Full Text of Expert Comments and Biographies

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Comments on Marketing Baby Apps as Infant Teaching Tools

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Based on scientific evidence on how infants learn, I believe that claims that a two-dimensional touch screen App can teach alphabet letters, numbers, and counting from 1 to 10 to babies (including those as young as 6 months) are inaccurate, seriously misleading to parents, and potentially detrimental to infant development for the following reasons:

Infants are not cognitively capable of processing letter and numerical symbols meaningfully.

Although infants are capable of noticing similarities and differences among object shapes and are sensitive to certain obvious differences in object numerosities, they cannot process the symbolic meaning of letters and numbers. Despite exposure to baby picture books containing letters and numbers, magnetized letters and numbers on refrigerator doors, and televised letter and number messages on Sesame-Street segments aimed at older siblings, toddlers typically do not include letters and numbers within their early vocabulary words—precisely because those labels and their referents are not meaningful to them. Rather, their earliest words refer to important people and to objects, actions, and social routines with which they have had extensive direct experience and that therefore are of interest and significance to babies.

Furthermore, findings on infant and toddler learning from screen media (TV and video) reveal that babies cannot take full advantage of such media. They confuse images of people and objects on screens with the real thing. For example, they try to manually explore an object depicted on a screen, just as they do with two-dimensional pictures of objects. Not until the middle of the second year do toddlers treat even realistic-looking two-dimensional pictures symbolically. Into the third year, children do not grasp the meaning of simple events (such as an object being hidden) on a screen, whereas they readily understand the meaning of a similar event in real life. Beyond their third birthday, children continue to find it hard to link some kinds of pictures (such as line drawings) with their referents. In view of such evidence, efforts to teach babies letter and numerical symbols are clearly developmentally inappropriate.

Furthermore, screen tutorials focused on letters and numbers strongly suggest to parents that their infants and toddlers will master reading and math knowledge faster if they are exposed to such experiences. Yet no evidence indicates that exposure to letters and numbers in infancy accelerates academic learning. Rather, reading development builds on a broad foundation of spoken language and knowledge about the world; preschool language progress, including vocabulary, powerfully predicts literacy knowledge at school entry. Furthermore, mastery of letter names and their meanings is a gradual preschool and kindergarten endeavor requiring rich exposure to both language and print in many contexts. Similarly, acquisition of basic math knowledge depends on many active occasions for counting, comparing quantities, and talking about number concepts with adults throughout the preschool years. Research reveals that
children with a rich background of such experiences are just beginning to grasp the specific meaning of number words after their third birthday.

**Touch-screen lessons risk detracting from experiences that contribute vitally to infant psychological development.**

During the second half of the first year, babies are still engaged in making basic sense of their visual, auditory, and tactile surroundings. For example, they are novices at organizing their visual world into distinct objects; they require much experience with visual-manual exploration of three-dimensional objects to integrate object features (shape, color, pattern, sound) into unified wholes and to distinguish them from nearby objects and backgrounds. Extensive opportunities to track moving objects, actively search for hidden objects, and experience one’s surroundings from diverse vantage points are vital for infants to build an orderly, stable understanding of their physical environment.

Additionally, infancy is a period devoted to active analysis of the adult speech stream for native-language sound categories, patterns, and word and phrase boundaries—knowledge essential for linking speech units with their meanings and, thus, for comprehension and production of language. To acquire this knowledge, babies depend on ample opportunities to listen actively to the talk of people around them and, especially, on rich, responsive face-to-face exchanges with caregivers. Screen media cannot do what effective parents and teachers do: namely, fine-tune communication, adjusting the length and content of utterances to fit babies’ changing needs—adjustments that enable toddlers to join in and that greatly foster language progress.

Finally, adults’ sensitive, direct engagement with babies and guidance in helping them explore and make sense of their physical world are crucial for early emotional and social learning. Infants depend on sensitive, contingent caregiver communication to make progress in organizing and regulating their emotions, understanding and responding appropriately to the emotions of others, and attaining self-awareness—recognition that they are physically separate and unique beings, distinct from others and their surroundings.

