PI | Phonemic Intelligence℠

INNOVATION IN EDUCATIONAL AND BEHAVIORAL TECHNOLOGY

Phonemic Intelligence (PI) is an innovative educational technology that addresses learning as well as behavioral problems commonly found in schools across the globe. PI is a brain competency enrichment program that uses selected phonemic sounds to activate key parts of the brain for learning. Intelligence, generally speaking, is multifaceted and includes intellectual, emotional and social intelligence. PI covers all these areas and PI students have demonstrated a significant, and often dramatic improvement in academic performance, interest in learning and harmonious classroom behavior. A major impact of PI is in the social and behavioral domain of awakening love, empathy and compassion among students. Besides being self-fulfilled, practitioners of PI demonstrate greater social responsibility towards their family members and community.

DEFINING PHONEMIC INTELLIGENCE

Phonemic Intelligence (PI) is formed of two words: phoneme and intelligence.

PHONEME

"Phoneme can be defined as the smallest unit in a language that is capable of conveying a change in meaning, as the "m" of "mat" and "b" of "bat" (see Free English Dictionary). **In general, phonemes are vowels and consonants with specific pronunciation.**

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INTELLIGENCE

Intelligence means broadly- "understanding", "knowledge", "learning", "knowing" or " meaning".

Phonemic Intelligence thus means (experiencing) distinct sounds and the intelligence embedded in those sounds - such an experience is critical because of the sounds' ability to awaken the dormant areas of the brain. The phonemes (sounds) used in PI are applicable for all age groups and have been selected for improving both academic performance, as well as personal and social behavior.

THE HISTORY OF PHONEMIC INTELLIGENCE

Phonemic Intelligence began as Mind-Sound Technology in 2000. Founded by Baskaran Pillai, PhD, the technique evolved into Phonemic Intelligence after informal practice with individuals, then formal implementation through Dr. Pillai's non-profit organization, Tripura Foundation.

Phonemic Intelligence was first taught at Tripura Foundation's Boystown and Girlstown programs in Tamil Nadu, India. These children were profoundly disadvantaged economically, socially and nutritionally. PI programs empowered many of these children to go on to college and earn baccalaureate degrees in engineering and the arts. Later, after-school HoPE Learning Centers were started to teach Phonemic Intelligence on a larger stage. Tripura Foundation now has more than 100 HoPE Learning Centers in India with 4,040 students. In 2013, Tripura launched Phonemic Intelligence school programs in the USA, Mexico and India. To date, we have trained and supported 30,000 students in the PI program.

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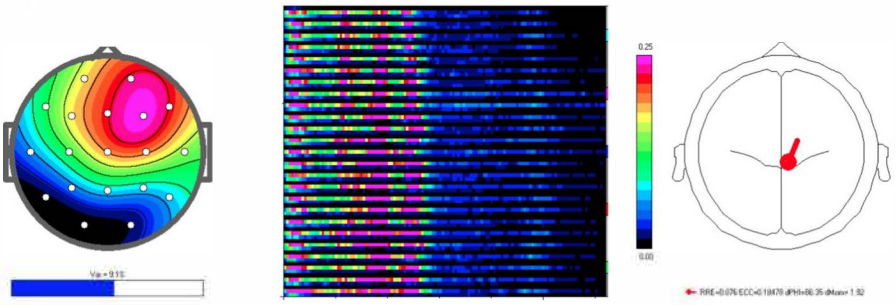
PI: UNIQUE TECHNOLOGY OF THE BRAIN

PI has a unique approach to learning and social behavior. PI attributes difficulties experienced in these areas to the learner's brain anatomy and physiology. Generally, conventional educational research overlooks the importance of the cognitive, emotional and behavioral make-up of the student's brain.

Defying the one-size-fits-all approach, PI improves the functionality of the student's brain in all areas.

Activating the Anterior Cingulate Cortex

Research conducted at Brain Science International (2012) by co-founder, Jay Gunkelman, confirms that **Phonemic Intelligence℠ has a significant impact on a very important part of the brain known as the Anterior Cingulate Cortex (ACC).**



EEG sensors recorded brain activity while participants practiced the PI sound technique. Independent Component Analysis (ICA) was done to analyze, identify, and see the locations of each sound's effect.

The efficiency of the technique was shown to produce a signature sound wave within one minute of practicing, along with the activation of the anterior cingulate cortex.

Andrew Newberg, M.D. and Neuroscientist, explains the Anterior Cingulate's function.

The anterior cingulate acts as a kind of fulcrum that controls and balances the activity between the frontal lobes and limbic system.

