THE BING TIMES

September 2015, Vol. 41

BING NURSERY SCHOOL, STANFORD UNIVERSITY

Director’s Column: Learning From Our Past and Looking Toward the Future—50 Years of a Play-Based, Child-Centered Curriculum

By Jennifer Winters, Director

Play is the answer to the question, ‘How does anything new ever come about?’ –Jean Piaget

The future of any lasting institution is deeply shaped by its past, and Bing Nursery School is no exception. Since 1966, approximately 10,000 children have come through our doors. Over 15,000 undergraduates have taken courses at Bing and applied what they have learned in child development to become advocates for young children in fields such as medicine, technology, law, government and education, and as parents. Ground-breaking research, which has made significant and lasting contributions to the field of child development, continues to take place at Bing.

Parents routinely report the positive impact Bing Nursery School has made on their child’s educational journey as well as their own. Many of our alumni have kept in touch with us over the years and we are very proud of the countless paths their lives have taken. More and more we find ourselves welcoming a second generation of children to the Bing community. With that in mind, it’s important to examine the fundamental principles that have guided our child-centered, play-based program for the past half-century, and why these principles remain the cornerstone of one of the most extraordinary laboratory schools for young children in the history of early childhood education.

Over 50 years ago, our visionary founding director, Dr. Edith Dowley, PhD, was greatly influenced by her work at the Kaiser Shipyards as a teacher during the war years. From that experience came a deep motivation to create a haven for children whose families were part of the war efforts. This forged a strong belief in “giving back to children some of the things that modern life has tended to take away from them.” She established three fundamental principles that still guide our everyday practice. They have stood the test of time and are the very foundation of our child-centered, play-based philosophy. Foremost is an absolute belief in the value and dignity of every child and in treating the child as an honored guest. The second principle is giving children the gift of time. The third is supporting the child’s freedom of movement.

Founding Director Edith Dowley reads to children at the Stanford Village Nursery School.

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These three principles, which Dr. Dowley set forth, were deeply rooted in the leading child development theory and research of the time. John Dewey, an American educational reformist, stressed learning by doing through play and other hands-on experiences, as did Friedrich Froebel, a German educator who is the father of the modern-day kindergarten (he actually coined the name Kindergarten—meaning “child’s garden”).

For 50 years these principles have not only held up but remain integral to the Bing philosophy and curriculum. During this half century, a growing body of research has illuminated the importance of play-based learning and hands-on experiences in early childhood education. Here is a look at how they are put into practice and why they remain cornerstones of our program.

Treating each child as an honored guest is woven into every aspect of Bing’s program. Teachers greet children individually at arrival with a variety of activities set up for them. Since our inception, we have selected teachers who, in addition to a depth of experience and credentials in early childhood education, possess the qualities of warmth, compassion, patience and an unwavering acceptance of the child. It is imperative that teachers have the ability to see things from a child’s perspective and view every child as capable and competent. This is the starting point that allows them to welcome and treat each child as an honored guest.

Dr. Dowley wanted to create a school that would give back to children some of what the modern world tended to take away from them. This is put into practice by giving children the gift of time. She was quoted in the Campus Report as saying that she wanted “a world that is designed for them, for their pleasure, for their happiness, for their learning, for their enchantment, for their challenge.” Each day children in the nursery school have two hours of uninterrupted time to play, during which they can make choices with materials and their peers under the gentle, watchful guidance of a teacher. We relish and support uninterrupted time for play at this stage in their lives. It is essential to a child’s complete development—cognitively, socially, emotionally and physically. It is through play that children are free to make sense of the world around them, to inquire, to explore, to try new things and to work together. We as teachers want to follow the child’s lead and create a classroom environment that supports children’s play.
At Bing, children are free to move between the seamless indoor and outdoor environments. This freedom of movement encourages children to explore. To this end, Dr. Dowley’s original plan included extensive space and a variety of terrains. At Bing, freedom of movement is a principle we strongly believe is a right of every child here. Emeritus Head Teacher Bonnie Chandler was fond of saying, “a child learns geography with his feet.” Freedom of movement also provides important benefits for a young child’s physical and cardiovascular development. Children’s ability and motivation to run to the top of the hill or to go all the way across the monkey bars or climb to the peak of a structure to view their world not only increases and supports their physical selves, but is also deeply satisfying. There is nothing quite so gratifying as hearing a child say “I did it all by myself!”

Bing was founded with three missions: 1) to provide an exemplary early childhood education experience for young children; 2) as a laboratory school for Stanford’s Department of Psychology to conduct research in child development; and 3) to teach undergraduate courses in child development.

As a laboratory school, Bing has thrived for the past 50 years. Stanford’s psychology and linguistics faculty have made significant advances in understanding child development through their research conducted at Bing. Research on social modeling by Professor Albert Bandura, PhD, showed how the power of observational learning could change behavior (the Bobo doll study). Longitudinal work on delayed gratification (the Marshmallow Studies) by Walter Mischel, a former Stanford professor, PhD, shed light on willpower and suggested that children’s ability to wait for a later reward relates to important life outcomes (see page 9 for more information). Research by Professor Mark Lepper, PhD, highlighted the value of intrinsic motivation and that superfluous rewards undermine motivation.

Research by Professor Eve Clark, PhD, on language acquisition informs us about how children first acquire language. Research by Professor Ellen Markman, PhD, on language development examined the “naming explosion,” looking at how preschoolers’ vocabularies increase very quickly over a short period of time and how young children come to learn word meanings. Studies of cognitive development and theory of mind by Professor John Flavell, PhD, helped us understand children’s ability to think about the difference between appearance and reality, and distinguish thinking from talking, feeling, seeing and knowing. The research now being conducted at Bing is as groundbreaking as ever. We look forward to this facet of our mission continuing to flourish and supporting Stanford psychologists to provide new insights into child development.

Bing fulfills its mission as a provider of exceptional undergraduate education by offering courses such as Psychology 60A, Developmental Psychology Section; Psychology 146, Observation of Children; Psychology 147, Development of Early Childhood; Human Biology 3Y, Practicum in Child Development. Undergraduates have a unique experience at Bing combining theory and practice, which serves them well in their understanding of child development and has valuable application to their later studies in psychology, medicine and education, and as parents. Special projects, internships and observation opportunities are available to students in education, human biology, linguistics and psychology.

Recently Bing has expanded the original three-fold mission of the school to include a fourth: sharing our knowledge and experience in early childhood education and child development with parents and educators. This is being done through the Bing Program for Parents and Educators. Efforts here include a summer session for educators, a speaker series, informal coffee talks for parents and guest lectures. Since inception, our summer sessions have been oversubscribed, with educators attending from across the country and around the world. The parent coffee talks have been equally well received. We look forward to continuing our service to parents and educators in the years ahead.

As we pause to reflect on the past half century with an eye toward the future, we are pleased to see that the founding principles of Bing Nursery School are as relevant, appropriate and effective now as they were then. And we remain as committed to them as ever.

Throughout the past 50 years of ever-increasing change, our practice and the research have shown that the most effective way to support young children’s development (cognitively, socially, emotionally and physically) remains a play-based, child-centered program. Built upon our founding principles of treating the child as an honored guest, giving them the gift of time, and providing them freedom of movement, we’re convinced now, more than ever, that Bing is supporting young children to be confident, inquisitive, creative, flexible and collaborative. These are the attributes that will be even more important in addressing the challenges they will encounter in the next 50 years.

More information on Bing's guiding principles, research and undergraduate teaching is available on pages 4 and 5.
Children as “honored guests”
One of the things that’s the most powerful to me about the guiding principle of respecting children is the way the environment was set up to suit the child’s perspective—everything from the size of the furniture, the size of the hills, what it would really look like for them as they’re coming in. I think that sets the stage physically and figuratively for how we should look at all of children’s play and the things they are doing with materials. Seeing things from their perspective allows us to appreciate the intentionality behind their play. That not only allows us to see the value in what they are doing and their competencies with everything they’re doing, but it also models the respect that we want children to learn for each other and for adults in creating an environment that really is about mutual respect.

–Colin Johnson, Head Teacher

Treating them with respect shapes how they think about themselves and their relation to other people in the world. ... It conveys that we view them as capable, and they come to see themselves as capable and valued people. It frames how much you feel like you’re invited to participate, whether your ideas matter. It encourages them to engage with you because they know they’re being heard. It forms a sense of connection.

–Adrienne Lomangino, Head Teacher

Gift of time
Children need time to play. Without uninterrupted blocks of time, a child may only touch the surface of their learning.

When children have the gift of time to explore and follow their curiosity, they become self-motivated. They develop creativity, imagination, and a long attention span. They can take their learning to a deeper level and gain mastery of a skill. –Mary Munday, Head Teacher

Freedom of Movement
I think fundamentally children are active learners and much of their learning comes from interacting with the world and materials around them. Having opportunities to explore fully with their bodies is critical for their engagement in the world. As teachers, it’s our responsibility to give them opportunities or invitations to physically engage. Many children do it intuitively; other children need to have a little bit of guidance to move in that direction. Teachers need to understand where children are on that continuum. Teachers can support those who might be a little more risk-seeking to be able to create boundaries for themselves. For those who are perhaps a little risk averse, teachers offer support in building confidence about their skill set and provide them opportunities to test that in a way that makes them feel comfortable and gain more confidence and competence. ...Large motor development is critical to brain development and lays a foundation for future fine motor growth. You can’t underestimate the need for that. –Peckie Peters, Head Teacher

Why is freedom of movement so important to children? Children need to move their bodies and minds to develop, to be able to have sensory experiences with the environment, to be able to explore in order to learn. By giving children two hours of uninterrupted time to move through the environment, we’re essentially giving them a laboratory for learning. They can choose the activities that they’re interested in, they can move from one...
area to another, they can engage in rich social-emotional, physical play throughout a carefully maintained environment. … We’re opening up so many pathways for them to be able to explore and from that we’re helping to develop their predisposition to what interests them. –Beth Wise, Assistant Director

When I think about a Bing child’s freedom of movement and freedom of choice, I think about autonomy and self-directedness. … Children gain a sense of ownership and autonomy when they can move freely and make their own decisions. It helps them to feel confident and ultimately it helps them to feel competent because they can move to an area, they can leave it, they can come back to it. For children to have that at ages 2, 3, 4 and 5, that’s amazing because generally in our society we don’t give children that freedom, that kind of choice. –Todd Erickson, Head Teacher

Undergraduate students’ course review
Most rewarding class I have taken at Stanford. The in-classroom experiences at Bing taught many life lessons.
–Autumn 2012-2013

I really enjoyed the course—it was a great chance to apply something practical amongst all the theory. To really witness Bing in action, and see the care the teachers have for the students and families was a privilege. I would recommend it to anyone who is interested in working with children in a classroom level—even though they are very young, the concepts apply and one can see how the future shapes from this early stage for all children. –Spring 2006-2007

Research at Bing
I think that it’s wonderful to have a resource [Bing Nursery School] that has contributed so much to the research excellence and scholarship of faculty at Stanford who are interested in developmental issues, that has promoted the careers of newly trained graduate students who then go on to be stars in the field, that provides opportunities for undergraduates to get experience that they otherwise wouldn’t have and at the same time is a first-rate, wonderful place for parents to send their children. It’s not as if there have been trade offs or compromises in some ways. No matter what perspective you look at it, people are incredibly respectful and appreciative of what Bing provides and I think that’s a real achievement. –Professor Ellen Markman

Not only can you test your hypothesis there, but you can look at how the children change over the years. That’s just crucial. Otherwise, researchers have to rush around to different cities and find schools that will cooperate. It would be hard to see how our students would accomplish everything they do without Bing. –Professor Carol Dweck

Bing is a unique resource. From the wonderful rapport that researchers have with the children in their studies to the feedback and support that the school staff give at all stages of the research process, it’s hard to imagine a better place for doing work with young children. –Professor Michael Frank
How Does Culture Shape Our Feelings?

By Lydia Itoi, Journalist and Bing Parent

If you’re happy and you know it, clap your hands
If you’re happy and you know it, clap your hands
If you’re happy and you know it, then your face will surely show it…

Every Bing child knows this song, and everybody wants to be happy. But is it written all over our faces in a way everyone can understand?

On May 6, 2015, Stanford psychology professor and Bing parent Jeanne Tsai, PhD, presented her research on happiness before a packed East Room in this year’s Bing Distinguished Lecture. Turns out, universal happiness is not as simple as clapping your hands.

Tsai is director of the Stanford Culture and Emotion Lab and has been fascinated by questions of culture and psychology from her own days as a happy-go-lucky Stanford undergrad. In the engaging style that has won her student popularity and teaching awards, she delivered a thought-provoking, entertaining lecture on how culture influences how we view happiness.

The research she presented, some of which was done here at Bing, gave these insights into the nature of human happiness:

1. How we actually feel is different from how we ideally want to feel.
2. Our ideal definition of happiness is influenced by our cultural environment at an early age and changes over time.
3. Our culturally defined ideas about happiness play a central role in our lives and the way we see the world.

Sadly, Tsai explains, most of us don’t actually feel (what Tsai calls “actual affect”) as happy as we ideally want to feel (“ideal affect”), but what we want to feel is culturally defined. It turns out we learn to want different things depending on our cultural environment.

Culture therefore plays a huge role in forming our ideal affect and determining our choices, conscious or unconscious. It invisibly influences lots of things that we do to feel good: our choice of consumer products, vacations, leisure activities, even our choice of doctors or friends. Culturally influenced ideal affect can also influence who we choose as our leaders, how we define health and happiness, or how we perceive others.

Finding The Cultural Emotional Gap

Tsai first became interested in the study of how culture shapes emotions when the psychological theories she studied at Stanford and Berkeley in the 1990s did not seem to fit her experience as the daughter of Taiwanese immigrants. Given that most psychological studies were conducted by Western Europeans on Western European populations, this comes as no surprise. “The few [empirical psychological] studies that existed on Japanese and Chinese would talk about East Asians as being inscrutable…but then that didn’t ring true to my experience either,” she laughs. “I knew when my parents were angry or upset. And when I talked about it, my parents would say, ‘Oh, no, Jeanne, that’s not right. Americans are the ones who are hard to read.’”

At first, Tsai found little empirical evidence but plentiful anecdotal reports and literary examples of cultural difference in emotion. “People often experience a disconnect when trying to interact with a person from a different culture,” Tsai points out.

Anthropological studies have also described this cultural difference in emotions, with ethnographic studies indicating that emotions might be purely cultural constructions. Some even implied that emotions are impossible to understand from another cultural perspective. But while these studies richly described the emotional differences between cultures in specific contexts, they did little to explain them. This job called for psychology’s tool kit.

