The Promise of Play:
A Paradigm for Deep Reform in Education

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Summary Points:

What are the implications of play for Education at all levels? Play represents a shift from the current print-anchored model into a communication-driven model of Education.

The idea that paper can be employed as a symbolic language and used as an emotive-conceptual lightning rod to harness and channel play energy into communication for teaching and learning is revolutionary.

Play-infused communication represents a fundamental shift away from the economic and emotional domination of the learning culture by corporate and political power brokers into a culture made free, far less costly, and more creative and humane—essentially a world of learning more alive, brain-aligned, and life-affirming.

What role do puppets play in this equation?

The hand puppet is a powerful media form, connected organically to the life line that has given humanity a treasure trove of gifts—tools, art, language, speech, science—namely, the hand. There are many myths and misconceptions about puppets that are easily dispelled when directly introduced to students of all ages. The whole point about puppets, as this booklet reveals, is that we tragically tend to dismiss their intrinsic power as symbolic media as easily as we dismiss the emotive, imaginative, open minds of the young—in the name of education.

Puppets and play are benchmark indicators for a learning culture that empowers the young to grasp the symbolic character of their dreams and ideas; that puts trust in them ahead of control and tests, that sparks instead of smothers their innate happiness, delight, and joy in learning.

If we want innovation to flourish, we can no longer educate and prepare the young for life using the abusive practice of force-feeding content and testing. We must begin speaking a language of dreams and innovation, so that the imagination becomes the self-knowing point of the compass primed for exploration, navigation and living one's life to the fullest.

Play as Language

When I began showing teachers how to make and use puppets more than thirty years ago, I had no idea what they (teachers and puppets!) would teach me about play. All this is much more than puppets. It's all about what puppets do to the learning culture of classrooms.

It's about what they do for teachers—to enhance their individuality and personality, their creative IQ, and to neutralize their fears and resistances.

….And what they do for children. Demand is high for modes of comm.-unication that have a positive influence on the young. Puppets have always met this need. To make the medium practical for classroom use, I recast puppetry into 'puppetools'—a paper "play language" that has worked in classrooms ranging from pre-k to college foreign language. Play lang-uage uses no scripts, stages, or expensive, time-consuming models. The use of paper allows ideas to morph into physical forms that quickly become part of classroom life and imagination.

Using play language is all about the opportunity to shift out of the old-school world into a world of unmatched power, richness, and receptivity in students.

The use of puppet media is also about productive thinking. Thinking sym-bolically for himself at age 16, Albert Einstein imagined what it would be like to ride on a beam of light. His do-it-yourself field trip led him to frame field theory and relativity. Seeing children and teachers routinely take trips like this through use of communicative puppet play, I began to see a practical 'symbolic language' in puppet play. Because of its extraordinary impact on teachers and children, play language reveals important insights into the nature of communication.

My path into play follows in the tradition of field biologists who have researched the communicative behavior of apes, ants, and bees, except in my case the focus on communication is sparked by children's response to art-based life forms that are unique to human communication—namely puppets.

What happens when you speak a language based on symbolic play? Why is play foundational?

the nature of communication

What Happens When Teachers Speak 'The Language of Play?

Play language is unique in its ability to help teachers and children learn from one another, grow, relate openly, to be self-confident and self-expressive. Speaking this language, a teacher can personally transform common learning barriers—oppo-sitional behavior, negative moods, defensive attitudes—into a windfall of leaning benefits and surprises. Children become more responsive and motivated. Teachers find themselves suddenly having fun, unable to wait for the next day.

Teachers who keep themselves and their emotions at arm's distance in the classroom are suddenly enthralled by the impact of puppets and their children's response to them. "This has been one of the most enjoyable first few weeks of school I can remember, wrote one teacher. The use of puppets in the classroom calls up in teachers and children something spiritual and

vital to a learning process struggling to rise above itself.

Following their coursework, teachers routinely reported observations in journal writing. Here are some sample comments:

I couldn't believe it. I saw a total change. The quiet ones talked to 'her' (the puppet). The autistic one opened up. The children produced work I didn't think they were capable of. I am absolutely amazed that a paper puppet could get this kind of response! They stayed totally on task. There were no discipline problems. My room was completely absorbed. I didn't have to work as hard. This is a gift! I see my kids now in a completely different way. I see the curriculum in a brand new way. It was like living a wonderful dream. I have used puppets for a number of years, but never really knew in what direction to go. You have given me many ideas and so have other members of the class. I don't think I have ever been so excited about anything in teaching before (and I have taught for more than 20 years). Watching the children's reactions is most exciting and besides I really feel I am being creative--something I never felt before. Thank you so much!