The anterior cingulate also contains a class of spindle-shaped cells called Von Economo neurons, which are found only in humans, great apes, and certain whales.

These neurons have an extensive array of connections with other parts of the brain and are believed to be intimately involved in the development of social awareness skills by integrating our thoughts, feelings, and behaviors. They guide us toward positive emotions and away from negative ones. (Newberg M.D., Neuroscientist, 2009)

Functions of the ACC

"If I could choose only one brain area for my kids to Super-size, it would the Anterior Cingulate Cortex (ACC). Why? Well, six reasons for starters."

-- Mark Brady, The Committed Parent

Attention- Enhancer

The ACC is responsible for kids being able to pay attention, and to observe what we are doing while we are doing it. A charged ACC means **students can easily tend to tasks at hand**.

Theory of Mind

The ACC is a significant structure in the empathic social brain. **Students with an active ACC have a greater capacity for empathy and social awareness.**

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Bridging Cognition and Emotion

As a result of its central location, the ACC acts as a bridging interface between cognition and emotion. When the ACC has sufficient neural wiring, **students are better able to control emotions even during heightened periods of stress.**

Conflict Resolution

The ACC helps to recognize and work toward resolving conflict. Having a well-wired ACC allows **students the room to creatively problem-solve even in problematic situations.**

Contingent Communication

The ACC is centrally involved in effective maternal behavior and play. An active ACC gives **students an increased probability of growing up to be good parents** and having contingent communication skills – the ability to patiently pay attention to children and respond to them in a timely and effective manner.

Cultivating Compassion

The ACC is one of the few places in the brain that contain spindle neurons, also known as von Economo neurons. This special class of neurons increase intuition and compassion. When optimally wired, they allow **students to grow to love others and themselves.**

*Brady, Mark. "The ACC: Six Seductive Reasons Why Bigger Is Better." Web log post. The Committed Parent. N.p., 28 Nov. 2010. Web. 26 July 2016.

COMPOSITION OF THE PI PROGRAM

The PI curriculum is a comprehensive compilation of **33 competency techniques delivered over a period of several years.** Ongoing instruction serves as the building blocks for development to more advanced modules. PI competency techniques will be available by the beginning of 2018.

Initial delivery of the core technique for at least a full 1-year period serves as the instrumental foundation to a progressive curriculum in these core competencies of learning and behavior:

short term memory - long term memory - temporal spatial cognition - analytical thinking - decision making
anxiety control - fear and phobia depression control - timid behavior - ADD - time perception - faster reaction
multiple choice quizzes - motivation - lethargy control - mood altering - super intelligence - music and arts
time perception - language acquisition - number perception and numerical intelligence - chronology and perception
dianural and nocturnal activation of the brain - conflict resolution - emotional intelligence - hand-brain coordination
speech thinking coordination - anger control - love and compassion - spontaneous negative perception
spontaneous positive perception - lack of focus - criminal behavior

SIGNATURE DELIVERY OF THE PI CORE TECHNIQUE

PI is unlike any other technology currently being used in the educational system. The most identifiable characteristic of PI delivery is the signature use of targeted phonemes and a strategic pattern of hand placements (or silent concentration) around the head and eyes while focusing on significant areas of the brain.

Vowel Sound Phonemes Carry Intelligence

PI primarily uses vowel sounds to activate key parts of the brain important for learning.

PI's effectiveness is largely attributed to the sounds (phonemes) used. The sounds are the carrier of intelligence, informing the brain with the power to learn easily and enabling students with the ability to absorb and comprehend new and challenging lessons across various subject matter.

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Brain Focus and Hand Placements

PI uses strategic hand placements or silent concentration on key areas of the head and eyes while focusing the sounds in key parts of the brain, activating their unique functionalities.

Right and Left Brain	Harmonizes the 2 hemispheres and their unique functionalities such as scientific analysis, mathematic computation, artistic expression, and musicality
Forehead	Improves analytical thinking, decision-making, memory, reading, and writing
Right and Left Eyes	Improves the visual skills of the occipital lobe
Back of Head (Cerebellum)	Activates neurons located in the cerebellum, which comprise 50% of the total brain neurons, and balances motor activities. The cerebellum is associated with intuition.

THE DATA SUPPORTING PI

Early Results

The dramatic improvement in the academic performance of children participating in Phonemic Intelligence programs in India, USA, Mexico and other places around the globe has implications for PI's ability to improve IQ and spatial-temporal reasoning.