Affect Valuation Theory

But when Tsai first began conducting her own research by bringing people from various cultural backgrounds into the psychology lab, she and her Berkeley graduate advisor Robert Levenson, PhD, still could not find any empirical evidence of cultural influence on emotions. They had European-American and Asian-American people come in and try to experience emotions in a lab setting by watching emotional movies and reminiscing about evocative times in their lives. Dating couples would come in to have emotionally charged discussions about their relationships, on topics such as jealousy and sex, while researchers measured their physiological responses, administered self-report questionnaires and videotaped body language. The initial results showed

Acknowledgement

Bing Nursery School would like to thank Lydia Itoi and Janine Zacharia, both journalists and Bing parents, for contributing to The Bing Times.

Lydia Itoi (“How Does Culture Shape Our Feelings,” p. 6) is a food and travel journalist who has published in *Time* magazine, *Newsweek* Japan and many European magazines. She was nominated for a James Beard award for her column in the *San Jose Mercury News*, and she has known Dr. Jeanne Tsai, this year’s Distinguished Lecturer, since college. One of her daughters, Naomi Torres-Itoi, is a Bing alumna, and another daughter, Erica, currently attends Bing in Center PM.

Janine Zacharia (“The Bing ‘Marshmallow Studies,’” p. 9) has reported on Israel, the Palestinians and the broader Middle East for two decades including jobs as Jerusalem Bureau Chief for the *Washington Post*, chief diplomatic correspondent for *Bloomberg News*, Washington bureau chief for the *Jerusalem Post*, and Jerusalem correspondent for *Reuters*. She appears regularly on cable news shows and radio programs as a Middle East analyst. Her daughter Anna Bailenson currently attends Bing in Center PM.

Professor Jeanne Tsai
few differences in the emotional responses between the European-American and Asian-American groups.

So how to reconcile the difference between the ethnographical evidence of cultural emotional difference and the psychological results showing that we are basically feeling the same inside? The answer might be that they are describing two different aspects of emotion. The anthropological studies might describe what people ideally want to feel (their ideal affect), while the psychological results might reveal what they actually feel, or actual affect. Tsai’s subsequent research attempts to refine what we actually mean by “happiness” in what she calls affect valuation theory.

Tsai began changing the questions she asked, interviewing European-American, Asian-American and Hong Kong Chinese college students about what emotional state they would ideally like to have. Most of the responses fell into two categories:

European-American college student: “I just want to be happy. Normally for me that means I would be doing something exciting. I just want to be entertained. … I just like excitement.”

Hong Kong Chinese college student: “My ideal state is to be quiet, serene, happy and positive.”

Maybe ideal happiness does not mean the same thing to everyone after all. Tsai et al. began developing a more nuanced emotional graph, plotting ideal feelings along two axes: positive (happy, content) and negative (sad, lonely), high arousal (active, impassioned) and low arousal (passive, dull) emotional states. This grid provides a tool to measure and compare emotions across cultures.

In short, everybody wants to be happy, but the specific state associated with happiness differs, and it seems to be heavily influenced by the cultural environment. Both European-Americans and East Asians valued positive emotional states, but European-Americans largely preferred high arousal positive states like excitement, elation and euphoria while East Asians largely reported a preference for low arousal positive states like peace, relaxation and calm. Asian-Americans fell somewhere in between. “Americans have to say they’re doing GREAT!” Tsai points out, “If you are only fine, people think you’re depressed. You have to be very excited about your life.”

But even if people across cultures aspire to different ideal emotional states, on average, everybody reports they want to feel more positive than they actually feel.

Ideal Affect and Cultural Messages

Tsai focuses her study on locating the differences in ideal affect between Western European-American populations, East Asian-American populations and East Asian populations. One has to start somewhere, but even within these specific populations, Tsai acknowledges a wide diversity in cultural emotional responses. Midwesterners of Scandinavian descent, for example, tend to prefer high arousal positive states less than their fourth-generation Irish-American counterparts. Tsai’s research so far does not take into account socio-economic factors (most subjects come from college-educated, middle-class backgrounds), religious differences, or other ethnic groups. The study of human happiness remains wide open.

That said, within those specific target populations, Tsai reports that European-Americans show a marked preference for excited faces, while East Asians, and Asian-Americans to a lesser degree, generally prefer the calmer faces.

In her search for more empirical evidence to support this theory that culture influences ideal affect, Tsai compared everything from ads in women’s magazines to Facebook profiles and photos of successful CEOs, politicians and other public figures. The researchers measured and coded facial expressions for levels of excitement or calm, and they found that profile photos generally project the ideal affect of their culture. European-American photos featured broad smiles of people jumping off cliffs or doing other exciting stunts, while Asian and Asian-American selfies showed relatively calmer expressions and activities.

These cultural messages are reinforced by advertising and product marketing, reflecting the dominant culture’s ideal affect. Ads targeting American markets emphasize energy, excitement and promise a more pumped-up existence. Tsai showed examples of everything from baby play gyms covered with bells and whistles to Kellogg’s ads for seniors encouraging active living. (“Living well and feeling great! Regular exercise and staying active support a healthy lifestyle, keep you energized, fit, and feeling great. See back for some exciting products!!”) Ads in Asian magazines promise serenity and peace, with soothing colors, expressions and images.

Tsai acknowledges that Americans can value calm at times and East Asians can value excitement, but the difference is in degree. Yoga has become a popular American pastime, but more often than not it becomes power yoga. Hong Kong theme parks have roller coasters, but on the periphery and with no long lines.

Ideal Affect Over Time

If ideal affect is really cultural, when is it acquired, and how do children learn to display emotion? Studies conducted in 2007 at Bing show that these cultural differences begin very early. European-American and Asian-American Bing students and Taiwanese Chinese preschool students between the ages of 3 and 5 were already exhibiting different reactions to the following questions:

Which one would you rather be?
Which one is more happy?

European-Americans liked and wanted to emulate the broad, open-mouthed smile, while Taiwanese children preferred the closed-mouth smile. Asian-American children fell in the middle.

The same results came back when children were given an example of excited water play and calm water play and asked to choose what they would like to do: Even correcting for the temperament of individual subjects, European-American children preferred the splashing and jumping, Taiwanese liked the idea of floating in the pool, while Asian-Americans fell in between.

Tsai then compared the bestselling U.S. storybooks of 2005, including Where
The implications are profound. We choose a doctor based on how well the physician matches our ideal affect, not just on their medical qualifications. Doctors, being human, also subconsciously respond to patients depending on how well the patient fits the doctor’s ideal affect. Preliminary studies suggest that a physician might pay more attention to a patient that matches their ideal affect, even ordering more tests. The same dynamic probably applies to teachers and students, bosses and employees. People are humans, and humans like people who match their ideal.

Cultural differences in ideal affect can seep into the assessment and treatment of depression. Asians and Asian-Americans are less likely to seek mental health treatment, but when they do, they often run into a cultural mismatch with European-American clinicians, who are likely to view depression as an absence of high-arousal positive feelings.

Differences in ideal affect might influence who gets chosen for leadership positions and promotions. Tsai mentioned the “bamboo ceiling,” a phenomenon where Asian-Americans rise to the midlevel of management but rarely higher. Employers will say, “I’d love to hire an Asian-American CEO, but it seems like they just don’t have what it takes to lead.” People don’t say, “They don’t match my cultural ideal.” They say, “They don’t have it.” She argues that “it” is an emotional match.

Embracing Happiness

Many of Tsai’s study subjects were Stanford students, and when asked about the happiest moment of their lives, they usually mentioned getting into Stanford or winning a big competition or some other once-in-a-lifetime highly emotional moment.

Asian research subjects would equate happiness with more everyday moments, like enjoying a good book or going for a walk. Is one group happier than another? Research results indicate that older Hong Kong Chinese adults are on the whole more satisfied with their lives than European-American older adults. Perhaps it is because they have learned to moderate their expectations and accept their circumstances. Tsai likes the idea of having big aspirations, but she worries whether it leads to too much stress because often these big aspirations are accompanied by unrealistic expectations. Does having more achievable standards of happiness and adjusting your ideal affect lead to more frequent moments of satisfaction? Food for thought.

Because I’m happy
Clap along if you feel like that’s what you wanna do
—from the song “Happy” by Pharrell Williams
Walter Mischel’s pioneering research at Bing in the late 1960s and early 1970s famously explored what enabled preschool-aged children to forgo immediate gratification in exchange for a larger but delayed reward.

Resisting temptation, Mischel noted in a speech to several hundred Bing parents, is a problem that goes back to the story of Adam and Eve and the apple, and to Ulysses, who “tied himself to the mast to resist his temptations.” But until Mischel’s research at Bing, it was bypassed in modern science. Mischel, now a psychology professor at Columbia University, spoke at Stanford’s CEMEX Auditorium on Nov. 19, 2014.

The deliberately simple method Mischel devised to study willpower became known in popular culture as the “Marshmallow Test.” Mischel began by observing how those Bing children who could wait distracted themselves to avoid the temptations and used their imaginations to keep on waiting for their chosen goal. Some children turned their backs to the treats, or covered up their eyes so they couldn’t see them, or sang quietly to themselves (“Oh this is my home in Redwood City”). Others played with their toes as if they were piano keys, explored their nasal and ear cavities, or invented songs and games to amuse themselves to make the delay easier. And some sat quietly while giving themselves whispered self-instructions, repeating the contingency: “If I wait, then I get both; but if I don’t, then I just get one.”

This research identified some of the key cognitive skills, strategies, plans and mindsets that enable self-control. If the children focused on the “hot” qualities of the temptations (e.g., “The marshmallows are sweet, chewy, yummy”), they soon rang the bell to bring the researcher back. If they focused on their abstract “cool” features (“The marshmallows are puffy and round like cotton balls”), they managed to wait longer than the researchers, watching them through a one-way observation window, could bear. And when they imagined that the treats facing them were “just a picture” and were cued to “put a frame around it in your head” they were able to wait for almost 18 minutes. When Mischel asked a child how she managed to wait so long, she replied: “well you can’t eat a picture.”

These studies demystified willpower and showed how self-control and emotion regulation could be enhanced, taught and learned, beginning very early in life, even by children who initially had much difficulty delaying gratification.

The Bing research also yielded a surprise: What the preschoolers did as they tried to wait, unexpectedly predicted much about their future lives. “The more seconds they waited at age 4 or 5, the higher their SAT scores and the better their rated social and cognitive function in adolescence,” Mischel writes in his recent book, The Marshmallow Test: Mastering Self-Control.

Children who waited longer tended to become more self-reliant, more self-confident, less distractible and more able to cope with stress as adolescents, he said. But, he added, he has reassured anxious parents over the years that a child’s ability to delay gratification in preschool does not determine their future. “Clearly, your future is not in a marshmallow,” he said, debunking the pithy but incorrect way popular media have summed up his findings.

It’s a terrible mistake to think that if a child can’t wait 15 minutes, the child has serious problems, Mischel said in his talk. “If the child is waiting 15 minutes, it is telling you something important: Now you know she is able to wait effectively for something when she really wants it.” But if she doesn’t wait it may mean she just didn’t think it was worth waiting for.

Most important, the research over the years by Mischel and many others has helped to clarify the mental and brain mechanisms that underlie self-control, and stimulated decades of research on the researchers could examine aspects of their brain activity and how they relate to their self-control earlier in life.

In his recent book, Mischel gave an example from his own life. Fifty years ago he was a three-pack-a-day smoker who once caught himself in the shower smoking a pipe. He knew he needed to stop. But it wasn’t until Mischel saw a patient at Stanford Hospital being wheeled on a gurney, his head and chest shaved smooth, little paint marks to show where the radiation should go to treat him for metastasized lung cancer, that he managed to quit. Imagining himself on that gurney helped him change his habit. Seeing and vividly remembering that cancer patient each time he was tempted to smoke made those potential future consequences immediate and powerful. He called this “pre-living a delayed outcome” so that it is experienced in the here and now and not discounted because it’s far off.

In his acknowledgments, he expresses gratitude “to the children and families whose contributions and unstinting cooperation, often over the course of many years” made the Bing research possible. Two of Mischel’s graduate students, Yuichi Shoda and Philip K. Peake, have continued to work with him for more than three decades on the research begun at Bing. Mischel, Shoda and Peake, will be honored on Sept. 17 at the Library of Congress with the “2015 Golden Goose Award,” given for federally funded long-term basic research that turns out, often unexpectedly, to have important applications for human welfare.
Researcher in Profile: Ali Horowitz on Inferences From Words
By Chia-wa Yeh, Head Teacher and Research Coordinator

Research is an integral part of Bing Nursery School. Each year about 40 Stanford researchers work with children at Bing as participants in their studies. One of these is graduate student Ali Horowitz. Over the past five years, Horowitz was often seen in the classrooms with a big smile, listening to and talking with children, noticing and appreciating what children were doing. Her series of studies at Bing explored whether children make inferences about language that go beyond what’s explicitly stated.

Horowitz’s interest in how young children learn started early. Her parents believe that children can overcome setbacks and thrive with love, attention and support. In addition to raising three biological daughters, they took in foster children throughout her childhood, mainly infants and toddlers. While she was growing up, one to two foster children were in her home at any given time. The house was always lively and fun, with lots of singing, playing and art and science projects. Horowitz enjoyed taking on a big sister role to help care for the foster children, watching how quickly young minds develop, and helping to support their learning.

Horowitz attended the University of Rochester where she completed a bachelor’s in brain and cognitive sciences, with minors in psychology and Spanish. She went on to be the lab manager for the Early Childhood Cognition Lab at the Massachusetts Institute of Technology before combining her interests in language and development in graduate study in the Language and Cognition Lab at Stanford with her advisor, associate professor of psychology Michael Frank, PhD. She earned her doctorate in developmental psychology this year.

In speech, adults can infer what meaning speakers want to convey by listening to not just what people say, but how and why they say it. For instance, “strawberry yogurt” conveys that yogurt can come in different flavors and “art museum” conveys that there are different types of museums.

Are young children sensitive to cues implied in speech? To answer this, Horowitz investigated children’s inferences about the use of adjectives. Do young children pick up on subtle implications when hearing adjectives that convey dimensions of contrast? For example, if one points to a new toy and say, “That’s a big ‘blicket,’” it conveys not only that the toy is called a blicket but that this blicket is big, size is relevant to this blicket, and other blickets are probably smaller. So from a single sentence, listeners can gain information about this particular blicket and also about what other blickets are like.

In Horowitz’s studies, she introduced 3- to 5-year-olds to pictures of novel shapes and described them using either size or property adjectives (e.g., “This is a special kind of zib. This is a small [or broken] zib”). She then showed the children two similar pictures, one that differed from the first only by size (e.g., big and small) and one that differed from the first only by property (broken and unbroken). Afterward, she invited the children to point to the one of the two they thought most zibs looked like. The study examined whether children would choose the picture that differed from the adjective provided. For example, whether children who heard “This is a broken zib” would select an unbroken one as what most zibs looked like.

The researchers found that by age three and a half, children were more likely to select the picture that contrasted with the adjective named. In other words, if they heard “small,” they were more likely to select the picture that was big, and if they heard “broken,” they were more likely to select the picture that was unbroken.

