to assess social and emotional learning competencies for young children. As with all early childhood instruction, assessment helps teachers and administrators evaluate the effectiveness of their social and emotional programming and use that data to improve instruction and implementation (Taylor et al., 2018, p. 6). By assessing and improving social and emotional learning instruction, teachers and administrators are also supporting efforts to ensure that early childhood education efforts are both effective and equitable.

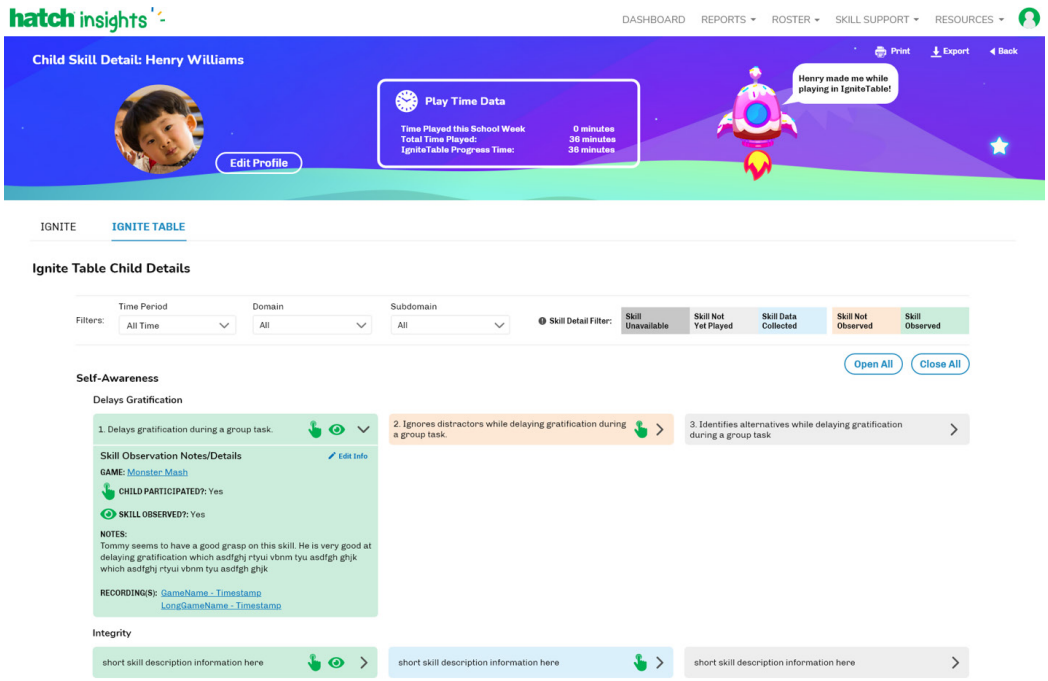
There are many ways that social and emotional learning can be assessed, including self-report questionnaires, interviews, performance-based assessments, observation protocols, and rating scales (Taylor et al., 2018, p. 15). In an observational assessment, an external observer uses an observation protocol to reflect on an individual's observable behavior. In their research, Kim, Gjicali, Wu, and Tubbs Dolan (2021) show that observational assessment tools can be helpful in assessing social and emotional learning skills in children (pp. 83–85).

IgniteTable provides teachers with video and audio recordings to allow them to complete observational assessments of children's social and emotional skills. During each IgniteTable digital experience, a video and audio recording is captured at a specified benchmark during the digital experience. This recording is accessible via Hatch Insights™, the cloud-based reporting hub for IgniteTable. Once recordings are uploaded, teachers can watch and listen to each recording to reflect on each child's understanding and/or demonstration of the skill.

For each experience, teachers are provided with a guidance statement and an example to guide their assessment. The guidance statement describes the general skill that the experience is built around (e.g., "Look for children actively participating in an activity with other children, initiating and sustaining interactions with their peers").

The example includes a specific behavior or statement illustrating what it might look like when a child is demonstrating the social and emotional skill (e.g., "A child thinks creatively about what to build, saying, 'What if we build a rocket ship

and an alien?'"). Teachers watch recordings and observe children's behaviors and interactions using the provided guidance and examples and then they record their thoughts and observations, indicating whether a child has demonstrated the skill.