- 5 years of consistent PI℠ practice by 50 young boys in India from some of the most impoverished conditions imaginable resulted in a 75% success rate in college attendance. A second program initiated shortly after for 30 girls living in the same conditions produced a 100% success rate in moving on to attend college.
- In over 50 global PI programs that are serving nearly 30,000 children, teachers and professionals continue to report transformational results in these critical areas of learning, function, and behavior control.

Completed Research

- Medical students at SRM University in Chennai, India, practiced PI℠ for six weeks before their medical exams resulting in improved academic scores, reduced stress hormones, and better coping skills. (Indian Journal of Medical Science, 2010)

Phonemic Effects on the Human Brain as seen with EEG: A Pilot Study by Brain Science International, 2012

EEG sensors recorded brain activity while participants practiced the PI Core Technique. Independent Component Analysis (ICA) was done to analyze, identify, and see the location of each sound's effect.

The efficacy of the technique was shown to produce a signature sound wave within one minute of practicing, along with the activation of the Anterior Cingulate Cortex.

Ongoing Research

Analysis of Cerebral Cortical Response to Non-Linguistic Phonemes, World Care Clinical - 2016

A pilot study with lead Harvard researcher and Director of Clinical Molecular Neuroimaging at Massachusetts General Hospital, Dr. Mykol Larvie. Functional MRI was used to examine the impact of PI on the brain.

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Detroit Public Schools - February 2015 - August 2015, data evaluation in progress

Studies the implementation and evaluation of a Phonemic Intelligence Program in fifth grade students of the Detroit Public School System (Thirkell, Henderson Academy and Marquette) to evaluate academic and behavioral intervention efficacy using Star Math and Star Reading evaluation tools.

75 children in the 5th grade at three separate schools in the DPS system were enrolled in the treatment group using level-2 PI technique. 75 5th grade children were in the control group.

Mild Cognitive Decline study conducted at private practice doctor's office, Florida - Study data collection completion November 2014, data evaluation presently ongoing

Examines the cognitive benefits of using a Phonemic Intelligence Program in addition to routine medical treatment in older adults with mild cognitive impairment as measured by neuropsychological testing and QEEG brain mapping.

FROM OUR FOUNDER

HOW PI CREATES INTELLIGENCE

Phonemic Intelligence (simply put, the intelligence embedded in certain vowels and consonants) creates the highest intelligence. We have science behind this concept. Dr. Patricia Kuhl, the Co-Director of the Institute for Learning and Brain Sciences at the University of Washington, says that every child is born with tremendous potential to know all sounds of all languages. Within a few months after they are born, the neuroplasticity of children is undermined due to the "pruning" of the brain to gain linearity and limitation.

The source of the limitation starts with the child's attempt to learn select phonetic and phonemic orientations belonging to the child's native language. The vowels they learn transition this stage. My hypothesis is that the same vowels that limit our intelligence, can actually delimit intelligence. These vowels, which are our source of limitation (more in their word context), can reactivate the universal consciousness potential of the child, which we all still possess but don't use because of the pruning process of the brain to suit linearity.

The phonemes "ah/ee/r/l" that Dr. Kuhl has researched are indeed the universal carriers of the highest intelligence. The sounds "ah" and "ee" are included in the PI curriculum. These sounds are not just baby sounds. Over 20 years ago, I created a technique based on the sound "ah" that I introduced to Dr. Wayne Dyer, a former professor of Educational Counseling at St. Johns University. Since then, hundreds of thousands of adults have used the technique with great success, as evidenced by Dyer in his book, Manifesting Your Destiny.

Reflecting on the infant's learning of sounds and thinking, Elizabeth Spelke of Harvard writes, "Infants are born with a language-independent system for thinking about objects. Those concepts give meaning to the words they learn later." (Harvard University, Gazette, July 22, 2004)

Paul Bloom of Yale University, following Spelke, writes "Language learning might really be the act of learning to express ideas that already exist." (Harvard University, Gazette, July 22, 2004)

PI'S THEORY OF INTELLIGENCE

My theory of intelligence is quite simple. Intelligence, which is understanding/knowing/meaning, is rooted in phonemes. My fundamental equation is P = I (phoneme = intelligence). At the unexpressed and less dominant levels, as in the case of the fetus or new born baby, the phonemes carry unlimited intelligence. At the more expressed level functioning within word clusters, the phonemes cease carrying unlimited intelligence and the impact becomes linear and limited.

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The dramatic increase of intelligence occurring within a few weeks of practicing PI, in the children we educate in India, US and Mexico, is due to the isolated phonemes' catalyst activity to activate intelligence that already exists in every child's brain.