The researchers’ findings suggest that preschoolers are learning to infer about what information is conveyed by speakers’ word choices. Although they could choose between a picture that matched the adjective named (e.g., hearing “small” and selecting the other small picture) or one that contrasted with the adjective named (hearing “broken” and selecting the picture that was unbroken), children selected the contrast. They seemed to be reasoning that the adjective implied a dimension of contrast with other zibs. In other words, they appeared to be reasoning about not just what was literally said, but what underlying information was implied from those descriptive modifiers.

“Adjectives are just one example of word choices that provide cues to underlying meaning. Once children can consider why speakers say things in particular ways — what knowledge, perspective and intentions they have — they can gain information about what the world is like that would lead speakers to make those descriptive choices,” Horowitz commented. Hence, explained Horowitz, the more children can pick up on information that goes beyond what’s explicitly stated, the more they can access opportunities for learning. Making inferences about language use enables children to become more efficient communicators and learners.

Horowitz’s study has been accepted for publication by the journal Child Development.
Learning From Each Other
By Maria Dogero, Teacher

What we know about the world is much more than what we can directly experience.

—Professor Hyowon Gweon, PhD

Children learn so many things through their own self-directed experiences and observations, especially when given the time, materials and freedom to play, explore and test out their hypotheses. But, by virtue of living in a social context, they also come to know many things and make many inferences based on what they pick up from other people. Bing teachers and staff learned more about social learning when Hyowon Gweon, PhD, assistant professor in psychology at Stanford, spoke about her research during a staff development day held Oct. 10, 2014.

In one set of studies, Gweon looked at children’s ability to make inferences based on their observations of others. Researchers gave 16-month-old children a malfunctioning toy (when they pressed the button it failed to play music). How they responded indicated their assessment of the problem. Is it me or the world? Did I make a mistake, or is the toy broken? Their judgment depended on what they had observed prior to receiving the toy. In one condition, children observed two researchers push the button, which worked and failed once for each of them, suggesting that the toy was unreliable. When their own attempts failed, they inferred that the trouble was due to the toy, and reached for another similar-looking toy instead of asking for others’ help.

In the other condition, children observed two researchers push the button, which worked twice for one experimenter and failed twice for the other experimenter, suggesting that some users cannot operate the toy. When their own attempts failed, children inferred that the failure was due to themselves, rather than the toy: They handed the toy to the parent sitting next to them to ask for their help, instead of reaching for another toy. This study suggests that extremely young children can use information embedded in others’ actions as evidence to interpret their own experiences.

Additionally, Gweon shared a set of studies that addressed how preschool-age children learn from information provided by others. Researchers presented children with a novel toy with four functions: a squeaker, a mirror, a light and music. In one condition, a researcher brought the toy to the child and specifically showed him the squeaker. In the other, the toy was presented “accidentally.” The researcher told the child “I just found this toy, I wonder what it does” and seemingly by chance squeaked the squeaker as she placed it on the table. Both groups of children were left to play with the toy, but only the children in the “accidental” condition explored the toy and discovered all four functions. The children who were directly taught about the squeaker focused on that single function, and were less likely to discover the others. According to Gweon, “In a pedagogical context, evidence is selected with a particular intent to teach and children expect that what is presented is true and representative of what needs to be learned.” The study suggests that children cannot make inferences about the intention behind information provided to them. Such inferences sometimes even mislead learners, because pedagogical demonstration may inadvertently imply that there is no additional information to learn.

In other studies, Gweon addressed a third kind of social learning: learning about other people and their credibility. In one study, researchers gave 6- to 7-year-old children either a toy that had one interesting function (spinning light), or a toy that had the spinning light and three additional interesting functions. Children were allowed time to explore all of the toys’ functions. Then, all children saw a puppet “toy teacher” demonstrate the spinning light on the toy, and were asked to rate the toy teacher. Even though the toy teacher’s behavior was identical across conditions, children who had played with the four-function toy, and therefore received insufficient information from the teacher, rated the teacher much lower. A second experiment showed that children use this information to guide their future learning. After having seen the puppet “toy teacher” demonstrate the spinning light on the one-function toy or the four-function toy, children were presented with a novel toy. They watched the same puppet demonstrate one interesting function of the toy. The children who trusted the teacher inferred that the toy only did that one thing, and focused on playing with that particular function. The children who had learned that the teacher was unreliable inferred that the toy probably did more than one thing, and explored the toy more broadly.

The findings of Gweon’s studies have important implications for anyone who sets out to teach a child. Pedagogical learning may be an efficient way to transmit information, and there are some things that would be difficult, if not impossible, to learn without learning from others. But teachers, especially when they are assumed to know everything, can be misleading. Conversely, when teachers are not assumed to know everything, when their demonstration of the subject seems more “accidental” or when they are believed to be unreliable, children may explore more broadly. We are reminded of famed psychologist Jean Piaget’s warning that “When you teach a child something, you take away forever his chance of discovering it for himself.” After reflecting on Gweon’s research, it seems that teaching a child something may not only take away his chance of discovering it for himself, but also change how he discovers information about it. Hearing Gweon’s research was a reminder to Bing teachers of the importance of supporting children in their own discovery, discovering alongside them and emphasizing that what they are taught may not be all there is to learn.
Four hundred teachers and parents learned about the value of play at Bing Nursery School’s first symposium on the subject. The event, held July 12, 2014, included lectures on why play is important, opportunities for discussion and, of course, time for play.

The school staff had spent time brainstorming ways to get this information to a wide and diverse audience. One popular idea was to offer a play symposium with expert speakers explaining how and why play is important, chances to experience learning through play and opportunities for parents and educators to discuss the topic of play and share ideas. This idea came to fruition as a daylong event.

The day began with a presentation by Stuart Brown, MD, author and founder of the National Institute for Play. His session, held in Cemex Auditorium, started with video clips of a variety of animals at play, which supported his message: Play is natural and crucial for all living creatures. He further defined play as something not constrained by time that produces a sense of bliss, is done for its own sake, is important to the essence of being, damps down or deters violence and is a state in which the right sides of the participants’ brains get in sync with one another, thereby promoting harmony and bonding. He went on to discuss different types of play in which humans engage—physical, social, celebratory (e.g., giving high fives), ritual (e.g., enacting wedding), aesthetic (e.g., dancing) and narrative (e.g., storytelling)—and the developmental value of these different varieties. Brown concluded by explaining the consequences of play deprivation and noted, “The opposite of play is depression.”

Before the next talk, symposium participants had a chance to go outside and play in the grassy area in front of the auditorium. The activities included projects such as making straw and paper rockets described by Tinkerlab, a blog and book by Bing parent Rachelle Doorley. Participants could also use hula hoops (made by the Bing staff) and balls for open-ended activities like twirling, rolling and throwing.

The group returned to the auditorium to hear Stanford neurosurgeon Jamshid Ghajar, MD, PhD, president of the Brain Trauma Foundation, speak about the need for play in healthy brain development. “Play is an adaptive neurobiological drive to establish predictive timing in interactions that will serve as the timing construct in learning,” Ghajar said. In other words, play gives the brain practice anticipating what information is coming in and what information is most important, and therefore, needs to be attended to first—a skill necessary for survival. Ghajar maintains that this skill is developed and practiced through play.

More opportunities for creative play were in store for participants. Activity leaders gave everyone three minutes to construct an “invention” out of common objects—like bottle lids, plastic boxes, pipe cleaners and paper clips—they pulled out of paper bags. The “inventors” then shared their creations and insights about the process with one another. As the inventors worked, members of the Bing staff provided inspiration and entertainment by taking the stage and performing an improvisational skit about the passage of time and feeling rushed.

The final speaker of the day was Joan Almon, a veteran kindergarten teacher and the founding director of Alliance For Childhood, which promotes policies and practices that support children’s healthy development, love of learning and joy in living. Her presentation detailed how play is integral to children’s physical, social, emotional and cognitive development. She equated a child’s play to a scientist’s experimentation in a lab and said that even failed play experiments are valuable because they offer just as much opportunity to learn as successes. Almon challenged the audience to advocate for play in our nation’s schools.

Next on the schedule was a panel discussion. Almon, Brown and Ghajar answered audience questions, elaborated on the value of play and explored how best to disseminate the message that time to play is a necessity in children’s lives. This was followed by a video illustrating a day at Bing Nursery School, and then by an invitation to an open house to see the school itself.

Once at Bing, guests got a closer look at the environment and materials used in the school’s play-based program. Participants and staff shared ideas about how to provide children with open-ended play activities and where to find economical and effective materials to do so. Also open to visitors were two art installations by Bing parent and artist Jung Eun Lee. The works were inspired by children’s play and storytelling. (See photos at left for more information.)
### Connection strategies:

- Get down at the child's level or even lower: It calms the threat response in the emotional part of the brain.
- Model self-soothing reactions and verbalize the process, e.g., “I'm really frustrated right now, so I'm going to take a few deep breaths.”
- Model that it's okay to feel mad or sad or other emotions, and accept those feelings.
- Model persistence by trying again after mistakes.
- Model connection by staying close even when you are mad.
- Give descriptive praise with an excited tone of voice, e.g., “You put the ball in the hoop. You made it!”
- Reflect, e.g., “You look happy playing with the ball.”
- Describe, e.g., “You’re putting the ball very carefully into the net.”
- Show enthusiasm.

### Strategies for Identifying and working through feelings:

- Give your child words to describe his or her feelings.
- Describe your own feelings (even if they are distressing feelings).
- Use charts, toys or drawings to show feelings.
- Develop calm-down strategies.
- Take deep breaths and call this “belly breathing” or “filling your belly up like a balloon.”
- Create a calm-down box or corner to hold objects that help the child calm down (silly putty, a comfort object, sensory toys, a book, pillows).
- Do something silly or playful. This can redirect the child's attention so he or she will be emotionally ready for a conversation.
Parents can also help children develop a stronger sense of self—the ability to recognize their own feelings and, most important, accept how they feel and know that they can do something about it. “If you can name it, you can tame it,” said Pedersen, describing a strategy used by Daniel Siegel. She also encouraged parents to model expressing feelings with their children. For example, “I feel kind of frustrated today because I didn’t get my work done.” (See sidebar on page 13 for strategies.)

Parents also shared their own strategies to calm down, such as drinking a cup of water, watching a snow globe and telling really bad jokes. These exchanges were, perhaps, the most powerful moments of the evening. All parents share the responsibility of helping their children through trying times, and all parents (and teachers!) struggle with strategies that don’t always work. As Pedersen commiserated, “You can’t use the same strategy every time.”

A full toolbox of calming, distracting and soothing actions prepares adults to support their ever-changing children. Parents are often times improvisation artists—supportive, present and emotionally connected. With that in mind, Pedersen asserted her own opinion into the discussion, focusing on a single, powerful word: Silly. “I think we are not silly enough with kids. It can be magical sometimes.”

**I am**

Parents are often times improvisation artists—supportive, present and emotionally connected. With that in mind, Pedersen asserted her own opinion into the discussion, focusing on a single, powerful word: Silly. “I think we are not silly enough with kids. It can be magical sometimes.”

**I can**

These are the social interaction skills, the friendship skills, the communication skills. Using them well takes lots of practice and solid groundwork (see above). Pedersen suggested calling out the behaviors parents want to see more of. She also encouraged parents to use “kind” instead of “nice,” (i.e., “It was kind of you to help Taylor”) as it conveys care and empathy. Many of Pedersen’s other suggestions relate to helping children stay connected to other people in times of distress or conflict. In fact, according to our expert, “Conflict is good.” It is good because it shows that we feel empowered enough to share what we need, want, and feel: The ability to face conflict both builds and demonstrates emotional and social competence. It is the pathway to resilience. Here’s what to do to support these essential skills:

- Give children the opportunity to resolve conflicts with you: “You’re so angry that you can’t have that toy. Are you ready to talk about this?”
- Narrate what’s going on inside your head with conflict resolution: “Let me think about what we can do about this.”

Pedersen also noted that adults often assume that children know how to join a group, but this is not the case. Joining play, a skill children work on in preschool, takes nuanced strategies. It involves two sides of the same coin, said Pedersen: “how to effectively be included and include.” Much like parents developing many strategies for supporting children, children develop many ways to support themselves in social contexts. Such foundational tools, which allow initial entry into a group or, in many cases, joining in play with just one other child, form the basis of meaningful friendships through years of development. Luckily, Pedersen shared still more concrete suggestions for supporting development of social interaction skills. [See sidebar.]

During discussion at the end of the talk, parents seemed to be both relieved and curious: relieved that challenging emotions and behaviors are valid and normal, and curious, still, about just what to do with them. One parent’s comment summed up the evening’s theme: “to shy away from goal-directedness we see in these areas … our role is to be witness, to be present.” In that regard, we can step back from being the role models, and follow our children’s example: focus on the connections happening now, and trust that nurturing them will build a stronger foundation for the future.
Expanding Stories in the Morning Twos
By Mary Munday, Head Teacher

“I want to be the mommy bird!” said one child. “I want to be the baby bird!” said another. These children were answering their story time teacher, who had asked if they would like to act out Are You My Mother by P.D. Eastman at the end-of-the-week story time.

At Bing, teachers often repeat a story throughout the week or longer, and we often vary how we tell it. For example, the first day a teacher will read the story to the group; the following day, the teacher may use props from the classroom to represent details in the book or use felt pieces or laminated pictures to retell the story. At the end of the week, children may act out the story as the teacher narrates the book or they may make up their own version of the story. With repeated telling of the story, children become more familiar with the context and meaning. With multiple readings and extensions, children with different learning styles can grasp story lines and events in different ways. Reading the book introduces the story to the class and supports auditory learners, who learn through hearing. Providing pictures with felt pieces and laminated pictures or using items from the classroom helps visual learners, who learn best through seeing. Acting out the story physically helps kinesthetic learners, who learn best by doing. In addition to learning through hearing and seeing, all young children learn through meaningful hands-on experiences—through touching, doing and moving.

To create opportunities for hands-on experiences, teachers in the Monday/Wednesday/Friday morning Twos classroom filled a basket with felt pieces, laminated pictures and other props and placed it near a large felt board that children could use freely during class time. Children pulled chairs close to the board and chose felt pieces with a specific intention. For example, a child chose four felt houses, a felt mouse and a nearby fox puppet. He placed the felt houses onto the felt board side by side and tucked the mouse under one of the houses. He called out, “Come on! Story time!” As a few children sat down on the carpet along with a teacher, he began singing a song often sung during story time: “The old fox is looking, looking, looking. The old fox is looking for the mouse. Are you in the blue house?” He lifted up the house and said, “No!” Then he moved the fox toward another house. “Are you in the green house?” He carefully lifted up the green house. “Yes!” He repeated this song multiple times as children watched and joined in singing, moving their bodies to the song, and guessing where the mouse was hiding. Similar scenes played out over the year, with many children recreating the song using different animals. Part of the fun of these activities for the children is the opportunity to be a “teacher” as they use props and act out songs or invite peers to the carpet for story time.