The reports reveal how using play-based media somehow transforms the teacher's view of teaching and learning. How it changes the way they perceive themselves-and the children. Teachers of sixth-graders, for example, cannot imagine their preteen students responding openly to puppets— the fact that they do respond reflects as much on their misperceptions as adults as on the innocence of their kids.

(Boys growing in rural areas, in particular, undergo a dramatic change in their feelings about hunting and killing) Puppets provide an avenue for kids and teacher alike to reveal themselves in moments where defenses fall away; where social problems posed and expressed by puppets can be seen-and filtered more effectively at some distance in this non-threatening 3rd party. Puppets alter the learning landscape from something hard and colorless to something extraordinary, warm, and engaging. The element of play suddenly displaces fear and instills a feeling of care and safety.

For a more in-depth grasp of what can happen when teachers speak the language of play, take a look at the teacher journals and the forums on the puppetools web site.

play science = puppet 'magic'

We recently began our pioneering brain-imaging project by asking 'What is the impact of puppet play on the brain? Why, specifically, puppet play? Because the hand puppet is a bio-logically adapted expression of human play. Perched on the hand, the puppet transmits energy on a 'fixed action', preset wavelength to which people of all ages—but especially the young—are innately tuned. Using imaging technology, our initial study showed play to dramatically boost blood and oxygen levels in the brain.

(The study was published in the Journal of Child Neurology, and is available on the site research page. Also, a poster of this study, exhibited at The Pediatric Academic Societies annual meeting in June 2002, is also available.

Why push puppets into the halls of science? Because the so-called 'magic' often ascribed to puppets is mistakenly attributed to the innocence and naiveté of young children. The 'magic' in the conversation, curiosity, and connectivity generated through the process of projected play is rooted in

the symbolic character of human thinking. Play behavior is a powerful brain integrator and a powerful people motivator. Play energy serves to prepare, warm, and integrate brain functions. For teachers of older children there is no established basis to expect such 'magic.' But when the magic happens in a middle school or college foreign language classroom, the conventional preconceptions about play fall away, and its real purpose and power are revealed.

the play principle is a paradigm for deep reform

The promise of play for education is revolutionary. Play alone has the power to free children and teachers from the grip of our test-manic, over-controlled learning culture. Freedom-seeking, self-directing, and politically empowering, play shifts the learning culture toward a healthy, self-expressive horizon.

As an evolutionary cornerstone, play embodies "a principle of learning upon which civilized systems of education depend." (Peyton, White Paper) In order for educators to fully grasp the implications of play, they must experience and experiment with it firsthand. Applied appropriately, tools of play transform the dynamic and catalytic core of the learning culture—namely, *communication.* When you change the nature of communication in the classroom, you, systemically speaking, change everything.

puppet art reinvented I

The ancient hand puppet has long been recognized as a symbol of play and more recently as a tool for learning. In a popular vein, puppets are widely recognized for their beneficial influence on learning and social development and have been shown to exert a powerful influence on children of all ages.
Puppet play opens a window into the brain and its playful, communicative workings. Inside puppet play are found the physical expression of neurological and evolutionary events foundational to human learning.

As satellites of consciousness, the doll, the expressive hand puppet, or the mouse connected to a computer work in tandem to the 'main body.' These attached and related entities represent aspects of ourselves that serve to reflect, to filter, to project, and to help us grasp the capacity of our nature and the nature of our ideas.

To the same extent that the structures within our brains have evolved in proximity to one another to invite the playful leaping back and forth of electrical energy between synapses, artifacts such as the hand puppet and the computer are just far enough away to allow a similar jump of impulses where things move, click, pop, leap back and forth and connect in a process that bootstraps and reinforces the development of memory and learning.

Puppet play is a form of spontaneous, species-typical behavior that induces predictable individual and group responses. It is similar to specialized behaviors in other life forms with which we share common neurological building blocks. Puppets are at once a scientific looking glass and a mirror complete with a handle by which we gain an objective picture of our subjective selves.

puppet art reinvented II

To paraphrase Harvard biologist, E.O. Wilson, in his Pulitzer Prize-winning, Consilience: The Unity of Knowledge), the common property of science and art is the transmission of information and insight. The most primal example of such agency can be found in the art and archetype of the hand puppet. The simple act of puppet play, in which a lifelike form or behaving entity is made to move and talk in the organically attached hand, can be viewed as one of the most powerful acts of human nature and a form of behavior that is

unique to human beings. With its likely origins in cave art and headdresses, the hand puppet evolved as an agent of pre-speech and symbolic thinking.

