

Puppetools e-Book:
A compilation from essays, white papers, and blogs
By Jeffrey L. Peyton

Riding the Big Bang of Play into 21st Century Education

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FOREWORD

At age 16 Albert Einstein is said to have imagined what it would be like to ride on a beam of light. He no doubt took many other such field trips in the playground of his mind. It may sound silly to mention the great scientist in the same breath that I mention mine, but all too often we ascribe god-like powers to icons at the same time we devalue and dismiss our own. For 35 years I have been on a field trip (one that the great scientist would have approved of), riding on an imagined—and engineered—vision of enlightenment for Education. If our teachers and our classrooms were inspired to inspire thinking like this, the world would become a much better, richer place. For one, kids would grow up happier and more empowered to appreciate the power of their brains. In fact, kids who learn early about the workings of their brains are much more motivated to use their brains [segment on this below].

With little time to write a book on the evolution of Puppetools and publishers not banging at my door, I am offering you this e-Book—, a compilation of essays, white papers, and blogs that I have written over the years. More will follow. Enjoy!

Scaling the Education Monolith I have been teaching teachers for more than thirty years on and off. I am not the most popular teacher educator on the circuit—I teach teachers how to be more like the kids they teach. I do this by showing them that playful communication—sparked by the use of ‘puppet language’—can make them very effective in reaching and motivating kids.

This is not an easy-sell. In a teach-and-test learning culture there is no room for such flight of fancy creativity. Teachers are curious about using puppets, but for a multitude of reasons they are not eager to pick one up to 'sugar-coat' a lesson in their classroom.

Their bosses would frown on it. Parents would raise their eyebrows, and many are just unwilling to risk their persona of authority.

In all shape and form, play has been banned from school. Historically, it never had much of a chance anyway. In a culture where control over teacher and child is paramount, play is a threat to the controller and to the self-censor. Hovering around teachers and children, the self-censor helps to keep the controller in control. In the learning culture, the least imaginative and self-expressive are in control of the most imaginative and self-expressive. Education in the Land of the Free has become a social-psychological prison posing as the certified place of learning and academics.

If you're a teacher who is big enough to agree with that view, you'll probably want to keep reading.

Of course, only idealistic fools seriously pursue change.

Why should anyone care if school has become rigid? Besides, what's the alternative? Life, the argument goes, has become complex, and the process of educating so many children requires discipline and a system that cannot bend to the individual child. In school, it is sink or swim, eat or be eaten. The test trumps all; and all, whether we like it or not, must pass the test or fail.

Thirty years teaching teachers about puppets and play is a long time. Why have I done this? Because my early encounters with teachers, kids, and puppet play led me to believe that our premises about conventional learning and teaching were not only wrong-headed, but also toxic and damaging to the minds of young people and to the adults who 'taught' them. I'm not alone in my thinking, but sometimes it feels that way.

Like Schliemann, the dreamer who believed he knew the underground location of Troy when professional archeologists laughed at his dreams, I believed that I had stumbled on an idea that could transform all that we knew about education—its philosophic foundations, practices, and benefits.

Obviously, I was either delusional or full of grandiose notions.

Something big had to have happened for me, a kid from Long Island with no advanced degree and several years of teaching in an urban high school, to think such grand thoughts—and indeed something did happen.

My early encounters were of ‘a third kind.’ As a puppeteer, I had watched children through a hole in my theater talking to my puppets, an experience that altered my mind and propelled me forward on a quest to eradicate the mundane nature of teaching.

Under a series grants in the early 70s, I showed teachers how to make very simple puppets out of paper and to use them—not as performance art—but as parts of a teaching language, as conversation pieces. I tinkered, took notes, acquired patents, collected teacher accounts, wrote, and built a web-based showcase. That work has evolved over the course of decades.

The bottom line: You simply cannot find a more powerful, more systemic antidote to the ills of institutional learning than in the behavioral effects of the hand puppet.

If the classroom had become a sterile box of disaffection, pressure, stress, and control, puppet-based play language communication could humanize everything.

If education reform was perceived as a complex, immovable rock of politics, polemics, and platitudes, then play-based communication could transform the rock, everything in the classroom—the people, the content, the culture—a comprehensive, overarching, systemic reversal of polarity, premise, and experience set in motion not by policy-makers and laws but from the inside out, starting inside each individual, as a playful act of nature.

If the classroom box had become a wasteland of de-natured cubicles outflanked by expensive tests, text and workbooks, and commercial resources that benefited publishers while robbing kids of their right to a sane learning culture, the use of play language cost nothing, empowered teacher communication and creativity, opened the windows to energy and excitement, invited nature into the room, and, I repeat, changed everything.

Last year, I took a giant step closer to becoming the Schliemann I had envisioned. I received an invitation from a Paris-based Organization for Economic Cooperation and Development, a huge consortium of over 100

nations, including the U.S., focused on the big-ticket issues of international economics, population, health, science, and education. The OECD has a brain-based learning Unit called the Center for Education Research and Innovation (CERI). Believing that I had invented a practical application of brain research, the OECD/ CERI asked me to speak at an annual symposium attended by brain scientists from all over the world studying cognition, emotions, and learning. They were recognizing my project, my research, and the unique pathway I had blazed that intersected with science and art.

But Schliemann made his mark because all the world knew of Troy, if not its actual location. My problem was that the 'buried city' I had discovered was unknown, invisible, and contained treasures of antiquity that merely revealed the biological foundation of learning which only one individual --I--had been searching for. Instead of a real but buried city to be unearthed, it was as if I had instead presented an Einstein-like Theory of Relativity that stretched the very boundaries of knowledge and awareness in education. In science, Einstein got the attention of the field even if it sparked controversy and disruption. In education, who cared? I had gone as deep into the center of the education world as any explorer or thinker could ever go—not just in the abstract but in practical reality. I had created cold fusion in the classroom. I had created a machine that could turn every teacher into a miracle worker. I had discovered a way into the hearts and minds of children, and made the way practical and economical.

I discovered an art form that was actually alive— literally an outgrowth of brain—unique to human play and communication (but similar to animal communication)—that revealed a unique pathway for reaching kids. I had reinvented this art into a language for practical application. I had used the language in brain research that confirmed the art's reputed impact. The art had been used in the classroom—not in vast numbers—but in the hands of enough teachers to have generated enough evidence that it was more powerful than any other medium or tool used in the classroom. I had documented that the art had a transformative effect on the three most change-resistant areas of education: communication, content, behavior.

But all that was in the realm of Education--a dense mass of bureaucracy, paper, credential, encased in academic thinking.. My work tried to seek its own level, but it was mired in obscurity, indifference, and ignorance. Writers, editors, producers did not speak my language, could not see what I had created. My story interested no one. Innovation, it seemed, was reserved for things tech, but not in

education. Entertainment and performers could struggle to be discovered, but in education talent in the hands of teachers did not register on the creativity scale.