In Insights, teachers can watch recordings and reflect on and document their observations.

"Professional development is a critical part of early childhood education, and research shows that it can help teachers increase their ability to provide high-quality instruction (Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009) and can reduce gaps in student achievement."

Source: (Johnson, 2014)

High-Quality Professional Development

Beyond the product itself, a critical component of IgniteTable is implementation and professional development. Professional development is strongly tied to school improvement efforts, and, recently, there has been an increasingly urgent need for more professional development opportunities to ensure that programs are high quality and effective. We know from research and best practices that effective professional development is "structured professional learning that results in changes in teacher practices and improvements in student learning outcomes" (Darling-Hammond, Hyler, & Gardner, 2017). Educators not only need professional development in the form of training and resources but also in the utilization of real-time data to effectively support their teaching practices. With the direct professional development opportunities provided by Hatch, educators can be fully supported in all areas of data-driven instruction.

Professional Development Framework

Hatch's IgniteTable professional development opportunities support educators in understanding how to best implement IgniteTable in their learning environments and in deepening their educational knowledge overall. IgniteTable's professional development is aligned with theories of adult learning that posit that adult learners want to actively participate in education, take responsibility for their own learning, and explore concepts related to practical and applicable experiences (Grant & Thorton, 2007). The mixed-delivery model of professional development at Hatch includes self-directed, or asynchronous, components combined with a live, focused session with an expert Hatch trainer. This allows for educators to learn at their own pace while also having the benefit of working within a community of their peers guided by a trainer to explore deeper into IgniteTable.

> **"The live nature of [professional development] courses were critical in terms of working through new concepts and ideas because teachers were able to receive immediate feedback from instructors. The online design also offered flexibility that traditional professional development workshops do not."**

Source: (Marrero, Fitzsimons Riccio, Woodruff, & Schuster, 2010, p. 93)

In the three-part training, attendees will learn everything they need to know to implement and effectively utilize IgniteTable in their program:

- Part 1: Asynchronous Learning: During this training, educators receive access to prerecorded videos, which allow them to actively engage with IgniteTable's software and hardware, experience the digital experiences as young learners do, and review other foundational elements of the product.
- Part 2: Live Virtual Session: During IgniteTable's live, virtual session led by an expert Hatch trainer, attendees engage in an interactive tour of Insights and other important product features. Attendees identify strategies for effective application and prepare plans for implementing the product in their classroom.
- Part 3: Knowledge Check: After completing the live, virtual session, attendees receive an additional asynchronous recording that reinforces data-driven instructional practices. Attendees can exhibit knowledge gained from the two previous trainings and formalize the next steps for implementing the product in their classroom.

Knowing that implementing a new product can be challenging for educators, we designed a full-circle model of professional development that balances the desire for autonomous adult learning with supportive instruction practices to ensure that educators feel supported in the use of IgniteTable.

Direct Real-World Application

The reality of the early education field is that "teachers in every discipline are responsible for maintaining a standard of excellence and completing professional development requirements" (Marrero, Fitzsimons Riccio, Woodruff, & Schuster, 2010, p. 92). IgniteTable's professional development supports educators in implementing IgniteTable to their fullest fidelity, meaning that teachers not only have educational support but also understand the real-time data that IgniteTable provides to improve their teaching practices.

Key components that Hatch professional development opportunities focus on include

- extensive modeling of new techniques and guided practice to scaffold learning and
- embedded and problem-based learning opportunities with immediate applications to real-world environments.

IgniteTable's professional development trainers, who currently work in the early childhood field, partner with participants to help unpack their learning from the asynchronous sessions, plan for implementation in their classrooms, and utilize live classroom data to scaffold a shared understanding of all the support that Hatch provides to educators. IgniteTable's professional development is designed to help educators understand both how to use IgniteTable in their classroom planning and how it can lift the heavy burdens of all the tasks required to be a high-quality educator. During our sessions, we ensure that educators maximize their time and return to their classrooms ready to use IgniteTable to fidelity with the support and the resources provided during the sessions.

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