Promoting screen media as infant teaching tools conveys to unknowing parents that a mechanical device is effective at fostering early learning, when no evidence exists that screen media succeed in teaching anything of import for babies’ development. Current surveys reveal that overall, U.S. parents and caregivers permit children to spend excessive amounts of time viewing TV and using computers. Heavy exposure has been found to detract from parent–child engagement, peer social experiences, and time spent reading—and from children’s school success. Apps for babies risk becoming yet another media option that diminishes crucial child learning experiences. Unfortunately, through false promises of precocious academic learning, they are likely to win over developmentally uninformed parents easily.
Advertising claims that touch screen devices can successfully teach number concepts and counting to babies as young as 6 months are deceptive.

First, there is no clear and direct evidence showing that touch screen devices can help infants and very young children, from 6 months to 2 years, to learn important number concepts and counting.

Second, existing research suggests that infants and very young children are not cognitively ready to learn key abstract ideas about number. Although some children at the upper bounds of this age range might learn to parrot some number words—one, two, three...—they are highly unlikely to learn important concepts of number. Research shows that understanding number requires abstract concepts and thinking—for example the idea that the last number used to count a group of objects signifies its “cardinal value.” That is, when a child counts “one, two, three, “ she needs to understand that “three” refers not to the last object counted but to the group of objects as a whole, and that three ants are numerically the same as three elephants. It takes time and experience for toddlers and preschoolers to master these notions. It is highly improbable that infants and very young children could learn abstract number concepts like these from a touch screen device.

Third, research shows that young children learn mathematical concepts in the everyday world by exploring everyday objects, sometimes with adults, whose language and verbal guidance are often crucial to the enterprise. We need to protect children’s and adults’ opportunities to engage in such explorations. Touch screen activities may be useful as one kind of useful learning experience for toddlers and preschoolers (although there is a dearth of sound math apps), but there is no evidence that touch screen devices can or should play a major role in infants’ learning.

Brief Biography

Herbert P. Ginsburg, Ph.D., is the Jacob H. Schiff Professor of Psychology and Education at Teachers College, Columbia University. He has conducted basic research on the development of mathematical thinking, with particular attention to young children, disadvantaged populations, and cultural similarities and differences. He has drawn on cognitive developmental research to develop mathematics curricula (Big Math for Little Kids) and storybooks for young children, tests of mathematical thinking, and video workshops to enhance teachers’ understanding of students’ mathematics learning. He
has recently developed a model course on early mathematics education for use in colleges and universities. The course makes use of a web based computer technology (Video Interactions for Teaching and Learning [VITAL]) designed to help prospective teachers improve their craft by making meaningful connections between the cognitive analysis of children’s thinking and classroom practice. Also, he has created computer-based systems (MCLASS: MATH) for helping teachers to conduct basic clinical interviews to assess children’s mathematical knowledge. With colleagues, he is now developing computer software, MathemAntics, to foster young children’s (from 3 years to grade 3) mathematics learning. He holds a B.A. from Harvard University and his M.S. and Ph.D. from the University of North Carolina, Chapel Hill.
Innumerable papers in the scientific literature indicate that children learn best from humans – not human representations as on television and in apps-- but real humans. In fact, up until the age of about 2.5, young children have a “video deficit” which makes it difficult for them to learn from two-dimensional representations like television and other flat screens. To the extent that apps for infants and toddlers reduce the amount of interaction they spend with caring and supportive adults, these electronic inputs may actually have a negative impact on children’s learning.

In what I call the “naïve view of learning,” memorizing the A-B-C’s and numbers and geometric forms are seen as essential for school readiness. However, according to learning scientists, these are not essential skills for toddlers to have. What is essential, and what scientists have long known, is that language development is crucial for learning at home and in school and is nurtured in particular ways. When adults speak with children and take them to exotic places like the supermarket and neighborhood park and read with them, babies learn to talk and expand their vocabularies. Adults who do not engage in these behaviors but hand their young children apps instead are reducing the amount of language directed to their children. Children learn language from adults who follow children’s interests and talk about whatever it is that has captured children’s attention. Apps and television shows cannot follow infants’ gaze to see what they want to learn more about; they cannot provide the individualized language input that children need. Thus, claims about the effectiveness of apps for infants and toddlers are not only without research support, but unlikely to help children learn what they must learn to succeed in school.
Statement on infant learning of numbers by Kathy Hirsh-Pasek, Ph.D. (November 9, 2013)

In recent years, advertisers have commercialized claims about infant development and learning. A recent example comes from touch-screen devises that promise to teach infants “numbers and counting from 1-10.” Research from numerous labs on the learning of number would find such claims to be seriously misleading.