How many pioneers in education were there? How many, tinkering with the likes of paper and glue, without an advanced degree, developed something that could get them invited to Europe to address brain scientists looking for new applications of brain research?

How many introduced a new theory of communication? How many had re-invented and harnessed a social and brain-based art, making it into a language?

How many developments in education carried the promise of turning conventionally prepared teachers into consummate communicators?

Education is a terrain that's nondescript, a pine barrens of mediocrity, bureaucracy, self-selective gurus that stroke folks in the yoke. How many pioneers have introduced a means of escape, a means of dissolving the bonds of boredom for both kids and teachers alike?

In a field averse—almost immune—to change, how many pioneers have introduced a vaccine that chemically dissolves the cultural calcification that has paralyzed the field of education almost from its inception?

In the history of education, when had anything like this been introduced?

Perhaps I had selected the wrong media. Puppetry is a marginalized art, good only for the very young, TV commercials, or the occasional cameo on a TV sit com. If you mentioned the P-Word, and weren't Sesame Street, you were inconsequential or only for toddlers. But I had proven them wrong in this as well: I had teachers using the medium in high school and college. The issue was not age-appropriateness; it was about the universality of play that people ignored and discounted. The best side of human nature, the brain's invention, 'the nicest thing that nature ever did for us' (MacLean) was banned or shunned by educators. Nowhere to be found on the radar screen.

But history is replete with the exploits of dreamers and searchers who prevailed in the end, if for no other reason than sheer doggedness. For better or worse, like the famous TV detective, Columbo, I am a fine example of vision and doggedness.

On the Arts and the Science of Puppet Play

In 1998 E.O. Wilson, the Pulitzer-prize winning naturalist at Harvard, brought the arts “out of the closet” in his book, *Consilience*. The arts and humanities, he declared, are among the most recent fruits of evolution—their biological role is communication, the transmission and agency of brain connectivity and growth. What does that mean? It means that Art is much more than art: art is the blade of human evolution. The arts are the cutting edge of learning and human communication.

Wilson said that the arts should be viewed as a natural science. Take, for example, the overtly playful, visual communicative and hand-connected medium of puppetry. In this view, puppet play—and the puppets themselves—qualify as duly recognized ‘agents of nature’. Now take the idea of puppets and the use of paper as a limitless resource for puppet concepts—and bang: you have Puppertools—a handheld language of ideas and concepts. A simple, economical system capable of mainstreaming arts-rich nutrients and elements into the culture of the classroom. Arts-integration? No. ‘Smarts integration.’ Otherwise known as applied brain science.

Hence, the communication agent between the Brain and Education is called— The Arts. But for so-called proponents of arts-in-education, this is truly the age of lip service. Before the Economy went south, schools would have the funds to host “just visiting” artists but rarely would they take the lead to “integrate” the work of artists into instruction in a practical way. Now it remains to be seen just how much creativity and enrichment there will be what with stimulus money pouring into state education coffers.

Puppet Art Recast as Language and Technology

In the digital age, the need has never been greater for teaching tools that are high-touch—that foster a bond between young and adult, emotive intelligence, creativity, freedom, and individuality. Tools that communicate, activate, articulate, and motivate are crucial—but rare. The smart, playful use of a single artifact can shift the mindset and energy in a classroom, and become a pivotal means of delivering the goods. Despite the education field's latest affair with testing and accountability, communication in the classroom continues to evolve into something more visual, interactive, and emotive. Increasingly, teachers must reach all kinds of learners in ways that:

- activate and employ the hands
- create powerful experiences for learners to help them articulate, express, and remember what they learn
- foster socialization and civic values
- employ upbeat and imaginative group dynamics; and
- build upon innate learning skills, propensities, and strengths

This is what you might call 'smarts integration'. That's smart communication.

Applying Brain Science

Factors of Evolution Revealed in Hand Puppet Behavior: The Temporal Act of Symbolic Art, Movement, the Hand, Play, and the Brain

By Jeffrey L. Peyton

Puppets are known to exert an extraordinary force upon children. Adults are also deeply affected by their gravitational pull when playing with or using them. The property of play is the primary element involved in the hand puppet's power. But there is more. The pet-like appearance, the 'little' voice and expressive movement signals safety, disarms, and elicits humor, expressiveness and articulation. The universality with which children embrace the puppet archetype is a reflection of its power to engage the full spectrum of brain resources. Possibly the most elemental art form, the hand puppet represents a bio-media made for communicating with children and reaching young minds of all ages. When an adult presents a puppet to a group of children or young adults, the best side of human nature and the full constellation of brain resources are called forth—attracting movement, surprising spontaneity, playfulness, imagination, communication, socialization—and a bond between the young and the adult. Higher order language and critical-symbolic thinking are primed by the inclusion and influence of the brain's "first mate", namely the human hand.

The evolutionary function of Art is to provide and transmit neuronal 'agency' (Wilson, Consilience). Thus, the art and archetype of the hand puppet—the simple act of puppet play engaged in by child and adult in which a lifelike form or behaving entity is made to move and talk—can be viewed as the consummate transmission utility expressed as a form of behavior that is species-specific (unique) to human beings. With its likely origins in cave art and headdresses, the hand puppet has evolved as a visual 'agent of nature'. Just as flowering plants gave us first-time blooms in the evolution of botanical life, the hand puppet once appeared like a bloom on the hand to replicate the constellation of elements that underlie its purposeful behavior: a relay station outside of—yet connected to the inner self, an ambassador of mind. The Hand Puppet opens a window into the brain and its mysterious, communicative workings.

The Hand

The job of the Hand is not only to lift and grab the milk out of the fridge. Like the magician skilled in the art of movement, illusion, and

play, the human hand put on a “r-evolutionary” show for the brain that provided its ‘higher education’. In evolution the Hand has led us to—and through—the architectures of gesturing, language, art, tools, speech, and culture. Because of the hand, we are able to think and speak as we do. Brain 3 owes its existence to the hand. The fact that puppet art is part and parcel of the hand—the dancer and the dance—is indicative of its pivotal role in representing the special agency between mind and hand. We would not be human were it not for the hand. In the words of E.O. Wilson, “The brain bears stages of 400 million years of trial and error, traceable by fossils, molecular homology in nearly unbroken sequence, from fish to amphibian to reptile to primitive mammal to our immediate primate forerunners. In the final step the brain was catapulted [Frank A. Wilson would say lifted by the hand; like a crane, the hand, and no other prime mover, brought the brain] to a radically new level equipped for language and culture.”

Play: (the mental soil upon which great inventors and scientists establish their work.)

As a fundamental element of life inherent in all forms of matter, play is at work in natural symmetry and random events throughout the universe. 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. It is also the mental soil upon which great inventors and scientists establish their work.