As the children’s interest in elaborating on songs and stories increased, at group time at the end of the day they asked to take on various roles in familiar songs, such as monkeys jumping on a bed or frogs on a log. As teachers introduced new songs, children eagerly asked to participate. This led to requests to not only be a part of a song, but to be an animal or character in the weekly story. Teachers invited children to participate at story time and a long list of participants were formed. “I want to be a monkey! I want to be the noisier (rhinoceros)! I want to be a bird! I want to be a lion!” Songs and stories were expanded and often re-created with new animals or themes.

Children benefit in many ways by acting out stories and songs. They learn new words, become more familiar with the story, and as they change the story or make up songs, they think creatively and develop their imagination. Acting out stories also helps children develop self-esteem and teaches them about cooperation and working together as a group. Stories such as The Turnip by Pierre Morgan and The Enormous Potato by Aubrey Davis encourage working together toward a common goal. These stories introduce and illustrate how wonderful and important teamwork can be. Retelling and acting out the story gives the children an opportunity to make it their own. For example, a teacher asked children if they would like to be a character from the story Are You My Mother by P.D. Eastman and they made it their own by creating their own characters for the play, including a lion, rhinoceros and a shark.

Using props to recreate a story also became a whole-body experience in the Twos. After reading Not a Box by Antoinette Portis, a teacher brought in large boxes for the children to explore. The teacher wanted to see if the children would use the boxes to extend the story on their own. Immediately, they climbed into the boxes or used them for building. Some children actively engaged with these large props while others chose to observe. Children asked the teacher to reread the book to them as they were exploring or observing. After reading the story, the children described their boxes as hiding places, buildings, towers, robots, airplanes and trampolines. Teachers took photos of the action and used the photos with the children’s descriptions to create a new edition of the story: Not a Box retold by M.W. A.M. Twos. This became part of the classroom bookshelf for the children to revisit their experience.

Repeated experiences with books promote early literacy and language skills, including an increased vocabulary as well as enhanced story comprehension. Books are always available for the children to
look through and read with a teacher, and those that are read at story time are kept in the classroom for the entire quarter or longer for children to revisit. After hearing the story multiple times, the children show a true understanding of the book.

As teachers reflected at the end of the year, we discussed why our classroom’s children find retelling stories and songs so fascinating. As many of the children in the Twos have older siblings at Bing, one factor is that they have watched their siblings or their peers act out stories and songs. Observing in the older classroom may have piqued their interest. Another factor we discovered was parental interest in story telling and acting at home. Some parents were retelling familiar stories at home and acting out stories with their children. For others, the interest emerged from watching their interested peers in the classroom. When these experiences extended in the Twos classroom this year, a true love for books emerged—an interest the teachers will support as they continue on to the preschool classrooms.

To conclude, I would like to share a story retold by a child (age 3) as a teacher turned the pages of a book. This story was read at story time and the children acted it out at the end of the week. With repeated experiences, he grasped the story concepts and became an active participant in the play. Through his story telling, he recalled details, sequences, vocabulary, and his own experience playing a bird in the story play with peers.

Are You My Mother? By P.D. Eastman
Retold by Ben L. (Age 3)

Me the mommy bird. That me sitting on the egg. The egg jumped and jumped and out came the baby bird. Me flying. That Asher (pointing to baby bird). He looked for me. We went right past me. He met a kitten. He met the hen. He met a dog. He met a cow. A kitten and a hen and a dog and a cow. He want his mother but me gone. He met a car. Now he met a boat and this is not my mother. He met an airplane. Is that my mother? It is not my mother. He met a snort. That’s Ian. That’s my mother! Nope. Get me out of here! He put him in the tree. That me! That Asher (pointing to the birds in the tree). You’re not a cow. You’re not a cat. You’re not a hen. You are a bird and you are my mother. The End

As school started last fall, we saw that the children in our Monday/Wednesday PM Twos class were captivated by rolling toy cars down ramps. This inspired us to find more ways for the children to explore similar activities with other materials.

Initially, rolling cars down ramps helped many of the children become engaged in the classroom environment—even though they were saying goodbye to their parents for the first time. Next we put out trains on inclined tracks, trucks on angled boards, and small, round redwood cones on slanting plastic rain gutters for the children to experiment with. The children were impressed to see their long trains, rows of trucks and handfuls of redwood cones rolling without needing a push. To support this interest of the group, the teachers looked around for new objects and surfaces that lent themselves to this pursuit.

As it was fall, teachers brought in miniature pumpkins and leaned gutters against a fence out in the yard. Children were fascinated to discover that the pumpkins rolled down the gutters, but only if they were placed with their stem to the side so as not to interrupt their smooth trip down the incline. Many children referred to these as “pumpkin balls,” noting the similarities between pumpkins and balls. They also realized that the larger, heavier pumpkins rolled farther.

The following week teachers set up ramps in a zigzag configuration in two sizes next to each other on the patio and provided two sizes of wiffle balls. The small balls would fit through either ramp configuration but the large balls only fit through one. This gave the children another opportunity to see how size and weight could influence an object’s progress down an inclined track. It also inspired some cooperative play as some children became the “rollers,” who sent the balls down the track, and others became the “catchers,” who trapped the balls as they came off the end of the ramp, sorted them by size and color and gave them back to the “rollers.”

Teachers also used long wooden hollow blocks to build slanted tracks for wooden trucks.

Children explored the new set-ups teachers provided each week and gained more knowledge about objects they could roll and materials they could use to build inclines. These explorations led children to build their own inclines and assign them representational meanings, such as parking ramps and freeways. Identifying the buildings as familiar structures encountered in every day life also brought elements of pretend play to these activities.

This in-depth exploration of inclined planes lasted throughout the autumn quarter and made the afternoons in the Twos exciting and engaging.

Exploring Inclined Planes

By Nandini Bhattacharjya, Head Teacher, and Betsy Koning, Teacher
Creating a Community of Block Builders
By Nancy Howe, Head Teacher, Todd Erickson, Emma McCarthy and Sheilan Kazzaz, Teachers

In block building, the material is fluid, providing for infinite possibilities for a child to develop ideas and improvise or create at will.
— Elisabeth Hirsch, The Block Book

Children’s interest in a material often drives the curriculum, unifying both children and teachers to explore and experiment together in order to deepen their understanding. This year, blocks of several types—classic unit blocks, larger hollow blocks and small colored table blocks—inspired many of the children in the Tuesday/Thursday AM Twos Program. The teachers supported this interest, creating a community of block-builders.

Blocks, one of Bing’s five open-ended, basic materials, along with clay, paint, sand and water, have informed children’s play and development since their creation over 100 years ago. Brilliant in their simplicity, blocks provide an excellent cross-disciplinary experience. Social-emotional, cognitive, physical and language development are all subtly woven into block building. As 2-year-olds begin to work with blocks, they will follow a developmental block-building trajectory that starts with carrying and stacking and ends in the nursery rooms with representational building. The opportunities provided by open-ended blocks help children hone many of the skills needed for life beyond Bing, including reasoning, planning, resilience and collaboration, as well as foundational math, language and science skills.

Teachers took photographs and recorded anecdotes to document the children’s engagement with blocks.

Unit Blocks

Before the children arrived, teachers set out various small wooden tools next to the hollow blocks on the patio. Three children began building towers and using the tools to “fix” their buildings. They also discovered that they could use a hollow block as a toolbox to store their tools!

Hollow Blocks

A teacher made a ramp out of unit blocks to inspire the children when they arrived at school in the morning. A child added her own structure adjoining the ramp and experimented with sliding various small objects down the inclined structure.

Table Blocks

A child was making a bed with hollow blocks. Another child was interested in making the bed bigger so they could both lie down. They built together until it was big enough for both of them.

A girl started building a house on the carpet. She laid down flat rectangular floorboards, accessories often used along with unit blocks. Another child came over to help. When they finished building, the girl called to several children nearby who had been watching them build, “Who wants to come into my house?” The bystanders quickly took her up on her invitation and began to collect blankets and pillows. “Go to bed!” sang the girl who started the building. “Now wake up!” The sleeping and waking game went on for 20 minutes, in the theme of a familiar song, “Now It’s Time to Go to Sleep.”

A child experimented with table blocks of two different shapes: rectangles and cubes. First he placed the rectangles in a vertical position and then placed the cubes on top. He talked about the different colors of the blocks as he arranged them in a vertical pattern.

A child began to engage with a row of blue table blocks that another child had left behind. She found more blue blocks and continued to add to the original structure.
Painting: A Visual Language of Self-Expression

By Nancy Howe, Head Teacher

I dream my painting and then paint my dream. —Vincent Van Gogh

As one of the earliest forms of self-expression, painting is a visual dance of the imagination. It precedes oral language, making thoughts visible, allowing even the youngest children to communicate their ideas, express what they are feeling, construct knowledge and attempt to make sense of their world. Painting gives voice to the unspoken, allowing young children to explore, discover and experiment even before they can attach words or meaning to what they have painted.

I found I could say things with color and shapes that I couldn’t say any other way —things I had no words for. —Georgia O’Keeffe

Painting is a universal language of self-expression that transcends time and place. The recent discovery of finger fluting on the ceilings of French caves reveals that 13,000 years ago, children as young as two were lifted aloft by adults to run their fingers along soft surfaces of cave walls, much like young children finger paint today. Rhoda Kellogg, an internationally known authority on children’s art who spent decades collecting, analyzing and interpreting more than a thousand paintings and drawings made by children all over the world, stated: “In art all mankind is one.”

Like their prehistoric peers, young children today find painting to be innately satisfying. Not only does paint have sensory appeal, but the effect of applying paint to a surface is immediate and compelling, demonstrating to a child what the late Stanford professor and art educator Elliot Eisner, PhD, referred to as personal spelling, demonstrating to a child what the process of painting rather than its end product is rewarding in and of itself, and children are intrinsically motivated to pursue it.

Painting is also an enriching experience that supports young children’s growth, development and self-expression and provides many benefits to their physical, emotional, social, cognitive and language development.

As a kinesthetic activity involving the upper torso, arms, hands and fingers, painting provides many opportunities for gross and fine motor development as well as hand-eye coordination and sensory integration. As children paint with long handled brushes and make sweeping arm movements across their paper, they gain grip strength and balance. The act of painting also improves the brain’s ability to integrate functions such as creative thinking with planning and execution. Evidence of the physicality of painting has been well documented by Bing teachers. For example:

Maggie holds a brush in each hand. She dabs yellow and red dots onto her paper as her feet join her hands in a rhythmic, staccato dance.

The process of painting supports children’s positive sense of self. It allows them to gain skills, understand their artistic preferences and unique style, and develop confidence and pride in their work. As a soothing sensory experience, painting can provide children with emotional support as well as a way to process emotional experiences. Children at Bing often choose to separate from their parent or caregiver while painting at the easel, offering them a way to express and communicate their feelings without needing words.

Terra enjoys beginning her day with her mother close by watching her paint and commenting on her techniques. Their daily ritual gives them both comfort. It provides a form of engagement for Terra and the promise of reconnection later after her mother says goodbye, “I can’t wait to see your painting when I pick you up!”

Painting can be a social experience, giving children an opportunity to connect through a shared interest. Observing their peers involved in the process of painting, children are often inspired by the techniques, color choices, lines, shapes and symbols of others. Collaboration can take many forms: from sharing ideas and techniques to painting together at the same easel.

In each Bing classroom are two freestanding easels. The teachers arrange them side by side to allow children to observe what their peers are painting, to be inspired by the painterly techniques of others or to share in the narrative of what they are painting. Sometimes two children will decide to paint together at the same easel. This collaboration, although generally very fluid, involves give and take, sharing paint and space. It also may involve some problem-solving after the painting is completed, especially about who will take the completed painting home. “I know,” said Eva. “Maybe we can make two paintings: One for you to take to your house and one for me to take to mine.”

Painting involves a number of cognitive tasks for children, including con-
centration, planning, making choices, problem-solving, evaluating, executing, reworking and persistence.

It also inspires a growing understanding of artistic elements and spatial concepts such as color, shape, size, line, texture and directionality. As children explore with paint, they experiment with imagery, patterns, cause-and-effect relationships, critical and symbolic thinking and visual discrimination.

*Santi covers his entire paper thickly with paint using all the colors in his palette. When he is done painting, he seems intrigued by the still-wet paint. He turns his brush around so that the end of the brush becomes an instrument for making delicate lines in the wet paint and begins to “draw.” A teacher takes notice and offers him a plastic comb so that he can add variety to his line making.*

Finally, while children paint, they often incorporate story elements into their work, providing a narrative of their thoughts and theories.

*Uday looks at his collection of paints before he starts painting. He realizes that he doesn’t have a color he needs. “I need red to make a rainbow. Can you get me red?” The teacher gives him a cup of red paint and Uday begins to paint a rainbow. He carefully paints, using all the colors. “Look, I painted a rainbow!” Then he takes his brush and with spontaneous-yet-controlled large sweeping strokes of his arm, he mixes all the colors together until they swirl upward with abstract movement. “I’m done with making a rainbow. Now it’s a helicopter! A pretty, colorful helicopter flying very fast through the sky!”*

According to Kellogg, painting follows a distinct and predictable developmental progression. Although the ages and stages of artistic development overlap and are approximate, skills and aesthetic awareness grow as a child matures.

**First stage** (1-2 years): Attracted to the sensory quality of paint, beginning painters experiment with its properties and are awed by the realization of their own ability to make something happen: to create marks on paper with a brush. This stage is largely motoric, characterized by rhythmic and repetitive arm movements as children spontaneously make sweeping strokes back and forth across their paper.

*Leo (2 1/2 years old): Leo grips his brush with both hands. He moves his arms in a large circle, balancing his body as he guides his brush in circular movements around his paper.*

**Second stage** (2-4 years): Through repeated experiences and experimentation with paint, children gain more control and act with more intention. They gradually realize that they can make lines and simple shapes, usually circular at first, and that colors can mix together to form new colors. As children create shapes and lines, they discover that they are often able to use them to represent something personally meaningful and emotionally satisfying, a powerful form of visual expression for helping them understand their world.

*Evan (3 ½ years old): Evan’s baby brother has just been born. Painting is a way for him to process the changes happening at home. After he paints four simple oval shapes to represent his family he says, “That’s me and my mom and dad. And that’s my baby brother. He’s very little but I’m much bigger.”*

**Third stage** (4-6 years): Children are refining and combining lines and circles to create other geometric shapes like squares, triangles and rectangles. They use these more sophisticated shapes to create familiar objects and symbols: a house made from a square with a triangle roof, a mandala, a sun with rays, a flower or a face with features. Details and embellishments are added, and multiples or a series will often emerge depending on a child’s interest. At this stage in their artistic development, children often plan what they are going to paint, naming their painting and the objects in it before their brush even touches the paper.