**ON THE LANGUAGE CLAIMS:** Infants are just learning their first words at around 12-months of age. By 18 months (the end of infancy), they sport an average of 50 words in their productive vocabularies. These words are well documented – including mama, papa, body parts and accessories like bottle. Research also suggests that children under the age of 2.5 years do **not** learn words unless they are in social conversations with others (see Roseberry et al., 2013 for a review). Thus, the probability that children will even learn the counting words and be able to recite them in scientifically unlikely.

**ON THE NUMBER CLAIMS:** A review paper by Feigenson, Deheane & Spelke (2004) examines the data on infant number ability. Though babies (and animals) are sensitive to some aspects of numerosity, they do NOT count to 10, nor would they understand what these numbers mean even if they could recite the words. Babies and animals do recognize that a display of 16 objects is bigger than a display of 8 objects (a 2 to 1 ratio). They do **not** know that a display of 7 objects is any different than one of 8 or 9 objects. Further exact number systems for babies seem to stop at 3 items. Studies show that infants can calculate that 1+1 will give them a larger amount like 2, but not that 2+2 will give them the exact amount of 4. In short, it is scientifically unlikely that any touch screen devise will reverse the tide of evolutionary preparedness by teaching infants to count from 1-10.

We are learning a great deal about the capabilities and competencies of young children as they interact with the world around them. As many have argued (see Chi, 2009), young children are an **active** species who learn through **engagement, meaningfulness** and **interaction** with social beings. We have yet to see the full promise of how screens and other devices might augment learning, but to date, the promises made with respect to these so-called “educational” devices are unwarranted and misleading – at least for products where infants are targeted.
Comments to FTC Regarding Baby Apps for Teaching Literacy Skills

Judith A. Schickedanz, Ph.D
Professor Emerita, Boston University
November 13, 2013

What Is Known about Reading Foundations and Phases
A large body of research on the early foundations needed for success in learning to read has established two sets of understandings and skills, one related to decoding (i.e., word recognition) and one related to comprehension (i.e., understanding the meaning of what one read). It is also generally agreed that reading development can be thought about as occurring in two phases, the first a “learning to read” (i.e., learning to decode words) phase, and the other a “reading to learn.” The “learning to read phase” typically covers the years spanning kindergarten through 2nd or 3rd grades. The “reading to learn” phase begins in 3rd grade and continues for life.

The foundational understandings and skills necessary for success in “learning to read” include alphabet letter knowledge, phonological awareness (i.e., ability to detect the series of individual sounds making up spoken words), the alphabetic principle (i.e., knowing that letters in words represent sounds heard in their spoken word counterparts), and print conventions (e.g., the standard direction in which print is placed on a surface in each orthography, use for upper- and lowercase letters, the separation of one word from another in a sentence, punctuation, etc.).

The foundational understandings and skills for success in “reading to learn” include adequate decoding skill, and, in addition, language skill of all kinds (e.g., vocabulary, syntax, morphology, pragmatics), substantial content knowledge, and reasoning (i.e., ability to integrate information from a text with background knowledge for the purpose of drawing inferences).

Recent History of the Focus in Reading Programs for PreK and K-2nd Grades
Given that children “learn to read” (on their own) before they “read to learn” (on their own), there has been a tendency in the early years (i.e., kindergarten through 2nd or 3rd grades) to address literacy skills needed for decoding, with scant attention to language development, content knowledge development, and reasoning. Beginning reading materials are simplified to assist children in learning to decode (e.g., sentences are short, vocabulary is low-level/easy, and content is very familiar). As a consequence, these materials are not at all challenging to comprehend, which means that materials children read to themselves in Kindergarten through 2nd or 3rd grade contribute little, if any, to vocabulary and other aspects of language development, content knowledge development, or higher level reasoning.