Nevertheless, the value of play is often overlooked and its effects are not seriously considered. In schools, students are barricaded from play as they ascend the grades. Even though research on play behavior relating to early childhood education fills the shelves of bookstores and academic libraries, a recent search of the literature reveals no research on the subject of adult-child play relationships. To the late Paul D. MacLean, Senior Research Scientist Emeritus, Department of Neurophysiology, National Institutes of Mental Health, the subject of play has proved similarly elusive in the field of brain science:

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.

Play changes movement into meaning. Play gave Movement its ability to impart experience to the player. Play is movement more 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.

Technology

To make the use of puppets a practical option for group learning and communication, the old, impractical model of cloth forms, scripts, and stages has been re-cast as an open-ended language of symbols and ideas. The patented web-based system effectively demonstrates that the common cultural conveyor we know as paper could be transformed into a visual, play-driven communication platform—a communication currency. Accordingly, a given hand puppet becomes a part of speech in a limitless learning language based on the universal drive to communicate through play. The behavioral dynamics of puppet behavior are extracted, re-formatted, and mainstreamed to serve as an operating system that renders any idea visual to the eye and accessible to the hand. Simple paper puppets become hand held ideas—a powerful, low-cost communication resource.

The merging of the puppet medium into the common classroom demonstrates its potential as soft technology capable of achieving a full integration of play energy into the learning infrastructure and emerging technologies. The successful application of play and paper opens the door to extended applications in common cultural carriers such as books and computers which also use paper. In 1995 Puppetools became the first education course offered online by The New School for Social Research in New York City, demonstrating that teachers could be trained online in the use of communicative play via computers; that humanizing technology solutions could be delivered by high technology. In 2008, the Puppetools web site was granted a patent for its capability to generate and distribute play energy into the hands of educators.

Summary

The world of brain science into which the hand puppet leads comprises a constellation of elements. These include the existence of movement, the

role of the hand, the force and energy of play—all relate to matters of human evolution, survival, learning, and self. There are ironies. One such irony is that the little hand puppet gives physical geography and substance to matters that are largely invisible and illusive, especially in matters relating to brain physiology and to the conduct and discourse of education.

Think about these concepts: Movement. Hand. Play. Brain. They are all ghosts. But through the hand puppet, these elements can be grasped. Another irony is that something so eccentric, usually associated with magic and fantasy, something so ignored and patronized, can appear at the leading edge of science—on the frontier of the mind. But then, again, something so small yet crucial to the growth of food as the little bee suggests that small and odd can be big and significant.

As a portal to brain science, puppet media cuts through its own myth and magic to bring people, particularly those who shape and implement education policy, face-to-face with irreducible principles of learning and evolution. That sounds like a tall, improbable order for a medium better known as a symbol of early childhood education and entertainment. But, as I will demonstrate, the medium of puppetry (not just because it sits out there on the hand not far from the head), appears to have evolved not merely as art but as a form of behavior designed by nature to help us call up the best side of human nature. In this way, the behavior of puppet play brings us more fully out of our selves to put us in more deeply in touch with our selves.

Working Definitions of Key Terms

Education

Education is a state of social and individual mindfulness rooted in play behavior. Aligned with play, education evolves in a thriving habitat in which human beings, like their mammalian forebears, feel safe to explore their nature and the aspects of the world at large, and to challenge themselves to grow and reach based on intrinsically (and appropriate extrinsically) defined values. Play, a form of behavior that has guided human exploration and discovery, is both a birthright of the young and the scientific basis of education.

Play

Play referred to is innate, higher order learning. Such play is largely unadulterated and uninhibited, and can be consciously, unconsciously, or semi-consciously engaged. Hence, play that is fragile, spontaneous and responsive, involving reciprocal patterns of movement, action, thought, or communication, and often accompanied by silliness, surprise, humor, or fun. This behavior may include word play, make-believe, private speech, improvisation, in-dwelling, day-dreaming, doodling, hand- or puppet play, or the uncensored manipulation or expression of ideas and imaginings. This order of play depends on a degree of feeling free and safe, and may or may not become subject to the more controlled and organized aspects of play associated with competition, electronic games, directed role-playing, formal theater, and the like.

Puppetools: New by Definition

* Puppet (pup' it) n. 1. A small figure of a person or animal, having joined parts animated from above by strings or wires, marionette. 2. A similar figure having a cloth body and hollow head, designed to be fitted over and manipulated by the hand. 3. A toy representing a human figure; doll. 4. One whose behavior is determined by the will of others. -adj. 1. Of or pertaining to puppets. 2. Sponsored and controlled by another or others while professing autonomy. [Middle English] popet, popette, small child, doll, from Old French poupette, diminutive of poupe, doll, from Vulgar Latin puppa, doll.

* Puppetools (pup' it tulz') n. 1. Of or pertaining to any handheld puppet-like image or symbol made of paper or similar sheet material. 2. A publishing tool, media, utility, or system that enables printed images or symbols to appear or function in puppet-like form in non-theatric contexts such as books and digital media. 3. A symbolic language of symbols and images used to facilitate interactive learning and communication. 4. Behavior. A puppet-like device used to stimulate, alter, or facilitate integrated brain activity. 5. A trademark for a patented publishing utility and associated process.

A Paradigm Shift

Just as graphical interfaces like "Windows" unlocked computers from straight lines of text, Puppetools transforms the world of ideas and communication. Puppetools is an emotive, interactive, social language that empowers shared learning experiences and transforms learning environments—along with the people who work in them. Puppetools has harnessed the universal energy and appeal of puppet play as a mass communication media. Puppetools opens a window on an Education future free from the dead weight and costly economics of print, and focused, instead, on the science of communication, connectivity, and motivation.

Classroom

Archaic term used to describe a space in which children are expected to sit, listen, behave, work at desks where testing of knowledge is conducted regularly. Speech, body movement, and socialization are kept to a minimum.

In a microchip world more invested in inventing the smallest communication gadget than in solving the greatest of human problems, we post-Jetsons anticipate the deeper migration of technology into the culture, creating 'smart' homes and 'smart' products. With the escalating rate of teen suicide fueled by the roiling pressures and poisons of a standardized, dysfunctional learning culture, education leaders should be asking an important question about the 'nature' of communication—where in our future is the 'smart' classroom?

At its core, the classroom can be defined by the physical and chemical properties of its communication. If the classroom is ever to become 'smart,' I propose that the energy of play directed into communication provides the key.

On the State of American Education

In matters scientific, we moderns, despite being informed and connected, remain clueless about the rich processes of mind that gave us the human world we have today—and of which more knowledge will be needed in order to save it.

Given today's mass populations of children requiring education, and the regressive policies of state and federal government enacted to "educate"

them, the question isn't what we can teach children, but what we can learn from them. How can we create a learning culture truly reflective of and responsive to the nature of children? In America, how can we fashion an education that exemplifies the unique qualities of our national character—our diversity, good will, innovation, and unbridled optimism?