*Jace (4 ½ years old): Jace has a strong preference for the color orange and painting flowers. Each day, he looks forward to creating a new painting of orange flowers. He approaches the easel with confidence, dipping his brush in and out of the orange paint cup until contours of orange flowers fill the entire paper. His eyes engage intently with his evolving painting, focusing on the details he adds: a curvy green stem or more petals. Then he steps back to gain perspective on the painting’s wholeness, moving back and forth, from detail to wholeness, until he feels satisfied that he has finished.*

It is no wonder that paint is valued as one of Bing’s five basic open-ended and foundational materials—along with blocks, clay, sand and water—and is recognized as one of the most important and satisfying symbolic languages available to children for self-expression and communication.

Although Bing has no formalized art education program or instruction in how or what to paint, Bing teachers play an important role in supporting children’s experience with painting. Teachers provide children with the highest quality tools and materials, thoughtfully set up an environment where children feel safe to explore and experiment, and allow ample uninterrupted time every day for children to practice painting skills and build mastery through repeated experiences. They express genuine and authentic interest in children’s work, spend time observing children while they paint, ask open-ended questions to expand children’s thinking and make comments about the techniques children are using. Teachers invite children to reflect on their work, model the vocabulary of art to help children develop aesthetic awareness, refrain from making judgments and place value on all efforts.

As children grow and develop, painting may be replaced by other ways to communicate what they are thinking, feeling and imagining. Although painting’s importance as a child’s means of self-expression is fleeting, hopefully these early, immersive experiences with paint will always remind them that their ideas are unique and what they have to say is worthy of sharing.

Bonus feature: Video available online: https://youtu.be/FXsMps2rlA
A child approaches the West PM art table, where a ball of grayish clay awaits. She picks up the ball and feels its cool smoothness in her hands. As she squeezes, the ball slowly changes its shape. Her fingers dig deeply into the now elongated form, and with some effort she pulls it into two pieces. A smile spreads across her face as she puts both pieces on the table and vigorously pounds her fists into them.

One of the paradoxes behind all of Bing’s open-ended, basic materials (blocks, clay, paint, sand and water) is their wonderful complexity. Clay is an excellent example of this paradox. It offers an alluring mix of hardness and flexibility. It is simultaneously plastic and yet resistant. Unlike water, paint and sand, clay can indefinitely maintain its shape after manipulation. Perhaps it is closest to blocks in its density and permanence.

When children in West PM work with clay as an expressive medium, their experience touches a variety of different developmental modalities that support and inform each other. These modalities touch the most basic aspects of human experience: physical development, cognitive challenge, artistic expression, social connection and emotional satisfaction.

Physically, clay offers a child an excellent combination of fine and large motor opportunities. Fingers can pinch, smooth, poke and push smaller pieces of clay through detailed and intricate fine motor work. Importantly, many of the hand muscles at work during clay play are the same muscles a child will use to hold a pencil, tie shoes or button clothes. As hands and arms work to slap, push, squeeze and pound, large motor skills are called upon. It is not uncommon for children to lean their entire upper torso into the clay as they are flattening or cutting it. Clay provides and sometimes demands a whole body experience!

As a child considers the lump of clay in his hands, he creates a plan of action and evaluates the various steps needed to reach his goal. These cognitive processes, known as executive function, will be vital for future information assessment and problem solving. As he rolls the ball of clay into a long worm-like shape and then back into a ball, his rudimentary, hands-on experiments with advanced concepts like the conservation of mass (the mass of an object does not change, even if the shape of it does) increase his overall awareness of physical properties of the world around him.

Pablo Picasso said, “Every child is an artist. The problem is how to remain an artist once we grow up.” Picasso understood the vast levels of creativity possessed by the very young. Like all of Bing’s five basic materials, clay is open-ended, which allows a child to approach a ball of clay as she would a blank piece of easel paper. The clay can become anything from an abstract design to a flying vehicle with rocket blasters. And with greater experience and confidence naturally follows increased awareness and attention to creative elements and aesthetics. As children move into what is called a “later representational” stage of clay creation, they name their clay creation before they actually begin the work. If it is true that every child is an artist, then every child is an intentional artist. Even a seemingly experimental or random clay construction contains deep meaning and significance to a child. In fact, West PM teachers can learn much about a child by simply observing her creative choices with clay.

When a child shares some part of himself through his clay expression, he is using the clay to also reach out for social connection. He is telling his peers, his teachers and the world, “This is who I am. This is what I feel strongly about.” Further, when children join together around the clay table, a social dynamic is created that often deepens social connection. Recently in West PM, Devin and Rhys used the clay to make pizza, pancakes and salad. By sharing their small feast, along with lots of laughter, the children deepened their social bond.

West PM teachers are also interested in teaching various techniques, when appropriate. One example is the creation of a
“pinch pot” by using the thumb and index fingers to pinch the edges of a flat, round piece of clay. As a child diligently applies this technique to create a bowl-like shape, she receives emotional satisfaction thanks to her growing competence. Satisfaction can be achieved not only through increased skills, however, but also by the specific application of those skills. When she is able to use clay to create something that both pleases her and carries even a degree of representational accuracy, a child feels deeply satisfied.

As mentioned above, these developmental modalities do not exist in isolation. A recent moment at the West PM clay table illustrates the interrelation of these developmental growth points. José sat down at the table and began slapping several small pieces of clay with his open palm (large motor physical development). Once the pieces were flattened, José delicately attached the various pieces together (fine motor physical development). “Mickey Mouse,” he announced as he examined his work (artistic expression). After considering his creation, he then added a tiny piece of clay to the torso. “This is the nametag,” José said, pointing at his new addition (cognitive development). José held up his clay mouse for the children at the clay table to see, which prompted the question from a peer, “How did you make that?” José then shared with the peer his process of making the clay mouse (social connection). When he was finished walking through the steps with a peer, José smiled broadly, quite content with his work (emotional satisfaction).

Clay is a timeless substance that concurrently touches many aspects of a child’s development. Like all basic materials, it meets the child at her own distinct abilities and interests. Yet despite its unassuming appearance, clay also pushes children toward greater exploration. Clay inspires invigorating activity that bridges ages and genders and allows for infinite expression. Clay is truly an effective multidisciplinary material!

**10 Lessons The Arts Teach**

By Elliot Eisner

1. **The arts teach children to make good judgments about qualitative relationships.** Unlike much of the curriculum in which correct answers and rules prevail, in the arts, it is judgment rather than rules that prevail.

2. **The arts teach children that problems can have more than one solution** and that questions can have more than one answer.

3. **The arts celebrate multiple perspectives.** One of their large lessons is that there are many ways to see and interpret the world.

4. **The arts teach children that in complex forms of problem solving purposes are seldom fixed, but change with circumstance and opportunity.** Learning in the arts requires the ability and a willingness to surrender to the unanticipated possibilities of the work as it unfolds.

5. **The arts make vivid the fact that neither words in their literal form nor numbers exhaust what we can know.** The limits of our language do not define the limits of our cognition.

6. **The arts teach students that small differences can have large effects.** The arts traffic in subtleties.

7. **The arts teach students to think through and within a material.** All art forms employ some means through which images become real.

8. **The arts help children learn to say what cannot be said.** When children are invited to disclose what a work of art helps them feel, they must reach into their poetic capacities to find the words that will do the job.

9. **The arts enable us to have experience we can have from no other source and through such experience to discover the range and variety of what we are capable of feeling.**

10. **The arts’ position in the school curriculum symbolizes to the young what adults believe is important.**

Elliot Eisner, PhD, the late Lee Jacks Professor of Education, Emeritus, at the Stanford Graduate School of Education, was renowned for his contributions to the examination of curriculum, instruction, assessment and the importance of the arts in education.

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A monster. By Mila S., 3 years 10 months

A tornado. By Matthew P., 4 years 6 months

Bonus feature: Video available online:
https://youtu.be/1E_8tU-ZPuY
This winter, Center AM teachers introduced a novel and open-ended material into the classroom: wire. From the airy weightlessness of a strand of hair to the taut power of a rigid rope, wire is an extraordinary material that has inspired many artists and sculptors, including Alexander Calder and San Francisco’s “fountain lady,” Ruth Asawa. We were eager to see how the children would respond to such a potentially rich medium. Our first step was to provide them with various gauges of metal wire at the art table.

For young children, the expressive outlet of creative play provides deep meaning and enhances their sense of self. The open-ended play materials Bing Nursery School teachers traditionally offer—blocks, clay, paint, water and sand—naturally draw children into endless play. But other materials encourage creative expression as well, and wire is one of these.

Wire is attractive to children because it gives them the opportunity to think with their hands, which is something they enjoy. Wire’s malleability also appeals to them. Its responsiveness follows the children’s will. It can be straightened out and reshaped or reconstructed, but never appears to diminish. Wire’s three-dimensionality enables children to transfer their observations of the world directly to their representation of it. Its flexible nature allows for change, so that ideas can emerge and re-emerge easily, with no penalties for exploration.

To guide the children in their play with wire, we asked them open-ended questions: I wonder how you will change the shape of this wire? What do we need to do this? Are you noticing what is happening as you move your fingers and move the wire around? We also commented on the children’s work: I noticed you changed the shape. Your long straight piece is not straight anymore. You are really using a lot of pressure on the thick wire.

During the exploratory stage, the children manipulated the wire to learn about its properties. We invited children at the art table to experiment with different lengths of wire, using wire cutters and fastening techniques as they became more skilled at sculpting with wire. We gave them short strands and pre-bent tips of wire. After weeks of working with thin and soft wire, we introduced stiff and thick wire and combined the use of different gauges.

Children used their fingers as tools to manipulate the wire to give it shape and form. They looped, twisted, wrapped, or mangled their wire pieces. After a while they took it apart and did something else with the same wire: recycling as they went along! At the end, we had a diverse assortment of fantastic-looking creations and a true sense of accomplishment.

As students experimented with the wire, their hands made decisions for them. Their fingers connected the different gauges of wire as they snagged, braided or kinked the wires to hold them in place. They explored how to draw with wire instead of pencils, and their hands invented new ways for them to handle wire. They bent the wire into letters, numbers and representational figures.

These are some of the children’s remarks during their initial explorations with wire:

I curled it! I’m smashing the wire! — Alexandra
I just bend the wire in half and I curved it. — Yaamini
I bended the wire to make the animal’s legs. — Hannah
I twisted the wire with my finger and closed it up. — Mila
I curled the wire up and then pulled it up a little. — Lorin
I can twist it and I can bend it. Check this out! I am bending it and twisting it! I can connect it. I saw a hole in it and I connected it. You can even squish it. — Benjamin

Just as children progress through different stages in painting, drawing and block building, they also progress in working with wire. Their skills vary based on experience. We offered wire every day so the children could repeat experiences to gain mastery and understand the rich qualities of this material. Initially, the children explored the sensorial nature of wire, whether springy, taut, hard, soft or flexible. They did not create specific objects, but rather tried to understand the material and what they could do with it. With time, the children became more deliberate with their wire experimentations.
tion. They put wire to a series of tests by pulling, bending, stretching and wrapping it. Their physical activity uncovered the properties of wire: that it is malleable, flexible, open-ended and responsive.

These explorations continued with teachers asking questions, prompting the children to think about making three-dimensional forms. Using their newly acquired techniques, the children began creating with intentionality, and came to the wire table with concrete plans. We brought out pictures of wire sculptures as models and inspirations, and to motivate them to create what was on their mind.

Now the children’s challenge was to fulfill their ideas. They learned to problem-solve with the wire, and with support from teachers, came up with creative solutions. Children pondered the structural aspects of their wire sculptures: How many different ways could they attach the wire to itself? Can you loop wire through itself? How strong or weak were the results? What happened when they combined two or more different thicknesses or types of wire? Could kinked wire be straightened again? How does one attach the sculpture to a base? How to create a wire mobile?

To solve structural problems, they added materials like masking tape, duct tape, yarn, string and paper.

As the children developed techniques in using the material and creating three-dimensional representational work with wire, they were then driven to integrate it with other materials. Wire travelled to the clay table, the design table and outside to the woodworking table. They used colored and aluminum wire of different gauges to weave, to add to their woodworking projects and as a tool to work with clay.

Children shared narratives of their wire sculptures:

*It goes really fast. It’s a twisty rollercoaster. It goes upside down and it jumps from one wire to another one.*
—Brady

*This is a football game. This is the ball.*

Why is playing with wire so rich and meaningful for children? Open-ended materials like wire, when used repeatedly in a planned manner, can significantly impact a child’s cognitive, perceptual, motor, social, emotional and creative skills. Wire offers many opportunities to develop children’s positive self-image as they express their ideas and feelings. Wire facilitates trying out ideas by allowing for continuous change, and it provides children with a sense of freedom of both action and choice.

We have continued to explore other ways to integrate this medium into our curriculum, taking ideas from children’s work. Children imaginatively combined these materials to create props for their dramatic play or to tell a story expressing their thoughts and feelings. Rich and vivid narratives evolved from these wire manipulations. An important component of a creative experience is reflection on the experience that makes it rich and fulfilling. Children enjoyed talking about how they used the wire, and their sculptures became catalysts for their shared storytelling.

We have set aside some of the children’s early works so that they can see their evolution as wire sculptors. They can build on their achievements and offer their work as an inspiration to others. We now have an additional open-ended material in our classroom! From dark annealed, galvanized wire to colored wire, or copper, brass, and aluminum wire, there are so many more possibilities to explore!
What Children Gain from Active Play

By Peckie Peters, Head Teacher

“I’m a pirate, too!” A girl joyfully exclaims as she joins a playmate in hot pursuit of another child. The children play vigorously, using their whole bodies in this game, as they run up and down the hill with big grins on their faces.

Children need multiple opportunities for physical exploration like this each day. The National Association for Sport and Physical Education recommends that preschool age children should accumulate at least an hour of structured physical activity, facilitated or supported by an adult (such as playing with a ball, dancing to music), and from 60 minutes to several hours of unstructured physical activity, initiated by the child (such as climbing, digging, playing at the playground) per day. In addition to building strong hearts, bones and muscles, opportunities for physical play help children develop the disposition to be active adults, which has numerous long-term health benefits. Physical play enables children to develop necessary control over their bodies’ movements and helps them develop coordination. Research shows a strong link between active play and brain development. Active movement facilitates the development of new synapses among brain cells and supports brain development in general. Additionally, it encourages the development of confidence and social interaction skills. Clearly, it is important to encourage children to engage in active play.

At Bing we are fortunate to have large outdoor spaces with varying terrain that invite children to engage actively and physically. They can run up and down hills, across bridges and stages, or balance on large logs as they move through the yards. Trees provide shade and give children opportunities for climbing and spaces for pretend play. Equipment like swings, slides and climbing structures encourage children to explore and be active. Like many aspects of play, competence in and on these apparatus comes from repeated experiences and practice. Guided instruction by adults can help children understand the motor movement but mastery comes when children “feel” how to do it themselves. In the process, they develop upper and lower body strength, coordination, flexibility, balance and increased cardiovascular flow.