About 15 years ago, programming at the preschool level began to include more literacy skills (i.e., alphabet ID, phonological awareness, and some print conventions). The Early Reading First programs were funded at the federal level from 2002 through 2010. At the
K through 2nd grade level, there was also an all-out effort to make sure children acquired literacy skills, and actually learned to read (i.e., to decode words (Reading First programs).

Even though there was some expectation at the preschool level that programs would support vocabulary and cognitive development, few programs devoted much time or effort to these areas, which became evident in a national report of the ERF programs, conducted in 2005. In that study, 25 randomly selected ERF programs were compared to the 25 programs that were not funded, but had the next highest points for their proposal, on letter ID, phonological awareness, and oral vocabulary. The only significant difference was on alphabet letter ID, in favor of the ERF funded projects. There were no significant differences in phonological awareness or in oral vocabulary. Additionally, in the ERF projects’ reported data, required yearly by the Department of Education, letter ID typically was the highest area of achievement, with many programs reporting end–of-year scores for 4-year-olds (i.e., children eligible for K the following year) averaging about 19 uppercase letters and more than 20 lowercase letters. (Note: Only children who knew 16 uppercase letters were assessed on the lowercase letters.) Alarmingly, phonological awareness was typically not terribly high, and vocabulary, although showing some improvement, often increased by relatively little, even when measured at the receptive only level.

Without phonological awareness skill, children cannot deploy their letter ID knowledge in the service of reading words or creating them (i.e., spelling). The alphabetic principle (i.e., knowing that letters function to represent sounds in spoken words) is essential for the actual USE of alphabet letters. Moreover, phonological awareness and oral vocabulary development are highly correlated (positively) in the early years, which has been explained by a Lexical Reorganization Hypothesis (i.e., as vocabulary size increases, more and more words overlap in their phonological structure, which requires their storage in the brain to become more and more segmental—sound by sound—in order to distinguish among them).

In summary, letter ID is important for reading, but can only be useful when phonological awareness (PA) is also present. PA is assisted, it seems, by an adequate oral vocabulary.

At the K through 2nd grade level, there was considerable success in Reading First programs in teaching children to learn to read (i.e., to decode). It has become clearer and clearer, however, from longitudinal studies spanning from K through the middle grades, that adequate decoding skill during the primary grades is no guarantee of reading success after 3rd grade, and that too little attention to language, content knowledge, and reasoning has major negative consequences for reading achievement in the long term. It is extremely difficult for children to catch up in with oral language and content knowledge, without a good start in the early years, because learning in these areas builds upon itself, over a long period of time.
What’s Appropriate for Babies?
Given what researchers have learned about the consequences of focusing too narrowly on literacy skills during the Preschool years (i.e., 3 years to 5 years of age), and the Kindergarten through 2nd grade period (i.e., 5 years through 8 years of age), it is a big step in completely the wrong direction to provide Apps for babies, as young as 6 months of age, that focus on the ABC’s. The first two years of life are absolutely essential for the development of oral language, social knowledge, and basic knowledge about the everyday world. All of the research on infancy indicates that babies learn in the context of human interaction, and that this interaction is necessary to provide meaning to what they experience, names of things, and ways to express their thoughts and feelings.

There is no doubt that babies come equipped with the visual and auditory capacities to make fine distinctions. That is, young babies can discriminate visual stimuli that differ by only a very little bit, and they also discriminate sounds. But these basic capacities should be used in the service of meaningful learning. Children under two years of age have no concept of the meaning of print (i.e., that it is used to represent ideas and thoughts, and that it maps onto spoken language). They could learn to discriminate the visual forms of individual alphabet letters, but would not attach any meaning to them. As for claims that babies learn that their actions get results (i.e., touching the screen makes something happen), babies have opportunities to find this out many times a day in their natural environments. For example, they shake a rattle one way, and it makes one sound. They shake it another, and it makes a different sound. They turn an object around one way and see it from that view. They turn it around the other way and see a different view. They verbalize and the adult verbalizes back. They utter “at” as they point (“what’s that?”) and a person answers. It is also known from research about babies’ contingent interactions with the world (i.e., they do something, something happens) that once they figure out the action that makes something happen, they lose interest in making it happen. In other words, they like learning—like the challenge—and are built to go to the new.