The capacity for reinvention is the benchmark of human evolution. With the global challenges we face, how we cultivate learning becomes the signature of our future and our fate. If our survival as a human community depends on our intuition and imagination, then triage dictates that it is the failing health of the stepchild we call Education that demands our full, unflinching care and attention.

The institution of science itself is at risk when large numbers of the young, conditioned in schools that stifle individual voice and vision, bow to the dictates of the short answer and the end product. When the accomplishments of science repeatedly reflect boldness as well as receptivity in thinking and vision, why do we still cling to bone-dry academics as the Rosetta stone to decode the majesty of children's minds?

How can we continue to allow schools to fail nearly two-thirds of the children they serve, according to the latest national report card, while granting them the power to label the children they do not reach as "failures?" Why have we allowed the least imaginative among us to erect a system of learning that Houdini—let alone the coming generations—could not 'think himself out of'?

On the Nature of Knowledge and Information

Play Language is uniquely capable of reconfiguring the 'flat' nature of classroom communication. Play Language turns the rigid, artificial character of curriculum into living, interactive information. To implement reform in education, symbolic play language can be employed to introduce 'smart matter' into communication. With the main artery of communication targeted, the cells most resistant in the learning culture—content, communication, and behavior—can be reached systemically, and changed.

Harnessing play energy, the best attribute that nature has given to human communication, is the most efficient, economical, and immediate route to an enlightened future for education—and to the larger world of human discourse it ultimately shapes.

Einstein liked to tell people that he liked questions that 'only children ask'. Pointing to the presence of a hand puppet, only children ask "is that real?" proving that Einstein, even in subjective matters of human learning and communication, understood something profoundly childlike that brain scientists are only just beginning to appreciate: that art is a living conductor of evolution in human culture.

Thinking symbolically for himself at age 16, Einstein imagined what it would be like to ride on a beam of light. His do-it-yourself field trip led him eventually 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' potentially housed inside the puppet medium.

There is something alive and mesmerizing in the movement of puppet play. It is a phenomenon of communication whose charmed and magnetic properties are capable of passing through the dense walls of the education 'box'. Hand children the language of invention, and they will speak it. Hand it to teachers, and, seeing the young they teach as if for the very first time, they reach them equipped with new insight and knowledge. Peer with me into the mist—into the eyes of teachers and children freed and emboldened by the lightness of play—and behold a force could that can readily transform the learning culture in the same way electromagnetic force transformed modern life.

Hand-held representations of clouds, planets, seeds, raindrops, gears, ears, germs and flowers are but a few isolated symbolic life forms part of an infinite symbolic and communicative species. They may be described as morphic fields of information capable of fostering evolutionary changes in educational behavior, and appear to possess the physical forms of automata that rely on the mechanisms used by the real brain. Like the flowering plants that once spread across a monotone green earth, these forms, appropriately engineered, give rise to a multidimensional, integrated, ever-unfolding landscape for learning and discovery—the way the brain intended.

I have arrived at these conclusions not by academic exercise, but by gazing into a strange reality not unlike the mist Faraday gazed into. My path has followed 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 was sparked by art-based life forms that are unique to human communication, namely puppets—and by the response of children to them.

The irresistible attraction to puppets is perfectly acceptable to children, but usually not to the average adult. In general, adults perceive puppets casually as playthings, and even when they become highly visible, puppets are treated as entertainment, not as viable communication media. The love children of all ages show for puppets is intrinsic, universal, and unconditional—and why not? —the diminutive, hand-actuated lifelike form embodies and speaks to the symbolic nature of the child's mind.

More organic than any other art form, the hand puppet qualifies as art that, in the words of Harvard scientist E.O. Wilson, serves as 'an agent of nature.' Communicative puppet art incorporates projected play—meaning play, unlike sport, that elicits spontaneity, surprise, and insight. Playfulness in this sense is perhaps the most important refinement of brain evolution—the soil in which great inventors and scientists establish their work. Play in this sense fosters relatedness and connectivity, especially in the young.

The hand puppet is a descendant of symbolic, intuitive thinking—the stuff of myth and dreams. Although it predates spoken language, symbolic thought is the basis of the oral storytelling tradition universal to human culture.

By contrast, conventional 'book thinking' and mass interest in reading only recently peaked in the modern world on waves begun by Gutenberg's printing press 500 years ago. To academic literalists, symbolic thinking is less intelligent than book thinking, but ironically powerful media monopolies exploit symbolic thinking in their movies, animation, and advertising with pervasive influence on global culture. TV in its McLuhanesque way bathes our culture in visual and symbolic light. Computers liberate text and images, and allow communication to be moved and manipulated.

In contrast, the impact of a handheld paper media on the classroom is all about changing the nature of communication. In classrooms ranging from early childhood college foreign language, puppet play escapes its juvenile limitations. Physically grasped in hand, ideas become concrete and personal.

In the gesturing, tool-making hand, speech and language evolved. By directing play into hand and symbol, their rightful roles in the human drama are revealed, classroom experience flows, children articulate,

fear of participation dissipates, and communication moves freely and playfully in step with the universe.

The promise of a system of education based on the knowledge of the brain is not more academic facts and the gigabyte capacity to retain them. It is, rather, the heightened understanding of our instinctive resources for learning upon which our learning systems can be reformed.

It is not the subject matter that "teaches" us the right knowledge; rather, it is discovery revealed through our grasp of experiences and the human relationships we share. By erecting an education grounded upon the best attributes of human nature, new pathways of awareness and sensibilities will open to a human future vastly more healthy and productive in mind.