The spontaneous play and communication induced by a hand puppet is a non-closed, self-revealing act, a reflection of the brain's expansiveness; an expressive artifact of the brain's recognition system that operates selectively (as opposed to instructively).

The hand puppet is an art rooted in the brain's reciprocal, communicative character, a character composed of elements found in Art, Movement, Play, and The Hand.

Puppet Media as a System

While it is true that children play with all kinds of artifacts that are often made to talk, the focus here is on the development of a suitable medium that can be systematically applied in school settings and throughout the learning-communication infrastructure.

The puppetry-based system—'puppetools'--demonstrates that the common cultural conveyor we know as "paper" can be transformed into a visual, play-driven communication platform—a 'play language.'

The behavioral dynamics of puppet behavior are conveyed and promoted via a system that makes any idea visual to the eye and accessible to the hand.

In this view, the paper puppet becomes a part of speech in a limitless play-based learning language based on the human need to communicate through play.

From preschool to college foreign language classrooms, a simple paper language becomes a powerful, low-cost communication resource.

the nature of Communication I

The overlapping folds of a sheet of paper reveal dimensions in time, structural space, and the physics of mind. The paper world of Eric Demaine's computational origami at MIT unfolds into realms of robotics, the structure of proteins in the human DNA, and the nestling of air bags in automobiles.

In the paper puppet universe, the folding of the paper hinge leads to the creation of 'handheld symbolic artifacts', symbolic strings, auto-catalytic learning and self-organization, and to the frontier of learning in the brain.

In both instances, playing with paper media allows hand, brain, and tongue to shift scientists and students into regions of active and imaginative thinking. The nature of this communication model should serve as a metaphor for those waiting to see education make paradigmatic shifts to higher ground.

As the learning culture begins to place a value on process, productive thinking, problem-solving, and the reaching of *all* students, it will be play that produces the biggest bang for our educational buck.

If we want kids and teachers literally primed for teaching and learning, and open to the excitement of discovery and exploration as learners and communicators, they will need to consume the nutrients of play throughout their teaching and learning lifetimes in school and beyond.

A Map Unfolds to Reveal New Pathways (and a future) for Education

In a practical sense, brain science should be baseline knowledge in education practice and policy.

At the very least, an education field schooled and skilled in the art and knowledge of the human brain may eventually be motivated to transform its classrooms into thriving habitats in which communication and activity based on a working knowledge of the brain are routinely applied and studied.

Positioning such tools in teachers' hands is key to making the brain a primary and continuing focus of education. Teachers may never be paid as much as surgeons, but their potential to become skilled practitioners of brain process has implications for increasing the perceived value of the teaching arts and sciences, of teachers themselves, and the average salary that teachers are paid.

the nature of communication II

In view of the prominence of play among mammals and its civilizing influence in human evolution, it is curious that it has received so little attention in neurobehavioral research. In one handbook of experimental psychology, for example, the subject of play is dealt with in less than a page, and in a three-volume handbook of neurophysiology, there is no reference to play.

—Paul D. MacLean, Research Scientist Emeritus, Department of Neurophysiology, NIH.

Play and Communication

Paul MacLean wrote those words in the early 90s. Since then, neuroscience has opened its doors wide to play as a serious topic of study. But the conventional wisdom in education about play is that it is important but non-essential. Even when the AAP publishes a clinical report on the "Importance of Play," as a 'birthright, the learning culture remains closed.

While part of Puppetools' mission is to raise public involvement in play—its meaning, its power, and its ability to contribute significantly to the many levels of human endeavor—the primary mission is to demonstrate the extraordinary power of play as a learning and communication system.

As a brain-generated superconductor, play can be mainstreamed into educational settings by application of related tools, technology, and industrial initiative. By designing an intelligence system driven by the evolutionary imperatives embodied in play, appropriate forms and levels of communicative play can be directed into the learning culture.

In so doing, we begin to grasp the special nature of play and open the door to a full and integrated use of brain resources-including enhanced perceptions, sensitivities and mental literacy—and to a more enlightened education whose foundations are predicated upon the structures and physiology of the brain itself.

the nature of communication III

Play (the mental soil upon which great inventors and scientists establish their work) is the foundation of learning

Play has evolved to its highest expression in mammals as a specialized form of learning behavior. Play has been identified as a critical factor in socialization and child development. In an evolutionary sense, play is the wellspring of learning. In modern terms, play may be viewed as nature's most intelligent learning system.

Life and survival are synonymous with the ability to move. Play changes movement into meaning. Play gives Movement its ability to impart experience to the player. Play is movement refined and intentional. Play is movement transformed into patterns and reciprocity. Play is an invention and a gift from Nature to the

mammals. Mammals use play to teach the young how to become social, responsive, and open to learning.