The app situation is routine—touch and something happens. It is not varied enough to create interesting and informative challenges, and thus learning, about the world.

Misleading and Likely Harmful
In summary, apps for babies that focus on alphabet letters provide the wrong emphasis at the wrong time. Suggesting to parents and other caregivers that these materials are good for babies, and will contribute to a child’s success in reading, is extremely misleading. Of course, alphabet letter ID knowledge is essential for learning to read (i.e., decode). In the overall picture of the foundations needed for success in reading in the long term, however, it is not important for this early time period. Even for the preschool through the primary grades period, attention must be focused in a balanced way on both decoding-related and comprehension-related foundations. The latter are the bigger problem, not the former, and suggesting that ABC learning should start with babies as young as 6 months old is not only completely misleading, but also likely harmful as it misplaces experiences that are known to be much more essential for children of this age.
To the Federal Trade Commission:

"I urge you to exert the greatest care in investigating claims made by companies that infants as young as 6 months can learn from a two-dimensional screen."


"It is my strong recommendation that the burden be placed on companies to fund unequivocally unbiased research over which it has no control and conducted by independent researchers and replicated at several sites on all of its claims about the existence and extent of screen learning in children under 3 years of age, as well as of its short and long term safety. In the absence of such research, and given everything that is known about the extremely rapid growth of the human brain in the first 3 years of life, and of its extreme sensitivity to environmental stimulation, it is critical to err on the side of protecting those processes – on which future adult functioning depend.

Furthermore, in the absence of research on learning and safety in this context, and of clear warnings about its absence, there is a significant risk that parents – who are naturally anxious to do everything in their power to maximize their children’s potential and raise them to be successful adults in a highly competitive global marketplace – will err on the side of exposing their infants and toddlers to products claiming to accomplish these and related goals.

I would like to thank you for your efforts to carefully consider this matter.

Sincerely,

Joshua Sparrow, MD
Biographies

Laura E. Berk, PhD is a distinguished professor of psychology at Illinois State University, where she has taught human development to both undergraduate and graduate students for more than three decades. She received her bachelor’s degree in psychology from the University of California, Berkeley, and her master’s and doctoral degrees in child development and educational psychology from the University of Chicago. She has been a visiting scholar at Cornell University, UCLA, Stanford University, and the University of South Australia.

Berk has published widely on the effects of school environments on children’s development, the development of private speech, and the role of make-believe play in development. Her research has been funded by the U.S. Office of Education and the National Institute of Child Health and Human Development. It has appeared in many prominent journals, including Child Development, Developmental Psychology, Merrill-Palmer Quarterly, Journal of Abnormal Child Psychology, Development and Psychopathology, and Early Childhood Research Quarterly. Her empirical studies have attracted the attention of the general public, leading to contributions to Psychology Today and Scientific American. She has also been featured on National Public Radio’s Morning Edition and in Parents Magazine, Wondertime, and Reader’s Digest.

Berk has served as a research editor of Young Children and a consulting editor for Early Childhood Research Quarterly. Currently, she is associate editor of the Journal of Cognitive Education and Psychology. She is a frequent contributor to edited volumes on early childhood development, having recently authored chapters on the importance of parenting, on make-believe play, and on the kindergarten child. She has also written the article on social development for The Child: An Encyclopedic Companion; the article on Vygotsky for the Encyclopedia of Cognitive Science; and the chapter on storytelling as a teaching strategy for Voices of Experience: Memorable Talks from the National Institute on the Teaching of Psychology (Association for Psychological Science). She is coauthor of the forthcoming chapter on make-believe play and self-regulation in the Sage Handbook of Play and Learning in Early Childhood.