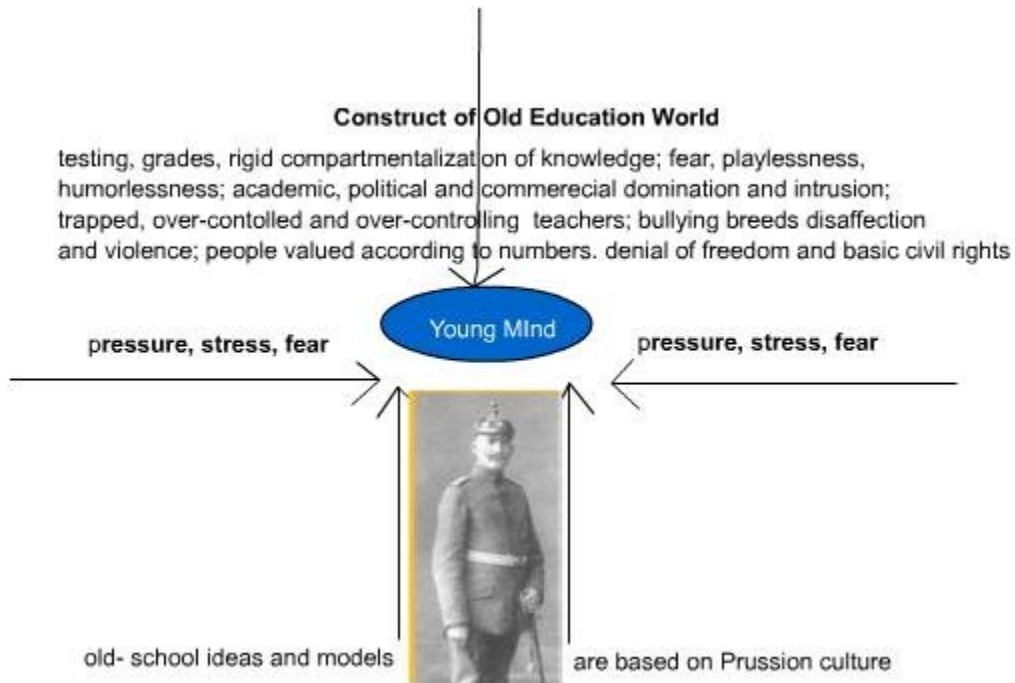
Play Tectonics

The world of Education-public and private- was not the original "world of learning."

Did you ever wonder what the world of education was like before the Education Monopoly— before the classrooms, the textbooks, and the culture of control evolved?

Read this account of [colonial education](#) by John Taylor Gatto in which George Washington's education is described. (Gatto is a former New York City Teacher of the Year and a leader in education reform.) How did the Education Monopoly evolve? Read this [short history of education](#) by John Taylor Gatto.

The image below shows the basic geologic structure of the old-school Education Monopoly.



This is not an indictment of public education. (Private education employs the same model.) It is an indictment of the historical, political and business monopoly that has control and compliance at the heart of its purpose. It is a purpose shaped by Prussian origins, formed mainly by adults, for adults, and of adults to the great detriment of children and families and teachers who love to work with children.

In education, the presence of testing has grown into a specter that overshadows and dominates the learning culture, creating stress, competition, failure, fear, and mechanized instruction that teaches to the test. At best, the system is misguided and heavy-handed. At worst, it operates in violation of the civil rights of children, parents, and teachers.

Einstein Knew

In the above referenced article, John Gatto takes us back to the time of George Washington when the learning culture, albeit imperfect, was free. Now let's jump ahead to Christmas Day, 1917, in Germany where the roots of our system of education had already spread. Interestingly enough, a young German scientist by the name of Albert Einstein, who has made a name for himself, takes advantage of his celebrity to speak out against the very system of education that America has begun to emulate.

Many parents and educators often seize on Einstein as an example of the academically 'gifted'. The following account of his education is proof of how wrong-headed and blind are these advocates of high standards and testing, and how hypocritical they are to link the brilliance of the great scientist with their authoritarian demands for academic excellence and performance.

Einstein's personal interest in education was the subject of his very first public statement to a large audience on a nonscientific subject. In the middle of World War I, he wrote an emotional appeal to German to stop forcing children to take the difficult final exam required for high school graduation.

Entitled "The Nightmare," the article appeared on Christmas Day 1917 in one of the largest newspapers in Germany...He attacks the examination on two grounds:

- 1) it is useless for the pupil, and
- 2) that it is even harmful.

It is useless because a teacher can judge a pupil's maturity and ability much better over the extended period of time that he or she has instructed the student than on the basis of a final examination for which the student prepared only quickly. It is harmful for two reasons: a) the student is afraid of taking the examination because his future depends on it, and b) the effort involved in committing to memory a large body of material can considerably damage the health of the pupil and often leads to nightmares later in life.

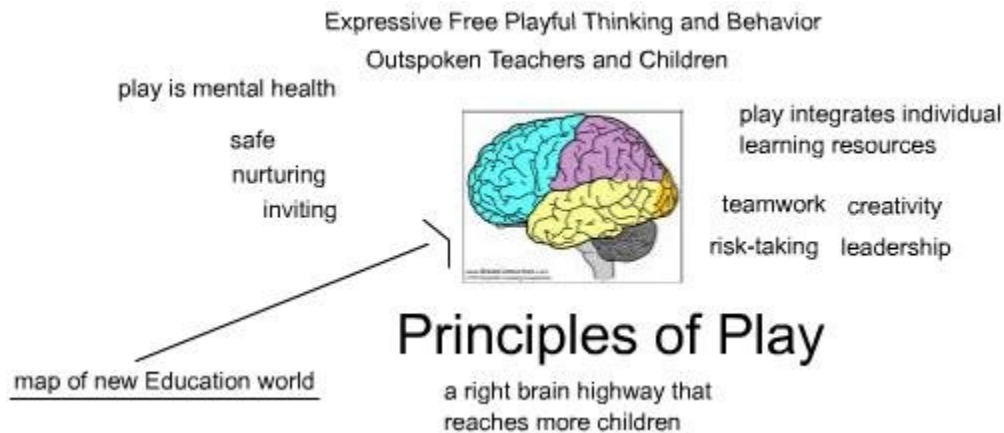
The second aspect lies in the fact that the level of instruction sinks markedly in the last years of a pupil's schooling. As teachers concentrate less on the subject matter and more on impressing others with the brilliance of their pupils, to rely more and more on external drill than on the pursuit of knowledge for its own sake.

Einstein concludes his article by pleading: "For these reasons, away with the final examination!" To his mind, such drill-and-grill procedures destroy a pupil's curiosity and sense of individuality, the most precious gifts that an education can and should nurture and reinforce.

—from Robert Schulman in Dear Professor Einstein (Einstein's Letters to and from Children)

A New Epoch in Education is On the Horizon.

New shapes define the land; new, vital elements show through cracks in the rock. Below is the projected shape of this new world.



The emerging physical and theoretical foundations of this new world rest on the bedrock of play. How do we know this? For starters, like tectonic plates, the parts are alive and moving. Play, the behavior that has given humans the ability to survive, adapt, and innovate, is a product of evolution's most complex organ—the human brain—the ultimate learning organ.

"Play is the nicest thing nature ever did for us," Paul MacLean once remarked to me. (MacLean, a founding father of modern neuroscience, is Senior Research Scientist, Emeritus, Department of Neurophysiology at the National Institutes of Mental Health.)

In brain science, we explore learning behaviors deeply embedded in the architecture of life: learning is present in the way cells move, hang together, and communicate; learning is more apparent in the way all animals communicate, in the biological invention of mammalian play, and in the way the hand has shaped human speech and culture.

Through play adults learn to relate to the young. Through play adults learn about the nature of learning. Predictably, in the same way that educators dismiss the use of play media and techniques as inappropriate for anything but early childhood, many education leaders will dismiss the relevance of brain science as 'too theoretical' for the classroom'.