From a human vantage point, nature gave the most important job to play. The river of play carries an endless flotilla of art and craft artifacts created by the human hand. That the river would one day deliver a representational form (a totem as well as a tool of self-reference) into the hand, with an innate tendency toward emulated movement, speech and articulation, should come as no surprise.

Play: *superconductor, synthesizer, synchronizer, nurturer*

Play, or refined movement, is a tool used to enhance the care, learning, and survival of mammalian young. Like the hand that is designed to feed nutrients and information back to the brain, play behavior refines the brain's role as a learning and evolving survival organism by triggering the body-mind chemistry and calling forth a full integration of brain-mind resources. For play is movement with higher purpose, well-defined patterns, warm and generative of emotion and reciprocity—activities that are instinctive and hard-wired in the limbic play-making sphere of the human brain. Without emotion, learning is mechanized and anemic in meaning. Cooked up in the brain, emotions breathe life and motivation to seek, to learn and connect, to envision and invent, to surprise and discover. It is playfulness and warmth that underlie and sustain the capacity for rational thought, that keep us childlike, sensitized, creative and primed to learn.

the nature of communication IV

Play is political. To play or not to play? That is the question. Playing or not playing has political consequences.

Play is our birthright. Yet, play is largely denied the young, especially in school. (In the extreme, violent people share a common history— they are play-deprived. Today, there are fewer children who gather spontaneously on playgrounds or engage in pick-up games of sport. We have become increasingly organized—and over controlled—in our play. Unless given internal or external permission, teachers so not readily play with students. Thanks to standardization, instead of teachers. we may be breeding fearful, repressed, party-line factory workers and bosses. Teachers may strike for higher pay, but there are no revolts against the testing and standardized learning that have rolled over their lives like a McCarthy- era juggernaut. Sadly, there are not enough teachers willing to organize and speak out against the state and federal regimes that own their souls.

The education field constitutes a formidable socializing force, and it sets the patterns for life in so many people. Our learning culture has more power than perhaps we realize. Only play has the power to unlock the mute, repressed voice that characterizes American education. To the extent that art evolves both tools and voice, communicative play is *the primary pathway* for internal permission. Whether it's the music of The Pianist experienced in a motion picture or the puppet art made and proliferated by teachers, art and play represent an irrepressible quality of mind, the dandelion poking its head through the concrete, a bright spot against the shadow. American Education, you know—and deserve—better.

Nature in "smart" communication V

We always talk about 'upgrading' technology hardware or software. But how do you upgrade the way teachers communicate with young people? What is a "smart" communication system, and what does it mean to install one in a school or classroom?

"Smart communication" may be defined as visual, dynamic, hands-on, playful, adaptable, manageable,

economical, easy and fun to implement. Results are practical, predictable, and consistent. Smart Communication is based on the integration of biologically driven elements that transform the linear and locked-in communication patterns, the content, and the behavior of old-school models into an open, dynamic, and imaginative dimension of shared communication, connectivity, and cooperation.

What Smart Communication Achieves and Signifies……

· Multiplies human resources with a virtual pool of team teachers, classroom visitors, and guest lecturers. (This sounds like wishful thinking—but is actually "smart," creative thinking.)

· Installs an idea-generator—a physical, tangible mindscape of interactive life forms, animate and inanimate, that enable learning settings to emulate the productive, creative, and responsive nature of the human brain—especially young brains..

· Adds new-and expands existing curriculum resources by equipping them with a communication component that's kinetic, active, and play-propelled.

· Establishes an in-house or system-based staff-development model that uses play-art media to foster staff teamwork and cohesion.

· Establishes a classroom model strong enough to give teachers the strategic advantage of stepping outside the flow of communication. Departing from teacher-dominated instruction means not having to pull and prod the kids along the "learning path."

· Given declining human resources, the incorporation of this communication capability into the instructional core means less spending and dependence on corporate materials, more energy for staff, more creativity in instruction, higher morale, less drag and staff turnover.

· Students typically resistant to lecturing and comprising a variety of learning styles and personalities are freed to process, articulate, and explore the who-what-when-where-and why of the material they are expected to learn.

Smart Communication facilitates higher order thinking and behavior, which are set in motion when tools are employed that stimulate and integrate brain processes.

It means that students typically resistant to lecturing and representing diverse learning styles and personalities are freed to process and articulate concepts and explore the who-what-when-where-and why of the curriculum-physically, interactively, and experientially.

Through the process of play, revolutionary elements break up the patterns of the old-school instruction model, and establish a new one.