In the Twos yard a set of stairs leads up to the slide. On each side of the stairs are tall slanted handrails with three parallel slats, resembling a ladder. A child noticed them one day as he went up the slide and paused for a moment. Somewhat cautiously he stuck one foot on the bottom rail and balanced on one foot. His face registered his belief that he could do it and he began to climb. Though he had previously demonstrated solid climbing skills, it was an atypical climbing space and slightly risky, so the teacher moved close enough to support him if needed. He made it successfully to the top rung, with his upper body hanging somewhat precariously over the top, and then carefully descended. Another child noticed him climbing, his face demonstrating his excitement at the idea of trying. As the first child descended, the observer began to climb the railing on the opposite side. He went up two rungs, said “Whoa!” and began to climb down. “That was high!” he announced as he reached the bottom. For both boys, the initially challenging experience helped develop a sense of their own mastery.

Bing’s environment also is set up with many types of moveable equipment, including boards, climbing structures and large barrels. These can be moved around the yard and can be configured to offer more or less challenge, depending on the skill level and developmental needs of the children. This winter, in West AM, teachers decided to build a gangplank to extend the children’s ongoing pirate play; we placed a short red board at the edge of a platform so it jutted out and rested on a nearby tree stump. A child tried it first and announced that it was “too easy.” “The board is too fat and too short,” he explained, so we replaced it with one that was longer and more narrow. He crossed it slowly and independently, both arms out to the side for balance. The second time he left his arms by his side and by his third attempt he moved with ease. Another child had a similar experience. When he first saw it, he said, “That’s too hard. I need a hand.” After crossing with a teacher’s hand, he was ready to try alone. As he began to cross, he suggested that maybe holding one finger would help. As he reached the end he exclaimed, “Now I can do it!” and went back to try independently.

By the time another child crossed the gangplank, at some children’s requests, a teacher had connected it to the larger climbing structure, which became their...
ship. The child carefully crossed with one arm out to the side and the other holding a teacher’s hand. Next she climbed over an A-frame, crossed another wider bridge and maneuvered a second A-frame. She hesitated as she reached the quite steep incline that led down from it. She surveyed it with her eyes for just a moment and then balanced carefully as she took small steps to the bottom of the board. There she paused and looked up with an enormous smile that reflected her sense of accomplishment. “I made it this far!”

Multiple opportunities and repeated practice to try a variety of types of physical exploration help children develop both competence and confidence. Thoughtful preparation of the environment to allow for appropriate challenge and opportunities for collaboration are an integral part of this process for teachers. Still, there is play that emerges from children that may elicit concern in adults, often called “rough-and-tumble” or “big body” play, that requires a different kind of preparation. The vigorous pirate play described above falls into this category, as does tree climbing, wrestling and much of the active play that children choose. As teachers, we need to understand this play so we can support it well, and help children to incorporate positive play strategies, rather than squelch it as something that is dangerous or aggressive. In fact, in this kind of play children learn to control their bodies and their feelings, to communicate and cooperate with peers, to recover from physical and emotional scrapes that may occur, to recognize social cues and to take risks, all of which help children to expand their cognitive functions and increase their resiliency.

So, what does this play look like and how do teachers support it safely? First, it is critical to differentiate it from aggression. When children engage in big body play their facial expressions are happy, they participate willingly and they keep coming back for more. This makes sense when you compare it to true aggression, where children’s expressions are usually sad or angry, there is typically one child who dominates and children are eager to get away as quickly as they can.

In West AM, we have been helping children to be skilled active players in big body play. The first step is for teachers to understand the need for this kind of play and to be willing to embrace our own concerns so that we can support it more fully. When it first arose, teachers questioned children about the motivation in their game. The children explained, “The good team tries to get the bad team and they all go on the ship (a curved tree branch near the sand area that they can climb onto),” All the players liked to swing their arms toward the other players as they pretend “fight.” The first step was to establish rules so no one got hurt. “Remember it’s just pretend so keep the distance,” a teacher coaches as several children “battle.” Their faces are concentrating but they are all smiling as they try hard to not let their bodies touch. “Great job. You’ve really got it!” the teacher continues. As others joined, children explained the rules and took over their enforcement. Newcomers had to learn and practice to become as skilled as the original players, but the enjoyment of the play inspired them to learn. Still, even the best play can get tiring, so the teacher initiated a “time out rest area”—a blanket where you could sit when you wanted a break from the game. Children visited it frequently for short periods of time.

The following week, the play moved into a new area of the classroom. As the children had developed more trust in each other, their chasing progressed to include more rough-and-tumble play. The teachers recognized the risk of this new direction in their play and worked with the children to establish safe boundaries.

Big body play is now an integral part of our classroom community and while many children have become skilled participants, teachers continue to be vigilant about supporting new players or conflicts that arise. As Frances M. Carlson states in her book, Big Body Play: “Research demonstrates convincingly that there is physical, social, emotional, and cognitive value in children’s big body play. As early childhood education professionals, we are entrusted with the responsibility of providing children what best serves their developmental needs…” At Bing, we take this responsibility seriously because in doing so we help children gain many important skills they need to fully engage with the world around them.
A Wonderous World of Water: How the Most Basic Material Guides Complex Thinking and Inquiry
By Colin Johnson, Head Teacher

We’ve all heard some form of the expression “Where there is water, there is life,” but in early childhood education, that notion extends far beyond its biological roots. Where there is water, there is the stuff of life: There is play; there is exploration, inquiry and learning. At Bing, water (with blocks, clay, paint and sand) is one of the five basic, open-ended materials that are present every day in our play-based curriculum. At a table or in a tub, in the sand area, and in pretend play, water is both the topic of children’s exploration and an object within a more complex story. Children enjoy the feel of it, they learn about its unique properties and they manipulate it (physically and symbolically) to become whatever they can imagine. Through this variety of repeated experiences with water’s unique properties, children of all ages engage in intrinsically motivated, complex thinking that feeds their natural drive to learn and contributes to their overall development.

In her book Growing Minds: Building Strong Cognitive Foundations in Early Childhood, early childhood specialist Carol Copple, PhD, emphasizes that thinking, and specifically scientific thinking, rests on an individual’s ability to pursue inquiry. Inquiry skills, such as observation, exploration, hypothesizing and description, guide “the ways in which scientists study the natural world and propose explanations based on the evidence derived from their work.” In addition, writes Copple, inquiry “also refers to the activities of students in which they develop knowledge and understanding of scientific ideas.” Though Copple focuses on scientific topics for encouraging inquiry, scholars have long attributed all of children’s learning to this type of thinking. Influential psychologist Jean Piaget, PhD, famously described children as “young scientists,” and contemporary researchers Alison Gopnik, PhD, Andrew Meltzoff, PhD, and Patricia Kuhl, PhD, appropriately titled their groundbreaking book The Scientist in the Crib. The authors assert: “The new research shows that babies and young children know and learn more about the world than we could ever have imagined. They think, draw conclusions, make predictions, look for explanations, and even do experiments. Scientists and children belong together because they are the best learners in the universe.” This is no small claim, but for young children, there is no reason to believe that scientific thinking should be relegated to individual topics, nor that it is a means to an end—a way to accumulate more facts. Rather, for young children, thinking tends to breed new ideas, and one inquiry opens a world of new questions. Water provides a stage for this type of learning in the way that children do it best: through play.

At Bing, the freedom of inquiry allowed by open space and time for play encourages children to learn about materials, themselves and their peers through a self-directed process of discovery. Copple writes: “Inquiry is about questions, but it is hard to ask questions about something if they haven’t had a chance to get to know the thing or the event… . So the first stage… is to notice, wonder, and explore.” Water, specifically, lends itself to this stage of inquiry perhaps more than any other material. As part of his dissertation research, James Morgante, PhD, now a postdoctoral fellow at the Pennington Biomedical Research Center in Louisiana, conducted a study of how objects affect the type of play that children pursue. He found that water encouraged the most “functional” play—or repeated physical uses of the material without a specific goal. Through the lens of an observer seeking external signs of complex play—such as a story to accompany the play, or a finished product—this could appear to be a negative effect: Children engage in less creative play with water.

On the other hand, through the lens of inquiry—of valuing internal, cognitive interactions with materials—playing with water is the perfect foundation for scientific thinking because it increases children’s tendency to spend more time noticing, wondering and exploring. You can see how water unleashes the inner scientist in this observation made in a Bing classroom:

A 3-year-old boy pours blue water into a container with clear water. As the color swirls and slowly dissipates, he notes: “You can see the smoke, too.” A few minutes later, the boy is scooping water from the water table using a...
small bottle, and he pours each scoop through a funnel into a larger bottle. When the bottle is full, he pours it all back into the water table. Immediately, he repeats the process of pouring water through the funnel into the large bottle. This time, when it is full, he observes: “Look, I think it’s full.” He dumps the water again and chooses a new tool: a larger funnel. Watching as the water drains more swiftly through this one, he exclaims: “Ha, look it. Woooooh!”

This boy has no clear product in mind and instead engages in inquiry as the intrinsic purpose of his play. The water itself draws his curiosity, and he performs the simplest of actions: pouring from one container to another. The initial phenomenon of swirling color demands observation, and he chooses expressive language to describe what he sees. This seems to open up more questions as the boy focuses on the action of pouring and filling.

From a concrete standpoint, he is learning about volume (small containers hold less water), measurement (many of the same container, or unit, can fill a large container), tool use (he fills the large bottle more efficiently with a funnel) and the properties of the material (how it molds to the shape of its container, how it splashes and always flows down). More profoundly, however, the boy is practicing the art of learning itself. Each iteration of filling the bottle brings a new step in the flow of inquiry: from exploration to intentional action in refilling the bottle, from observation to description in his explanations of the act, from investigation to experiment as he compares the effects of a large funnel to a small one.

If this boy’s play grew in complexity over the course of a few minutes, then repeated experiences with water over days, weeks and years at Bing provide endless opportunities for developing and honing inquiry skills. In the same study that revealed water as a platform for “simple” physical exploration, Morgante also observed that water set the stage for much of the more “complex” social interactions he saw. Perhaps because of its simplicity, water encourages children to play with each other. In his study, Morgante observed children splashing water back and forth. At Bing two boys collaborate to lift a heavy bin filled with the liquid, and two girls take on individual roles as one pours water into a pipe and the other catches it on the other end. As children gain mastery over the material, they can use it to represent something entirely different: It can be a bathtub for babies, an ocean for animals, or lava for a volcano. In many instances, water is a prop for the kind of collaborative pretend play that developmental theorist Lev Vygotsky described as a child’s “greatest achievement.”

An example from our outdoor yard: Two girls mix grass and leaves into bowls of water. One explains: “We’re making grass soup. Kitten soup. Grass soup for the kittens.”

Perhaps the most powerful aspect of water, then, is its multitude of properties and purposes. In their paper, Crisis in the Kindergarten: Why Children Need to Play in School, Edward Miller, a founding partner of the U.S. Alliance for Childhood, and Joan Almon, co-founder of the Alliance for Childhood, provide a list of the key types of play that children should experience for effective learning. Water has the potential to guide most of them: sensory play (e.g., splashing and mixing water), large motor play (e.g., lifting large quantities), small-motor play (e.g., using eye droppers), mastery play (e.g., practicing and honing a skill like pouring), construction play (e.g., building structures for water to flow through), make-believe play (e.g., water as a stage for a story), and symbolic play (e.g., water as soup for kittens). A 2002 position paper by the Association for Childhood Education International offers an explanation of how water supports learning in each of these types of play: It offers a visual, tangible and auditory stimulus; it causes changes in other substances such as sand or clay; it helps children understand spatial concepts like volume; and it provides the potential for imitation of familiar acts.

Water sets the stage for children to realize and reiterate the foundational thinking skills that guide how they build understanding of the world around them. Through experiences with water, children become scientists in the broadest sense of the word: They become thinkers. And in the end, isn’t that what we want for all of our children?
If I Had a Hammer
By Mark Mabry, Head Teacher

Visitors to our classroom—prospective parents, students, other educators—are often surprised when they step onto the patio and witness children independently wielding real hammers and nails at the woodworking table. They frequently express amazement at both the confidence we have in children to learn the necessary skills in a safe manner, and the children’s competence in using real tools and in planning their constructions. But what they don’t have the luxury of witnessing is the amount of time that the children spend learning, exploring and practicing with nails, hammers and clamps. Woodworking is an activity that is offered almost every day at school, and like other open-ended offerings, such as paint, blocks, clay, paper, tape, sand and water, it allows children to learn its affordances and develop strategies based on their experiences working with it.

Woodworking at first is not an experience where the goal is to “build something,” but rather one in which children learn foundational skills such as where to hold the hammer so it’s optimally balanced, how hard to strike the nail to drive it into the wood, and the necessity for continually looking at what you are hammering. Suggestions from a teacher help them learn, but the immediate feedback of whether a nail stays in a piece of wood helps even more. The first piece of woodworking that goes home may look unimpressive to someone who wasn’t present during its creation—a single nail in a small rectangular slab of pine—but it represents a child’s hard work and persistence.

As their basic hammering skills become more developed, we introduce children to a technique of connecting two pieces of wood to each other by using a small pegboard bridge spanning both pieces of wood. It is typically not obvious at first how to arrange the bridge across adjacent wood blocks in order for them to attach to each other. It’s somewhat analogous to connecting two pieces of paper together with tape: For success, the woodworker must position some of the connector over each piece. When bridging two pieces of wood, one hole needs to be placed over each of the pieces. Over time they develop an understanding and intuitive feel for how these bridges can work in their constructions. Other strategies and mastery of techniques emerge over time for driving a nail all the way into a piece of wood: starting the nail into the wood with or without a teacher’s help, developing a feel for how hard a nail needs to be struck, adjusting the stroke of the hammer when the nail begins to go in at an angle. As all of the skills and knowledge about using these tools and materials become ingrained, we see children looking at the various shapes of wood available in a more strategic way.

Some children like to gather pieces of wood from the bin, arrange them in a design and then begin connecting the whole construction, while others prefer to start with two pieces of wood and return to the bin to select additional pieces as they build. The first technique has the challenge of keeping the original shape intact while all the pieces are rotated and adjusted so that the area being worked on can be clamped and hammered. The latter method tends to evolve and suggest ideas to children that they may not have originally envisioned. For some woodworkers, the size, length and number of pieces used in their work seem to be the inspiration. Many children treat the different-shaped pieces as an open-ended puzzle, and fit shapes together until an object suggests itself to them. For instance, a triangle atop a rectangle might appear as a house to one child, but as a rocket to another. As children gain more experience with connecting and arranging the pieces, their designs become more complex and innovative.

The constructions that children create at the woodworking table hold various meanings for them. For some, two pieces of wood connected together with nails firmly in place represents the simple accomplishment of persistence and hard work. Some delight in connecting pieces of various shapes in a way that suggests an object such as a train, a plane or their daddy. And some children find satisfaction in fitting together the wood blocks.
into increasingly complex patterns, exploring ideas of symmetry and flow.