Old-school Education Monopoly educators fail to recognize that in dealing with learning, they are actually dealing with the needs and requirements of the brain-not subject matter.

Learning in step with the brain involves the emotions, the hand, the visual, and use of the symbolic elements in thinking and communicating. When all of these factors are called up in the classroom in a playful manner, communication is enriched and experience is heightened. Nerve endings are stimulated and reciprocating. A state is achieved that is fully differentiated from baseline functioning—which is what play is—a completely 'engrossed' state of mind.

Play language is exceptionally and uniquely powerful because, based in an art and media form attached to the hand and working in proximity to the mind, it serves as an agent of the brain and an ambassador of self and a friend of learning.

On Belief Systems: (In a sense, what school is)

Unlike Peter's plea to us to believe in Tinker Bell, or the Christmas Bell in *The Polar Express* that only the boy can hear, or 'Wilson', the volleyball totem in *Cast Away* 'who' plays a key role in survival and selfhood—the story I have to tell begins in fantasy behind a puppet theater, with the puppeteer peering through a hole in the fabric as he watches children responding with love and affection to his puppets, and ends in the realm of brain science with a real and yet 'unbelievable'

impact on the classroom, on teachers, on children, and the future of human learning.

Engineering Education Through Play: Why, How, and Now

Play derives from our ability—and indeed the ability of all living things—to move. Play is simply movement more refined.

- Play is inherent in the movement and balance of the cosmos.
- Play is the glue for cell connectivity
- Play is the springboard for animals learning to survive
- Play is the superconductor for cognition and higher order learning
- Play pumps the pulse of warmth > emotion > > exploration > innovation > socialization > motivation > in the course of learning
- Play is the brain fully engaged; mental health fully expressed.
- Play is the path to a free and open society
- Play was the first thing that the Taliban banned.
- Play turns classrooms from inert spaces into thriving habitats.

How do we move play appropriately into the conventional education body? The choice artery is through human communication. The primary device—symbolic artifacts and media reinvented, namely a play language that carries play energy.

By harnessing play energy in the form of symbolic media, play enters the traditional classroom in a way that systemically alters communication, behavior, and content.

EVERYTHING TALKS AND EVERYTHING CHANGES in classrooms immersed in Play.

The current education culture can not by itself promote change, but by introducing the evolutionary elements embodied in play, deep reform in systems, classrooms, curricula, people throughout the culture becomes possible.

On Puppet- or Play-Based Media

The Limbic System makes us "Human." Without the Limbic system, we humans would be emotionless, heartless, machine-like. This is the part of our brain that reflects upon itself; that creates consciousness and identity. This is the mind that created the fertility symbol, the doll, the puppet. This is the mind that invented play and makes mammals unique to life. The Doll represents care and nurturing. The sculptor of The

Statue of Liberty would leave it to a female symbol to serve as a beacon of Freedom and Protection.

HAND PUPPET BEHAVIOR/ (Brain Link with Limbic System)

- Generates Warmth, Humor, Vivacity, Energy
- Communicates Feelings
- Promotes Self-Identity
- Facilitates Large Group Management
- Builds Relationships/ (Human, Conceptual, Curriculum)
- Connects Inner Self to Outer World
- (Experience/ Subject/ Bonding)
- Objectifies Ideas and Information (Gets A Handle on Ideas)
- Promotes Oral Expressiveness
- Removes Emotional Walls (Bonding & Play)

The Brain's Subjective computer (Limbic Lobe) enhances the functioning of the Brain's Objective Computer (the neomammalian formation). The performance of academic tricks (schooling) comes easier when the Limbic system is fully engaged. By engaging the Limbic system, puppet behavior helps the young develop an experiential memory, helps motivate children to complete tasks (like homework), and helps kids learn complex concepts such as a chart of local government structure. The most complex task of the brain is speech. Puppets open the door to a healthy flow of speech and speech-related activity.

[Einstein's method though based on a profound knowledge of physics, "was essentially aesthetic and intuitive. Watching him, and talking with him, I came to understand the nature of science in a way that I could not have possibly understood it merely from reading his writings or the writings of other great physicists or of philosophers and historians of science. Except for the fact that he was the greatest physicist since Newton, one might almost say that he was not so much as a scientist as an artist of science.

—Banesh Hoffman]

Most people point to the great balloon of neocortex as the seat of human intellect. But, seen as a computer or a form of natural media, the brain is actually three interconnected biological computers, with each having its own special intelligence, subjectivity, sense of time and space, memory, motor, and other functions.

The Reptilian formation may dominate our feelings and perceptions about people who are different from us. In this regard, puppets should be used to help the young familiarize and internalize the nature of "different people." Racism may have a neurological base in protective animal behavior. We must use tools that can facilitate switches in polarity in this brain region.

Animals can be induced not to play or be deprived of a need to play. Before man emerged on the scene, animals were playing; play is behavior programmed into the core of the limbic cortex of the brain, thus setting the stage for the evolution in human beings of vocalization, handedness, nurturing, advanced forms of play. Play nourishes the more cerebral activities and behaviors associated with the more recent neocortex. (Eg. You can't have memory without experience or identity.)

"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

According to Maclean, the roots of education are in nursing, not words. Yet we continue to rely on words. We need a language that enhances the interreaction between the three brain formations. One of fundamental guideposts offered by brain science should be to establish the optimum conditions for this interaction to occur. With that foundation, everything else will fall into place. Without it, we continue to fail.

MacLean shows us that the secrets and knowledge derived from the form and content of brain biology may be a positive destiny. The evolutionary inventions of the egg, placental birth, nursing, vocalization, language and the written word have allowed us to evolve a memory of the future—a foundation on which we pursue our human destiny via emerging tools and technology. By grasping the essential order, function, needs, and requirements of the one apparatus that has made us what we are—namely the human brain—we have the capacity to control and refine what, in an enlightened future, we can yet become.

On Media, Music, and Learning Culture

Any serious discussion about education must focus on media and information. The unrelenting effort of our schools to teach alphabet literacy is all about its incomplete perception of media and information. Like fish immersed in water, a closer look at the substance we happen to swim in is called for.

Education does not so much shape and mold us as it is shaped and molded by invisible forces of competing and conflicting media that surround and define it.

In the reciprocity inherent in play behavior reside the dynamic underpinnings of information and intelligent systems. Play gives form and pattern to information and represents a way of delivering play energy. Expanding the use of play media and language is crucial to the advancement of learning and emotional intelligence in our society.

Our lock-stepped and politicized system of education will perhaps shape the nature of our republic in the years to come. We are at a crossroads where either the leveling, democratic, visual impact of technology and the web will bring change—or the heavy-handed, state-run, corporate-fed learning systems will overrun our teachers and children.