Berk is active in work for children’s causes. In addition to service in her home community, she is a member of the national board of directors and chair of the Chicago advisory board of Jumpstart, a nonprofit organization that provides intensive literacy intervention to thousands of
low-income preschoolers across the United States, using college and university students as interveners. Berk is a fellow of the American Psychological Association, Division 7: Developmental Psychology.

Herbert P. Ginsburg, PhD, is the Jacob H. Schiff Professor of Psychology and Education at Teachers College, Columbia University. He has conducted basic research on the development of mathematical thinking, with particular attention to young children, disadvantaged populations, and cultural similarities and differences. He has drawn on cognitive developmental research to develop mathematics curricula (Big Math for Little Kids) and storybooks for young children, tests of mathematical thinking, and video workshops to enhance teachers’ understanding of students’ mathematics learning. He has recently developed a model course on early mathematics education for use in colleges and universities. The course makes use of a web based computer technology (Video Interactions for Teaching and Learning [VITAL]) designed to help prospective teachers improve their craft by making meaningful connections between the cognitive analysis of children’s thinking and classroom practice. Also, he has created computer—based systems (MCLASS: MATH) for helping teachers to conduct basic clinical interviews to assess children’s mathematical knowledge. With colleagues, he is now developing computer software, MathemAntics, to foster young children’s (from 3 years to grade 3) mathematics learning. He holds a B.A. from Harvard University and his M.S. and Ph.D. from the University of North Carolina, Chapel Hill.

Roberta Michnick Golinkoff, PhD the Unidel H. Rodney Sharp Professor of Education, Psychology, and Linguistics and Cognitive Science at the University of Delaware, has held the John Simon Guggenheim Fellowship and the James McKeen Cattell prize for her research on language development. She also won the America Psychological Association’s Distinguished Service Award and the Urie Bronbenbrenner Award for Lifetime Contribution to Developmental Psychology in the Service of Science and Society. She is also the 2011 recipient of the Frances Alison award from the University of Delaware, the highest honor bestowed upon a faculty member. Dr. Golinkoff lectures all over the world about language development, play and playful learning, and developmental psychology. Her research is funded by the National Science Foundation, the National Institutes of Health, and the Institute of Education Sciences. In addition to her many journal publications, she has authored 12 books for academic presses -- as well as books for parents and practitioners -- including How Babies Talk: The Magic and Mystery of Language Development in the First Three Years of Life (Penguin), and Action meets word: How children learn verbs. To reveal the benefits of playful learning, she wrote the award-winning Einstein Never Used Flash Cards: How Our Children Really Learn and Why They Need to Play More and Memorize Less (Rodale). The new Mandate for Playful Learning in Preschool: Presenting the Evidence (Oxford) describes the research on the importance of play and playful learning in early education.
Kathryn Hirsh-Pasek, PhD is the Stanley and Debra Lefkowitz Faculty Fellow in the Department of Psychology at Temple University where she serves as Director of the Infant Language Laboratory. She is the recipient of the American Psychological Association’s Bronfenbrenner Award for Lifetime Contribution to Developmental Psychology in the Service of Science and Society as well as the American Psychological Association’s American Psychological Association Award for Distinguished Service to Psychological Science, the Great Teacher and the Eberman Research Awards. She was also a finalist for the Best Professor of the year in the American Academy of Education Arts and Sciences in the 2013 Bammy Awards. Kathy received her bachelor’s degree from the University of Pittsburgh and her Ph.D. at University of Pennsylvania. Her research in the areas of early language development and infant cognition has been funded by the National Science Foundation and the National Institutes of Health and Human Development resulting in 11 books and over 150 publications. She is a Fellow of the American Psychological Association and the American Psychological Society, served as the Associate Editor of Child Development and as treasurer and is on the governing board of the International Association for Infant Studies. Her book, Einstein Never used Flashcards: How children really learn and why they need to play more and memorize less, (Rodale Books) won the prestigious Books for Better Life Award as the best psychology book in 2003.