There is also a great deal of inspiration derived from watching others working nearby. Ideas tend to “go viral” as children observe and absorb different ideas from each other. Woodworking sometimes requires learning patience—there is a lot of waiting and watching involved, especially if you need the teacher to help you hold a nail while she is assisting another child. However, this has the benefit of allowing children to pause and think about their own work, as well as observe and reflect on what they see other children are constructing and techniques that their peers might be using. Recently, some children have seen this “down time” as an opportunity for independence and collaboration. A few of the children have taught themselves how to hold their own nails with fingers or pliers, and some have learned how to hold the wood down with their hand while hammering with the other. Children have begun discussing with each other what they are working on and offering suggestions. Others have offered to use the pliers to hold the nails for their friends so that waiting for the teacher is unnecessary.

As children have become experts in using the tools and understanding the techniques to accomplish their goals, they have challenged themselves to try more elaborate ideas with wood. Some children have planned constructions that are so complex that they have required multiple days at the woodworking bench to complete them. Several children noticed that projects that were taken home had come apart, and so they brought them back to school for repairs and enhancements. A few children looked at their finished work and requested paint to decorate their creations. This has evolved into many children using tempera, watercolors, markers and pastels as a part of the post-construction process.

Most of the woodworking projects created at the table have been linear constructions connected with bridges at adjacent edges of the wood pieces. As time went on, children began trying to connect pieces at their points rather than their straight edges, leading to experimentation with negative space and moving parts. As the end of the year approaches, there has been a growing interest in figuring out how to construct in 3-D, both in connecting stacked pieces of wood, and in attaching wood pieces at 90-degree angles to the flat pieces. Attempting to accomplish this type of construction has allowed both children and teachers to step back and ponder how to use our knowledge, skill and experience with tools and techniques in a very different way: “Where do the nails go?” “Do you still use bridges?” “How do you position and clamp the pieces to the bench?” As with anything worth pursuing, what makes woodworking compelling is that it continues to generate challenges, questions and opportunities for problem solving.
Playground Renovation

Bing School’s playground renovation project, begun in 2014, will be completed in December. We’ve added custom-designed climbing structures, hillside slides, a climbing net, nest swings and natural boulder climbing features. One classroom has been configured to have a wheelchair-accessible pathway linking it to the play areas, and all classrooms have new gardening beds. Children now have more challenging climbing and play structures, which promote play, collaboration and physical challenge.

Children’s ideas on what to name the climbing structure, above and at right:

- A climbing thing: Net climber
- A spider web: Fire ball
- A structure: Fire structure
- A constructure: Octagon
- A climber: Frog structure
- Soccer ball: Rope
- Nectarine: Net

Children’s comments on the structure:

- How did they make this structure so high?
- It must have taken days and days and days.
- I’m the highest one.
- Everyone looks so small!
- I can see EVERYTHING.
- Look how high I am!
- Can I jump? That was AWESOME!
- I can see the beautiful paintings in the other classroom.
- I can even see the other classroom! They’re making bubbles!
Who dares to teach must never cease to learn.
—John Cotton Dana, former president of the American Library Association

One of the greatest gifts that can be passed from a parent or teacher to a child is a lifelong passion for learning. The staff of Bing Nursery School have many opportunities throughout the year to further their skills, which help foster that passion, including quarterly staff development days. This year’s spring staff development day took place April 27, and the teachers engaged in a full day of presentations and discussions on a variety of topics related to early childhood education. Although the presentations were diverse in scope, the central theme of the day was supporting a child’s optimal capacity for learning within the classroom.

The day commenced with a two-hour presentation on speech and language development led by Mayra Cramer, a Bing alumni parent, licensed speech-language pathologist and director of the Speachy Learning Center in Menlo Park, California, a clinic that provides speech-and-language therapy services. Her presentation focused on the development of communication skills in the preschool years, and gave special attention to early signs of speech and language delays. Cramer also addressed the topic of multilingualism: Teachers wanted to know how to best support the needs of children who speak multiple languages in their classrooms.

Cramer explained that although multilingual children may initially reach communication milestones around six months later than their monolingual peers, this developmental “gap” begins to close by around the age of 3, at which time most multilingual children have a capacity for understanding and producing language that equals or perhaps even exceeds that of their peers. In fact, multilingual children may eventually develop larger vocabularies than monolingual children.

Following Cramer’s presentation, teachers and staff heard from doctoral student Rodolfo Cortes Barragan, who shared an overview of his ongoing research in the Department of Psychology here at Stanford. In conjunction with Professor Carol Dweck, PhD, Barragan’s studies at Bing have focused on how children learn attitudes of altruism through social cues. Over the past six years, Barragan has explored the influence of how children play on altruistic tendencies. In particular, he contrasted the impact of reciprocal play interactions with that of friendly yet non-reciprocal play interactions. In reciprocal play, the play partner (researcher) engages with the child in a back-and-forth manner in the game. During friendly yet non-reciprocal play, the play partner engages in a parallel activity, offering friendly observations and gestures.

From their research, Barragan and Dweck conclude that children who engaged in reciprocal play are more likely to exhibit altruistic behavior and in return begin to expect acts of altruism from others. As a further extension of this study, the researchers argue that reciprocal interactions lead to the development of trust between the child and the play partner. This foundation of trust, then, allows for subsequent learning opportunities and, ultimately, the acquisition of cultural knowledge. The researchers published “Rethinking natural altruism: Simple reciprocal interactions trigger children’s benevolence” in the prestigious journal Proceedings of the National Academy of Sciences of the United States of America in November 2014.

During the afternoon session, Gina Baldi of the Children’s Health Council shared some insights in her presentation, “Helping Challenging Preschoolers Succeed.” Baldi, a parent trainer at the Palo Alto-based diagnostic and treatment center for children facing developmental and behavioral challenges, spoke about maintaining age-appropriate expectations when working with children, and she offered strategies for supporting children in achieving their own success. There is a delicate balance between stepping in too often and allowing time for children to grow during these formative years, she said. At Bing, we recognize that children work tirelessly each day to make sense of the world and their unique place within it, continuously navigating the innumerable opportunities for physical, cognitive, social and emotional growth.

As the day came to a close, Bing teachers Lara Cardamone and Colin Johnson presented a photo slideshow of classroom set-ups that they had collected from various teachers and classrooms throughout the year. As Bing teachers don’t always have the luxury of touring the set-ups in other classrooms, Cardamone and Johnson offered an array of curriculum ideas in their presentation “Set-Ups: Provocations that Invite Children to Explore Materials and Ideas.” They showed photos of indoor and outdoor arrangements, from the art/design tables to the water table and sand areas. The images inspired many of us to think about set-ups in new and innovative ways. The presenters also shared a video from East Room illustrating the children engaging in a tabletop finger painting activity, and we discussed the importance of adjusting the curriculum to suit the children’s interests and experiences.

After learning from various experts throughout the day, Cardamone and Johnson’s presentation offered us the opportunity to learn from and be inspired by the work of our colleagues at Bing. The common thread that united each of the day’s presentations was the emphasis each presenter placed on identifying and supporting children’s individual needs and interests in the classroom. The staff at Bing will use the information gained from the speakers to support our recognition of children’s current levels of development, and to identify and create purposeful opportunities for growth and learning for every child.
At this year’s winter staff development day, Bing staff heard from two linguistics researchers about their ongoing projects at the nursery school. About 40 people were in attendance for the talks, which took place Feb. 9.

Lyle Lustigman, a postdoctoral fellow working with Stanford linguistics professor Eve Clark, PhD, is examining how children tell stories, and more specifically how they describe an event involving conversation. In her game room, where she conducts research at Bing, children watch short animated videos involving at least one conversation between characters. The child is then asked to describe to her what transpired in the videos. As the two discuss the video, Lustigman notes the extent of the child’s perspective-taking, particularly whether the child describes only events or whether the child mentions the conversation or the characters’ opinions.

Lustigman predicts that a child’s ability to understand the perspective of each participant in an event will develop with age. She explained her hypothesis: “Younger children will avoid reporting the conversation and stick to the activities in the event, while older children will recount the conversation in more detail.” In the examples Lustigman showed, a 3-year-old child did indeed focus on the video’s events: “The girl made a butterfly, but it just went out!” A child of almost 5 years old, however, included descriptors of characters’ opinions and words: “He thought they were dots, but the girl told him they were just bees.” Lustigman will analyze her findings along a continuum of children’s ages, and will also compare perspective-taking between children and adults. Lustigman is also interested in the emergence of complex sentences used to report thoughts and speech (“he thought, she said”) and hopes to conduct later research on that topic.

Masoud Jasbi is a fourth-year doctoral student in linguistics, also working with Clark. He is investigating the acquisition of presupposition words in children. Parts of our linguistic code called “presupposition triggers” refer to previously shared information. A few common presupposition triggers are “the,” “too” and “again.” The word “too” indicates that there is something other than the object of the sentence that shares its characteristics. Because this concept is so abstract, Jasbi is interested in determining at what point children begin to gather presupposition trigger information.

Jasbi’s study involves four poker chips. Two are blank, one is marked with an elephant, and one is marked with a frog. Jasbi scrambles the chips, chooses two, and asks the child to guess what they might be. This first guess should be random. Jasbi then looks at one chip and then the other as he asks one of the following questions: “Do we have an elephant?” “Do we have an elephant too?” or “Do we have an elephant and a frog?” He answers his own question with “yes” or “no” then asks the child once more to guess about his combination of chips. Asking the question “Do we have an elephant too?” strongly suggests to people with a grasp of presupposition words that there is already a frog present. So far, results suggest that the children correctly understand the clue given around the age of 4, and thus already have an understanding of presupposition triggers.

We are grateful to both researchers for sharing their insights with the staff, and look forward to learning more as their research progresses.

Bing Nursery School Performance Series

The second season of the performance series featured three performances: Carnival of the Animals presented by the Stanford Philharmonia Orchestra and the Fratello Marionettes on Oct. 18, 2014; From the Studio to the Stage: Ballet San Jose, Cinderella on Jan. 24, 2015; and Charlotte’s Web featuring California Theatre Center on May 2, 2015.

The series aims to introduce young children to the performing arts. These early experiences open children’s minds, expand their knowledge of different cultures through music and dance and set the stage for a lifelong appreciation of the arts.

This year’s series is made possible in part by the support of an anonymous donor, the Agatha and Steve Luczo family, Jim Reese and Susannah Bernhart and family and the Arthur and Rita Whitney family.
As a laboratory school for Stanford University, Bing is the site of innovative research on child development. Bing’s teachers and staff got a taste of the rich child development studies conducted at the school at Bing’s Staff Development Day on Oct. 10, 2014.

Assistant professor Hyowon Gweon, PhD, presented her research on social learning in children. Gweon had recently joined the Stanford Department of Psychology after completing her graduate work and postdoctoral fellowship at MIT. She won the APA award for the best dissertation in developmental psychology for her outstanding research. [See page 11 for more information.]

In addition, three Stanford students who have worked with children at Bing shared their research on how children realize what’s alive, how they respond to male vs. female voices, and the meaning of “no.”

Kara Weisman, a third-year doctoral student working with psychology professors Ellen Markman, PhD, and Carol Dweck, PhD, posed the question of sentence in children: “When do we know when we’re in the presence of a sentient creature?” In order to answer this question, she looks at affect (emotional experiences), autonomy (self-controlled behavior) and perception (sensory experiences). Weisman asks: “If a child learns that something has one of these properties, will that child infer that it also has the others?”

Weisman’s research reminds us of the often non-discrete distinction between sentient and non-sentient—reality versus imaginary—in childhood. This is particularly pertinent during the preschool years, as play is rich with fictional characters from stories, films, media and imaginative play.

In Weisman’s research, which included 64 participants, she showed children pictures of identical boxes while providing verbal cues about what sentient characteristics—affect, autonomy or perception—the hidden object in the box had. For example, a child might have heard, “This one feels sad.” Then, the children inferred whether the object would possess other sentient characteristics, or whether it was made of an inanimate material.

The study’s results support Weisman’s hypothesis that if children learn that something has one sentient characteristic—is happy or sad, for instance—they tend to think that it possesses additional sentient characteristics. Furthermore, children then infer that this thing is not made of inanimate materials.

Another study, conducted by Nicholas Moores, a Stanford senior working with Michael Frank, PhD, associate professor of psychology, looks at language acquisition. One question he asks is how children learn to integrate social knowledge with information gleaned from the nature of the speaker’s voice. He also looks at how this integration bears on the acquisition and perpetuation of gender stereotypes.

In his work at Bing, Moores showed children four images on a screen. The images were clear and simple, yet each image possessed some gender stereotype. Of the four images, two were the same color and the other two had object-related colors. For instance, one slide included a blue dart, blue-colored berries, a brown belt and a pink belt. Children then heard either a female or male voice saying, “Find my belt.”

The results show that 3-year-olds tend not to take into consideration the speaker’s gender, while 5-year-olds regularly do: A major shift occurs within those two years. The older children tend to get a pink belt for the female voice and a brown belt for the male voice.

Ann Nordmeyer, a fifth-year doctoral student also working with Frank, gave a talk on children’s and adults’ understanding of negation. Nordmeyer characterizes four types of negation between the ages of 12 and 24 months: refusal, self-prohibition, denial and nonexistence. As children participating in the study at Bing are generally over the age of 3, they have already acquired these four types of negation.

According to Nordmeyer, “Adults respond to negative sentences faster when they are presented within a supportive context.” Children don’t respond to context in the same way, she says. For her study, which included 48 children from Bing and 260 adults, Nordmeyer displayed a series of related images on an iPad. For instance, one image showed three plates with apples on them. Then, children saw an image of two plates—one with apples and one empty. Children were prompted with a sentence, such as “Bob has no apples.” Nordmeyer recorded which figure children chose, and the speed at which they did so. In other trials, Nordmeyer added additional variables, such as unrelated images.

When adults heard negative sentences such as “Bob has no apples,” Nordmeyer found they started to click the picture of the empty plate as soon as they heard the word “no,” suggesting that adults use negation to make predictions about the end of a sentence. Children, however, wait to hear the entire sentence before choosing a picture, suggesting that they do not make the same predictions as adults. Furthermore, children’s understanding of abstract words (like “no”) might be obscured by processing demands that overwhelm children.

The questions posed by Weisman, Moores and Nordmeyer encourage Bing teachers to reflect on elements of development: sentience, language, gender stereotypes and negation.
The largest annual gathering of early childhood educators in California took place in Sacramento this March, bringing together nearly 3,000 attendees for more than 100 workshops. The theme for this year’s meeting—the California Association for the Education of Young Children Annual Conference and Expo, held March 2-7—was “Early Care & Education at the Crossroads—Awareness, Advocacy & Action!” As always, the event offered presentations on a wide variety of topics, including child development, curriculum, administration, and environments. For me, the high points were workshops that offered perspectives on the work I do at Bing.