Three hundred years after the invention of the piano-forte, the Smithsonian recently celebrated the piano. The piano-forte offered new possibilities for the playing and experiencing of music. But it took 250 of those years before jazz would alter that experience and playing with a musical core that was purely playful and spontaneous. In terms of innovation, Jazz is not only a legacy but a door to the future. Jazz is a shaping and sensitizing medium. Jazz communicates values that are purely selective and self-organized and that, among other things, have helped our society to transcend the roots and walls of racism. Similarly, Puppetools is a re-invention of the ancient puppet art—formal, traditional and scripted—moved into the established arena of education. Applying principles of Jazz, childlike playfulness, improvisation, and spontaneity, Puppetools draws the process of teaching into the art of communicating—that is, into something teaching was always meant to be.

The hand puppet represents one of the most powerful learning media and yet it is not generally used. In an effort to promote awareness of the medium I have pursued the notion that not only should puppet media be seriously considered as a research subject; but that it is a

vanguard media intended for full unfolding of human potential, a humanizing medium that truly reinforces, validates, and promotes the best of human traits and capacities. Its operation and application represents a giant step away from reliance on strictly verbal communication and a shift into a visual, emotive, interactive way of communicating and problem-solving. In terms of its operating characteristics and the host of positive behaviors it induces, the hand puppet qualifies as a unique brain media and brain language.

While this singular body of research will not in itself support this proposition, it is likely that a reading of many of the current books about brain science and complexity will reveal a pattern of insight and information that offer a developing picture of puppet behavior as a lens through which to observe and experience learning-- the way the brain intended.

Education is a complex thing—possibly the most complex of human endeavors. Why do we attempt to solve the problems of society's most complex challenge—a challenge involving the most vulnerable yet most creative members of our society—with reforms that are inherently repressive, pressured, mean spirited, unfair, and unimaginative?

The Classical Roots of Play

How far down into the earth do the roots of play extend? Let's see, the first enlightened pronouncement on play came from Playto (sorry, that's **Plato**) in the Republic c. 300 BC. Even ancient Greece had sense enough to know that bullying, stress, and learning by force was a very bad idea; especially in a society that valued freedom.

What follows is taken from the first page of the TPRS training manual for teachers:

From TPRS in a year!

INTRODUCTION

This text has been developed for teachers who wish to sharpen their skills in teaching with TPRS –Teaching Proficiency Through Reading and Storytelling®.

TPRS requires work. It requires an emotional as well as an intellectual commitment. Breaking old habits is never easy. It takes courage. Yet the rewards for those who make the effort are considerable. Teaching well with TPRS makes teaching the rewarding experience is meant to be.

TPRS brings a sense of play into the classroom. Chris Mercogliano, writing in "paths of

Learning" (Issue # 17, p. 12, 2004) states that there is considerable evidence for "a classical link between education and play." He points out that the ancient Greek words education/ culture (paideia), play (paidia), and children (paides) all have the same root.

Chris asks us to consider the following remarkable conversation in Plato's Republic between Socrates and Plato's brother, Glaucon.

"Well, then," Socrates begins, "the study of calculation and geometry, and all the preparatory education required for dialectic, must be put before them as children and the instruction must not be given the aspect of compulsion to learn."

"Why not?" asks Glaucon?

"Because free men ought not to learn any study slavishly. Forced labors performed by the body don't make the body any worse, but no forced study abides in the soul."

"True."

"Therefore the best of men, don't use force in training the children in the subjects, but rather play. In that way you can better discern toward what each is naturally directed."

Some teachers don't see themselves as playful. Yet TPRS is so strong and supple that it easily accommodates individual teacher preferences. It can be adapted to anyone and anything, even the textbook. The waters of TPRS are so deep that individuals will always "land the fish" they want. When applied to traditional methods, TPRS always strengthens them.

The ideas herein represent TPRS as perceived by the author. They are not intended to be exhaustive. Yet every effort was made to articulate and stay within the currently accepted TPRS ideas at the time of this writing (2007). The goal of this book is to help get TPRS working as fast as possible for anyone new to the method.

Ok, so let's ask this question. If we're so advanced in our thinking here in America in the year 2007, why on earth do we herd kids mindlessly in lockstep. I mean if Plato can decipher the code and see the common thread linking Children, Play, and Learning--not just for early childhood but for "the study of calculation and geometry, and all the preparatory education required for dialectic," then why are we in the academic gulag construction business?

How did Plato arrive at this conclusion? Perhaps control of children was not important in Greek culture. Maybe the Greeks truly cherished Freedom.

It is so clear now that our brains do not respond well to coercion, but we seem to be paralyzed, unable to break through.

Fortunately, play still pokes its head through the walls we have built, that is, when we are not trying to organize and control it.

Soon we will see more of play entering classrooms, and when that begins to happen, the political and cultural chokehold we have brought upon ourselves will be broken.

Thanks to member Gary Lee Shafer for sending the above passage to our attention. And thanks to TPRS.

Understanding that kids' minds thrive on play--that play provides the glue for learning--has far-reaching political and social implications. This means that pathways must be found that reach kids' minds rather than teach kids' minds. It means that the culture must be opened to give teachers and kids the power to share in the building of relationships and a kind of working knowledge they come to embrace and own so that knowledge ultimately does not come to own them (Think: Testing).

If we agree that knowledge is power, then our systems of education must learn to use knowledge not as an academic obstacle course or a gateway to success for specific children, but as a vehicle that engages the mind, body, and spirit of every child. Every child loves to play. Play is the right and proper place to start in education because the evolutionary purpose of play (insofar as the young are concerned) is to engage the mind, body, and spirit of the child. If education can re-establish itself on the pathway of play, it will be on its way to helping kids to become self-starting and self-propelled contributors to society and the planet. Start from the pure joy and power that resides instinctively in children, and you can't go wrong.

This is the age of mass media. (Preface to the Teacher Journals. Access the journals on the Puppetools web site.)

The experiences described in these teacher journals reveal a remarkable degree of predictability given the playful and art-driven communication that is their focus. The communicative play induced by a paper form may be likened to solar energy, energy derived from the physiology of cognition and emotion. The consistency of experience recorded here underscores Puppetools' success in transforming an ancient art into a

compelling communication platform for educators at all levels. The journals provide insight into, and confirm, the overnight transformation that puppetry-based play language brings to the classroom and to teachers largely unfamiliar with the medium. They reveal what happens when teachers risk and respond to new possibilities. These journals open a window on the outset of a new principle at work in the classroom. This is only just the beginning. Finally, the teacher journals validate a basic conviction that underlies the invention of Puppetools: that career-sustaining creativity is not the domain of a few teaching talents, but is within reach of the gifted many.

Origins

A participant-observer behind a puppet theater, I am working the puppets and at the same time I am watching the kids. They are going nuts. They are like spring peepers chirping with joy, talking to me through the puppets in my hands that are talking to them and asking them questions. It is 1973. Creativity is "in." Earth Day is a newborn. An ecology ethic is in the air.