Kathy has a strong interest in bridging the gap between research and application. To that end, served as an investigator on the NICHD Study of Early Child Care, is on the Advisory Board of the Fred Rogers Center, Jumpstart and Disney Junior and is an invited blogger for the Huffington Post and Psychology Today. She worked on the language and literacy team for the development of the California Preschool Curriculum, was one of the organizers of the Ultimate Block Party (www.ultimateblockparty.com) and developers of the Learning Resource Network (www.learnnow.org). Kathy served on the Advisory Board for CIVITAS and their Born Learning Series, is on the Research Council for America’s Promise, an organization started by Colin Powell as well as on the advisory boards for Disney Junior, Jumpstart, Scholastic and the Fred Roger’s Center. She has been a spokesperson on early development for national magazines and newspapers (The NY Times, People, US News & World Report, Newsweek, Parent’s Magazine, Parenting etc.) radio and television (The View, The Today Show. Good Morning America, 20/20, NPR, ABC News, CBS Morning Show, CNN), and is an advisor for Sesame Workshop, Fisher Price Toys, Highlights, K’NEX, The Cartoon Network, and a host of Children’s Museums across North America. She is also the co-founder of An Ethical Start, a curricular program in moral development for children ages 3 through 5. This program, created for the Jewish Community Centers of North America was funded by Stephen Spielberg’s Righteous Persons Foundation.
**Judy Schickedanz, PhD** is a Professor Emerita in Boston University’s School of Education. She earned her master’s degree in Child Development (1969) and her PhD in Early Childhood Education (1973) at the University of Illinois, Urbana-Champaign.

Dr. Schickedanz has taught preschool, and she started, and served for twenty years as the Director of, the laboratory preschool at Boston University. She taught courses, for both undergraduates and graduates at Boston University, in child development, early childhood education, and early literacy.

Dr. Schickedanz is the author of several books on early reading and writing, including *Much More than the ABC’s* (1999, NAEYC), *So Much More than the ABCs* (2013, NAEYC, with Molly Collins), *Writing in Preschool: Orchestrating Meaning and Marks* (2004; 2009, IRA, with Rene Casbergue), and Adam’s Righting Revolutions (1990, Heinemann). She was also senior author on four editions of a child development text, *Understanding Children and Adolescents*. She also published the book, *Increasing the Power of Instruction; Integration of Language, Literacy, and Math across the Preschool Day* (2008, NAEYC), and is the senior author of the preschool curriculum, *Opening the World of Learning* (Schickedanz & Dickinson, 2005, Pearson Early Learning).


Dr. Schickedanz served on a committee for updating accreditation standards for the National Association for the Education of Young Children and is a past president of the Literacy Development in Young Children group within the International Reading Association. She also served as a language and literacy foundations and curriculum consultant to several Early Reading First projects (federally funded preschool demonstration programs) between 2003 and 2012, and has worked with public preschool and Head Start programs for many years. She has presented frequently at conferences and institutes sponsored by the International Reading Association, the Literacy Research Association, and the National Association for the Education of Young Children.

Currently, Dr. Schickedanz serves as an occasional reviewer for the *Reading Research Quarterly* (International Reading Association) and *The Journal of Education* (Boston University School of Education), and as co-editor of the *Asia-Pacific Journal of Research in Early Childhood Education*. 
Joshua Sparrow, MD, DFAACAP, is Director of Strategy, Planning and Program Development at the Brazelton Touchpoints Center at Boston Children’s Hospital, where he holds appointments in Psychiatry and Developmental Medicine, and is an Associate Clinical Professor at Harvard Medical School. He has authored numerous scholarly papers, newspaper and magazine articles for the general public, and has co-authored eight books with Dr. T. Berry Brazelton, revised with him the 15th anniversary 2nd edition of Touchpoints: Birth to Three, and co-edited with Barry Lester, Nurturing Children and Families: Building on the Legacy of T. Berry Brazelton.

A child psychiatrist, Dr. Sparrow’s care in the 1990s for children hospitalized for severe psychiatric disturbances, often associated with physical and sexual abuse, and for developmental delays aggravated by social and economic deprivation, prompted his interest in the social determinants of mental health, community-based prevention and health promotion. At the Brazelton Touchpoints Center, his work focuses on cultural adaptations of family support programs, organizational professional development, cross-sector collaboration, and aligning systems of care with community strengths and priorities.