On my first of two days at the conference, I attended the featured presentation “Loose Parts: Inspiring Play in Young Children.” This was given by Lisa Daly and Miriam Beloglovsky, two lively professors of early childhood education from two community colleges in the Sacramento Valley. They shared with the audience their definition of loose parts: “Natural or synthetic found, bought, or upcycled materials that children move, manipulate and change within play.” The speakers showed photos of loose parts, ranging from nuts and bolts to cardboard boxes and pine cones. They discussed the benefits of loose parts in a play-based program and spoke of several pioneers who continue to lead this movement in California, one being Bev Bos, who happened to be my teacher-mentor over two decades ago!

Another highlight for me was attending the workshop entitled: “Connecting with Families Through Learning Stories.” This was presented by Claire Boss, toddler teacher, and Heather Morado, director of GeoKids, in Menlo Park, California. They shared with the audience the benefits of what’s known in the field of early childhood education as a learning story—a narrative told by the teacher in first person that focuses on the growth of the child observed during a “small moment.” To accomplish this, teachers closely observe a child engaged in an activity and write what they observed. The detailed observation is written in first person form and can be addressed to the child personally (e.g., Simone, today I noticed...). And though the stories can be written to the child, their intended audience is actually the parents: The stories show parents their child’s strengths through the teacher’s lens. The teacher often gives a parent the observation on paper so the parent can read it to the child (if the parent chooses), write down feedback in the space provided, and give it back to the teacher.

The teachers in the presenters’ class used this method of communication throughout the year, they learned that it helped them develop a deeper bond with the child and the family. The personalized learning story reaffirmed the parents’ belief in the rich relationship teachers strive to establish with the child while in their care.

On my second day, I attended a festival of short films on the inclusion of children with special needs in early childhood classrooms. Between the viewings of the films, the host, early childhood consultant Fran Chasen, led discussions about elements that support inclusion. These include playground equipment that supports children’s physical needs, teachers with an educational background in special needs, and community awareness of children with disabilities. The films presented children who, although born with physical or cognitive challenges, experienced educational equity and dignity and the opportunity to enjoy a program that addressed their specific needs.

Overall, the conference was a fine way to explore topics related to the education and care of young children.

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Visitors from Abroad

Above, left: Twenty-one administrators and educators from the Poppins Nursery School in Japan visited Bing in November 2014. Among those pictured are Noriko Nakamura, president of Poppins Corp. (center, with necklace), and Bing Nursery School staff Jennifer Winters, director (to right of Nakamura); Beth Wise, assistant director (to left of Nakamura); Katy Jordan, enrollment administrator (seventh from left, standing right of Winters); and Chia-wa Yeh, head teacher (eighth from left, standing right of Jordan). Above, right: Two professors and their graduate students from the University of Taipei visited Bing in July 2015. Left: Faculty and graduate students from the East China Normal University and publishers of children’s books from China visited Bing in November 2014.
Kindergarten Information Night: Ensuring a Smooth Transition to Elementary School

By Anna Patterson, Teacher

What constitutes kindergarten readiness? What is the typical development of a 5-year-old? How can parents support their children in preparing them for kindergarten? These are just a few of the questions parents asked at Bing’s Kindergarten Information Night, held Jan. 14. For many Bing students and their parents, the countdown to kindergarten had begun, drawing more than 70 parents to hear a panel of experts share their perspectives on providing a smooth transition during this time. On the panel were Palo Alto Medical Foundation pediatrician Rick Lloyd, MD, Walter Hays Elementary principal Mary Bussman, and Bing teachers Peckie Peters, Todd Erickson and Jeanne Zuech.

Lloyd opened, providing us with good news: “5-year-olds want to be good.” They want to please, he said. At 5, children are more competent and more interested in taking on responsibility both at home and in school. They become more aware of their own abilities, they have an ethical sense of right versus wrong and they act more “grown up” because that means being “good” in their minds. Because 5-years-olds love to learn, said Lloyd, they accumulate facts. Typically, they enjoy the company of others of their age, group by gender and play best one on one. Parents can support their kindergarteners by allowing them to take on more responsibility, by providing time for them to play, by allowing them to have choice and by supporting their natural desire to live in the here and now. Lloyd pointed out, “The most important ingredient of kindergarten readiness is that the parents believe their child will succeed.”

Elementary school principal Bussman stressed the importance of reading with children to prepare them for kindergarten and for life. “Reading is an intimate activity that is a gateway to all learning,” Bussman said. She also discussed what parents can do to build a child’s character. Qualities like perseverance and resilience are teachable traits that can help children succeed, she said. For example, Bussman suggested letting children make mistakes. Parents can even model how to learn from their own mistakes in order to teach these concepts and have a positive impact on their children. Bussman also reminded parents to give children time to be innovative, explore and play. Finally, she suggested that parents familiarize themselves with the Common Core Standards for Kindergarten (www.corestandards.org) for an indication of what their child will learn and be expected to know by the end of kindergarten.

Next up on the panel were the Bing teachers. Head teacher Peckie Peters described how social-emotional experiences at Bing prepare children for kindergarten: Children have already navigated through the separation process and they have experienced interactions with many adults in the classroom. Bing’s safe and supportive atmosphere has allowed them to develop a sense of confidence and the ability to feel successful in whatever they do. Head teacher Todd Erickson addressed parents’ concerns about math readiness, explaining how math is woven into so many Bing experiences. An everyday play experience such as block building can foster counting skills, pattern recognition and symmetry knowledge, he said. At snack time, children sometimes vote on a book to read, which gives them practice comparing quantities when they consider which has the most and least votes.

Jeanne Zuech focused on the rich literacy experiences at Bing that allow children to develop a love of reading. Experiences such as writing letters to classmates at the language table can promote letter recognition and word knowledge. In addition, literacy follows to other areas of the classroom, Zuech explained. Children often write their names on their creations made at the woodworking or design table or make signs for construction vehicles in the sand area. According to Zuech, all of these activities enhance kindergarten readiness.

Parents often have mixed feelings as kindergarten approaches: a sense of excitement combined with an equal measure of worry. Assistant director Beth Wise passed on a valuable message from Barbara Porro, a kindergarten teacher at Las Lomitas Elementary, who was unable to attend the event. “Parents from a play-based program might feel a little nervous or anxious… but these children are actually coming in with an advantage,” Porro explained. Kindergarten preparedness often refers to social-emotional skills rather than a specific skill set relating to academics. Not only do 5-year-olds have a great capacity to learn and to “be good,” according to Lloyd, but because they have experience in an exploratory and creative preschool setting, they are going to be well-prepared. Kindergarten Information Night left the audience with the following message: support children by letting them play and be independent, and believe in them because they truly are ready for the next step.
On a beautiful, sunny spring day, approximately 600 Bing families, current and alumni, attended the annual Bing Children’s Fair, held this year on Sunday, May 17 at Bing Nursery School. Children of all ages made handprints, built sand castles, dug up a “dinosaur” at the scavenger hunt, painted their own pictures, and had their pick of plenty of classic fair activities like bean bag toss and face painting.

Fairgoers were entertained by Jack Tuttle’s Bluegrass Players, who strolled around the grounds; the Magical Moonshine Theatre’s “The Three Little Pigs” Puppet Show; Mua Lac Hong Vietnamese Fan Dancers; and the Mariachi Cardenal de Stanford. The Leland Stanford Junior University Marching Band closed the fair and was a huge hit with children and adults.

Over 200 parents prepared goods for the bake sale and the international/American food booths. Cupcakes, brownies and sweets of all kinds were a hit, and nobody could pass up the delicious variety of food, from American macaroni and cheese to Indian samosas. In addition, many businesses made donations, including food (especially cupcakes for our cake walk), volunteers to help staff the fair, as well as cash. Special thanks to our generous donors: Andro’s Rostilj, Boot Scoot Bikes, Costco, DAVIDs Tea, ExpertQuote Inc., fresh & easy, Gerry’s Cakes, GNT Group, Grocery Outlet bargain market, Patama and Saar Gur, HanaHaus, Blue Bottle Coffee, Kathy’s Creative Kakes, Lyfe Kitchen, Martha’s Pastries, Oren’s Hummus-Belmont, Patxi’s Pizza, Pizza My Heart, Sigona’s Farmers

From left: Sandi Gedeon, Business Manager; Dorothy An, co-chair; Jennifer Winters, Director; Adriana Flores-Ragade, co-chair.


On the morning of the fair, approximately 200 alumni families joined the Bing staff for breakfast. It was wonderful to see and talk to so many alumni children, as well as their parents, some of whom are Bing alumni themselves.

We would like to thank our Bing Fair co-chairs, Dorothy An and Adriana Flores-Ragade, for organizing a beautiful fair, as well as the over 300 parent volunteers who staffed the activity and food booths this year. Proceeds from the fair benefit the Bing Nursery School Scholarship Fund.

World Principal’s Leadership Institute

Director Jennifer Winters was a guest speaker at the World Principal’s Leadership Institute, held in Hong Kong April 24-25, 2015. Winters spoke on the value of play in early childhood education and how it lays a foundation for a lifetime of learning. The theme of the conference was “Enlightened Leaders: Taking Action from Theory.” More than 500 preschool directors and teachers from Hong Kong and China were in attendance. It featured speakers from Australia, China, Korea and the United States and was sponsored by the Victoria Educational Organisation in Hong Kong.

Pictured at left: Jennifer Winters, director of Bing Nursery School, Maggie Koong, president of the World Organization for Early Childhood Education (OMEP) and chief principal of the Victoria Educational Organisation.
James Bond was the theme of Bing’s 26th annual Harvest Moon fundraising event, held Nov. 8, 2014, at the Stanford Arrillaga Alumni Center and titled Bing Auction Royale 2014. The event raised over $320,000 for the Bing Scholarship Fund, which provides assistance to over 20 percent of the children who attend the nursery school. As in past years, Helen and Peter Bing were strong supporters, with a generous gift of $50,000.

In keeping with the theme, an Aston Martin (Bond’s most famous car) was parked at the entrance of the event. Guests were greeted by 49ers cheerleaders dressed as Bond Girls serving martinis (shaken not stirred of course); elegant black and gold décor, including a replica of Bond Girl Jill Masterson from Goldfinger; and large martini glasses on the auction tables with colorful LED ice cubes. The auctioneers this year were Bing teachers Todd Erickson and Lars Gustafson, who came in secret agent attire. The DJ for the evening, Bing parent and professional DJ Carole Morey (JPM3 Productions), dressed as the Ursula Andress character, Honey Ryder, from Dr. No.

Auction attendees’ mission, if they chose to accept it, was to bid on exciting items, including an autographed Buster Posey Jersey (the Giants had just won their third World Series), an exotic car tour donated by Club Sportive, a beautiful “Bing book crate” filled with books donated by the Bing teachers and staff created by Bing carpenter Gene Aiken and teacher Jeanne Zuech, and many other items. The live auction raised over $60,000. Items that were auctioned included a Giants suite for 12 at AT&T Park; a week at an oceanfront home in Kona, Hawaii; Pizza party with Bing teachers Emma McCarthy, Susan Johnson and Andrea Fewster (this item was so popular, the teachers agreed to auction off a second party); and a private performance by the incomparable Stanford Band, which sold for an incredible $14,000. The ever-popular Fund a Scholarship, a live bidding item with straight cash donations going directly to the Bing Scholarship Fund, raised over $55,000 that evening, with an additional $90,000 raised prior to the night of the auction.

More than 25 events for children, families and adults were also auctioned off, including The Bond Martini Party, the Murder Mystery Wine and Dine, Peter Rabbit Garden Party, Children’s Art Party, Robot-Making Party and the Bug Out Party. We appreciate the work and donations of parents in each classroom who put together over 50 class baskets with different themes, including “007” Spy Kid, Little Farmer’s Garden, Baker’s Paradise, Come Fly with Me, and It’s Elementary, My Dear Watson. In total, over 600 items were auctioned off.

The food, catered again this year by Weir & Associates Catering, was served with Bond flare, with such dishes as British Roast Beef Sandwich, “The World is Not Enough” (Spanish manchego and quince skewers) and “From Russia With Love” (diamond-shaped blinis). Peet’s Coffee & Tea, SusieCakes and Tin Pot Creamery donated the dessert and coffee for the evening. Other generous donors for the evening included Belden Barns Winery, Clos Du Val, Hengehold Trucks, Trader Joe’s, Willamette Valley Vineyards and The Willow’s Market.

We offer our heartfelt appreciation and thanks to the auction co-chairs, Tara Carranza Chapman and Sanaz Khalili Malek, for their vision, leadership and dedication. We couldn’t have done it without them. We are also extremely grateful to our parent volunteers—over 200 strong—who worked on over 20 committees. A special thank you to those who donated to the auction and to those who attended. The tremendous dedication of our parents, Bing teachers and staff made the auction what it was—a tremendous success!

We look forward to seeing everyone again at this year’s auction, Saturday, Dec. 5, 2015.
Summary of Gifts to the 2014-2015 Annual Fund
Our heartfelt thanks for your continued support!

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Contributors: Jennie and Doug Bernheim George and Kerry Bischof Steve Boom Ryan Brown
2014-2015 Annual Fund Report

Thanks to the contributions of Bing parents, friends and our staff members, we met our goal of $400,000 to help support our annual budget. We are deeply grateful for this generous support. We would like to extend a warm round of thanks to the parent fundraising chairs Masha and David Fisch, Marrie and Karol Marcin, Lyla and Rory McInerney, Alleen Lee and Jason Stinson, Susie and Gideeon Yu, Classroom Ambassadors and their committee members for their efforts and support. In 2014-2015, the participation of our current Bing families reached 57 percent.

The annual fund is an important part of the school budget. It supports general school operations, scholarships and our endowment. The campaign helps us close the gap between tuition and the actual cost of delivering our exemplary programs. It supports staff development, additional assistant teachers in our classrooms, parent seminars, special events, outdoor play area renovations and high quality materials. Our goal is for every family to participate in supporting the school—no gift is ever too small.

In 2015-2016, we are striving for 100 percent participation! Please make your gift now at http://bingschool.stanford.edu/giving/annual-fund.

Monetary Gifts on the Occasion of the 2014 Harvest Moon Auction

These monetary gifts support the Bing Nursery School Scholarship Fund

Stripes. By Samantha T., 3 years 11 months

The sun setting over the mountains. By Aditya C., 4 years 1 month

Karen, mom, William, dad (from left). By Karen M., 4 years 4 months

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As we prepare for our 50th anniversary in 2016, we are updating our alumni database. If you have new contact information or have reconnected with a Bing Nursery School alumni family, please let us know at bingschool@stanford.edu or fill out alumni information at bingschool.stanford.edu/bing50.

Bing Nursery School’s 50th Anniversary
1966-2016
Special Events

50th Anniversary Breakfast and Endowment Kickoff, Friday, October 16, 2015
Stanford Historical Society–History of Bing School, Wednesday, March 2, 2016
Research Symposium, May 2016 (Date TBD)
50th Anniversary Open House, Saturday, June 4, 2016

Please join us!

bingschool.stanford.edu/bing50

Don’t forget our Harvest Moon Auction is December 5, 2015
and the Bing Children’s Fair is May 22, 2016!