Like lightning rods, the puppets attract children's light and energy, at the same time reciprocating qualities on a wavelength that both parties seem innately programmed for: love, laughter, spontaneity, inhibition, and joyfulness. The puppets seem to do something that alters the usual flow of communication. The teachers, some not even cracking a smile, sit stiffly amidst the pandemonium, exempt, separated, taking advantage of the situation to plug out—the kids are so involved that they don't need minding.

The above snapshot of a puppet show in suspended animation suggests an extreme condition of a problem not so readily apparent in other settings, like classrooms, shared by adults and children; the problem of a fundamental disconnect: kids seeing something and behaving one way on one side of an imaginary wall; teachers—adults—not seeing something and behaving another way on the other side of the wall—while both take up space in which both supposedly share a relationship.

Decades later an article appearing improbably in *Scientific American* ("Why Children Talk to Themselves," by Laura E. Berk) would identify a critical link between play and learning in adult-child communication. Exploring the phenomenon of private speech behavior in children, Berk

would confirm the depth of the disconnect by disclosing that "a search of the literature reveals no research on the subject of adult-child play relationships."

A lack of research on adult-child play relationships? How, with play commonly viewed as a broad, perennial focus of research in early childhood education, could this possibly be? And why? Did this mean that there was a basic piece of architecture missing in the way adults communicated with children? The way we built our schooling? Was there something significant—transparent—that we were not paying attention to? Was there a region of learning and communication that existed but had not yet been explored or discovered?

Through the 1970s well into the 1990s my workshops routinely had teachers make their own puppets and explore ways to integrate them into their classrooms. A month or two later, in "Part 2" of the workshops, teachers returned from the field with oral reports and journalistic accounts of their experiences. This, in effect, represented a sampling albeit a sustained body of anecdotal research focusing on adult-play relationships that Berk said was lacking. In the close quarters of typical classrooms, teachers in settings ranging from pre-K through high school were asked to work their puppets into their teaching. In my work with teachers, the disconnect, again, could be seen in the hung-jaw amazement that many fifth and sixth-grade teachers often expressed in their journals after watching their students readily and happily respond to the puppets they introduced.

Consistently and predictably, the classroom events unfolded. Teachers, some scared and nervous at first that they would fail, screw up, or be laughed out of the classroom, would somehow engage the class. More often, the lesson-planned 'scripts' or dialogs they had prepared would be dropped suddenly when one student, and then others joining in, would ask the puppet an innocent question such as, "What's your name?" This innocent response often displayed by students would catch the teacher off-guard and pull him or her away from a controlling, preconceived script into natural, spontaneous puppet conversation. I always encouraged teachers not to use scripts or a theater, but I could have saved my breath—because the kids would always come up with ways to show their teachers why such prostheses were unnecessary. The puppets were simple creations built on a paper hinge, and were used more like a rod or baton to conduct the flow of conversation. Despite the fact that the teachers were not hidden behind a theater, the group would engage with the puppet, focus on the puppet, and believe in the puppet so unconditionally that it would provide a basis for

motivation in the children to work in class, to work at home, to want to please the puppet.

The teachers routinely reported observations that began to sound like UFO sightings: 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 in a completely different 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 children were mesmerized. This has been one of the most enjoyable first few weeks of school I can remember. Some teachers were not as effusive in their reporting, but it was clear that the level of productivity, receptivity, and expressiveness in their classrooms would increase dramatically after the medium had been introduced. This experience constituted the research that Berk claimed did not exist: I was in effect running the laboratory.

The following material represents an attempt to pull together and make sense of a body of knowledge I have culled between 1990 and the present. Clearly there is something extraordinary going on with puppets, and I have made it a life work to get as close as possible to the bottom of it. This quest luckily coincides with the exploding field of brain science. I am proud to report that I can count myself among the participants at the moment of creation when education entered the science of mind. In 1988 I attended the first Brain/Mind Conferences held at George Mason University in Virginia.

Among the speakers at this conference were Howard Gardner, Mihaly Csikszentmihalyi, and Paul D. MacLean (The Triune Brain in Evolution) whose comments on play behavior struck a deeply resonant and enduring chord, for Paul has become a good and faithful friend of my work. My subsequent friendship with Frank A. Wilson, author of *The Hand: How Its Use Shapes the Brain, Language, and Human Culture*, as well as recent books and research in brain science have provided me with the ammunition to make and stake the following claim: The hand puppet is a medium of learning and communication that has

evolved not unlike some highly specialized apparatuses and appendage-induced behaviors found on and in use by other living things.

For example: The tongue on the snapping turtle that looks like a worm to passing fish or the dance of the bee 'put on' for other bees to communicate the location of food. In the same way that the developing embryo of Homo sapiens appears to pass through physical stages of other previous life forms, the fully developed human brain incorporates the hindbrain or the 'Reptilian Brain', which houses a fully developed set of programmed symbolic behaviors. The schooling instinct of fish is a product of the reptilian formation. The hair on a cat, used to enlarge its form as a defense mechanism, is an appendage-like behavior incorporated into the cat's behavioral repertoire so as to be symbolically employed in social communication. (To digress, let's carry the example of the cat even further by having it walk into the classroom and capture, like Mary's famous lamb, a windfall of love and attention). Mammalian puppetry at work is the language of strategy 'spoken' by the tails of the wild dogs of Africa which move, above the high grass and the chaos of the hunt, to stimulate peripheral vision and update the location of the prey.

Consequently, within us there are a number of motor behaviors and communication forms that originate in the reptilian brain formation. It is because of the Reptilian brain, in particular, that the hand puppet, in the eyes of a child or an adult, works as a kind of "flag" or "totem," a form of nonverbal display or communication.

A species is a group of animals that has acquired the perfect ability to imitate themselves—in appearance, behavior, or communication. The human activity that re-invents human as well as other life forms and behavior into the smaller puppet is a form of self-mimicry and self-imitation. When a teacher slips a puppet on, the little form generates conspecific recognition—or group identification. In this sense, puppets represent a form of social communication specific to human play, adaptable and favoring group communication. Nonverbal bodily messages used to convey non-threatening behavior useful to an animal's survival strategy are known as Submissive Display. A teacher using a hand puppet in front of a classroom of children may be perceived as using 'submissive display', a way of "Acting small" which confers on an adult-sized teacher working with a group of children a key to passing into the kingdom. As a similar bodily-connected tool, the hand puppet takes on a myriad of functions and serves a multitude of

purposes that are as complex and miraculous as the human nervous system it has evolved to serve.

Coming soon

- Make Music & Dance (RE-post under another heading such as Is the an Alternative Dimension we are missing?)
- An Education Declaration and Bill of Rights
- Wake Up Call
- Scaling the Monolith
- Playing for Keeps Jazz