BEHAVIOR & COMPASSION: THE OUTCOME OF PI

PI is not simply a brain-training program. Throughout his life, Einstein was worried about nuclear technology falling into the hands of people without compassion and character. His worries are now proving to be correct. Intelligence and power, unaccompanied by character, is indeed destructive.

Besides enhancing the intellectual intelligence of the brain, PI activates the anterior cingulate and the Von Economo neurons located in the anterior cingulate. The activation of the anterior cingulate was demonstrated in our research with Jay Gunkelman at Brain Science International.

Gunkelman's research also identifies sensory integration factors that occur during the practice of PI in the left and right brain, and particularly highlights the peak in the right frontal lobe component. Gunkelman mentions that according to the latest research, psychopaths and sociopaths have problems with this area functioning properly. PI practitioners' improvement in social behavior and compassion may as well be due to the activation of the right frontal lobe. Gunkelman also points out that hyperactive kids have problems with the right frontal lobe. Thus, the activation of the right frontal lobe is another evidence for the calm behavior of students following their exposure to PI.

I call the Von Economo neurons, the "neurons of compassion". Testimonies from press articles, Hope Learning Center administrators, and teachers and principals in public and private schools abound in dramatic changes in the behavior and learning abilities of students within weeks of the practice of PI.

VISION FOR THE FUTURE OF PI

My vision for PI is that it emerges as a widely-accepted academic discipline that is a brain-based educational technology capable of not only enhancing the intelligence potential of both children and adults, but also creates and nurtures compassion. Of course, we have a long way to go to address many issues in the process of developing the technology, which will be accomplished as the discipline evolves and progresses.

TESTIMONIALS FROM THE FIELD

Principals

"Every day at least a dozen children ask me, "Can I lead PI tomorrow?" I asked a student who began to show significant improvement in demonstrating self-control what his secret was and he replied, "I do PI before I go to sleep like you said."

A student who came to P.S. 119 with 97 suspensions in his previous school practices PI twice each day and declares that he has found his peace.

A 52% drop in behavioral occurrences over a two-year period.

These are just a few examples of the shifts that have taken place in our school community that are the result of a collaborative effort to provide students and staff with tools designed to improve their daily lives. Phonemic Intelligence is an integral part of the repertoire. The change in class energy is palpable on a school level. The students begin their morning

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studies and conclude their lunch break with Phonemic Intelligence. This practice readies the children for learning and carves the path to internalizing peace. The scientific and empirical evidence support the inclusion of PI in our instructional program.

-- Lisa Fernandez, Principal, P.S. 119, Brooklyn, NY

"Phonemic Intelligence came to our school early September. I must admit at the beginning it was met with skepticism. Nonetheless, as Laurie Thomas began to talk about the research behind it and shared stories of success many classroom teachers were eager to try it in their classrooms.

Some classes scheduled it into their daily routines. Some decided to try it and see if it was for their group. Towards the end of the school year 14 classes participated and learned how relaxed and focused students became. PI helped with classroom management, by helping the students to relax. It helped students academically by helping them to focus. It was a success story to have students say: "When I do PI I feel my brain getting smarter."

-- Carmen Colon, Principal, P.S. 20, Brooklyn, NY

Teachers

"The students in my class, where we practiced the sounds consistently last year, were the calmest kids that I've ever had. Their critical thinking improved, their writing and math skills are very good, and even better now, since we have been practicing the sounds. I'm looking forward to seeing the changes in this year's class.

-- Lupe, Kindergarten Teacher, Hope Rural, Florida

"This group of students was the most difficult group I've had in 5 years at this school. They had a lot of problems on the playground, arguing, not playing nice with each other, fighting. Each day after lunch recess, the students would return to class and practice the PI core technique, led by a different student each time. After the practice, the energy of the group completely changed every time. The problems the students complained of were no longer problems. The problems disappeared. They would simply forgetwhat the problem was between them. Calm and relaxed, the transition into the lesson became seamless and now there is much less conflict between them.

-- Courtney Cook, 2nd Grade Teacher Spring Valley Science Teacher, San Francisco, California

Students

"Thank you for teaching us how to activate our mind and how to calm ourselves down. Activating my brain really helps me to focus on my learning and helping others. PI is a wonderful learning strategy and you should keep teaching it to other children.

-- Jazlene, PI Student, NYC

"Before practicing PI, I was not able to concentrate, I felt disturbed, when I used to sit and study I used to either fall asleep or look outside the window and day dream. I used to study for not more than thirty minutes at a time. After practicing PI, now I am able to study for at least two hours straight. I am now able to complete what I start.

-- Prajacta, 11th Grade Student, Goa India

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