

Introduction

As every child grows they reach out to explore the world in new and expanding ways. What they learn gives meaning to life and changes how they feel about themselves. In the next few minutes we are going to look at learning and what we call education in completely new ways. We will be joining Joseph Chilton Pearce as he explores with parents, educators, and healthcare professionals, what it means to learn and how education is changing as we move into the 21st century. For more than thirty years Joe has challenged audiences around the world by questioning why, as human beings, we haven't developed to our full potential. He has written six books, including *Crack in the Cosmic Egg*, *The Magical Child*, and most recently, *Evolution's End*. He brings to us a unique vision of human development, one that blends vast amounts of research with personal observations and experience. It is a privilege to bring to you Joseph Chilton Pearce on *Learning and Education*.

Joseph Chilton Pearce

Today we're talking about learning and education. We can say first of all that learning certainly starts in the womb. Education begins after birth. Education leads forth into knowledge, but learning goes on from the very beginning. The environment is the greatest teacher of the child. Very few of the structures of knowledge that take place in the nine-brain system are the result of adult verbal directives: our teaching of the child will account for no more than about 5 percent. Ninety-five percent of the learning will simply be automatic and spontaneous, beneath the awareness of either the child or ourselves. They will simply become who we are and not who we tell them to be as they become what the world itself teaches them to become.

The entire environment teaches the child. We hear of kittens raised in an artificial environment where everything consists of vertical stripes who, when mature and taken out into the ordinary world, will be only able to cognize things of a vertical nature and will stumble right into anything horizontal. We are more flexible, thank God, but a certain similar element can be found in our lives as well. The world environment we are in teaches us and brings us forth into that world.

I've spoken a great deal about the nurturing environment. If children feel unconditionally accepted and wanted by their environment—ushered into it—they will open up continually into the higher structures of the brain and embrace their world. If that world is threatening there is a closure, a movement toward a defense of self against a hostile world—which is completely natural.

So we find that the first great imperative of education or leading forth into knowledge is that the child never be threatened, that they never feel attacked, questioned, or judged by the world but that an open acceptance of the child is be reflected by the world itself.

I believe it was Piaget's his great statement that the one hallmark of the early child is an absolute unquestioned acceptance of that which is given them. The world is just there, they never question it. They never question the actions of adults, they simply accept everything as it is unconditionally. This open acceptance of that which is given forms the basis of what Montessori calls the totally absorbent mind. You don't need to teach—cram in from on top—you simply need to provide an environment that openly accepts the child and in return the absorbent mind will take in the world and learn about it.

We spoke yesterday of betrayal of intimacy, a term my friend Michael Mendizza uses, and someone mentioned that the greatest betrayal the child feels is when they open up in total acceptance and the parent fails to perceive it, which the child then interprets as rejection. And don't think this is not the same all through life. The little kindergarten child going into the classroom has an absolute open acceptance of the teacher. There is no choice except to unconditionally accept everything given, and unless that's reflected back the child will feel betrayed and little by little build up a shell of defense that will be a block to their true education.

Now we have to go back to the triune nature of the brain. We have an ancient reptilian structure which presents us with a physical world and knowledge of that world and our body and the emotional—we call that the "R" System—and then the old mammalian structure—the emotional cognitive system that is our qualitative evaluation of this world/body experience and our relation to it—and then the neo-cortex, the great huge new brain that gives us the ability to reflect on our existence and play with it, as well as all sorts of things that happen later.

We find that if the child's open acceptance is betrayed there will be a tendency to use all the higher structures of knowledge on behalf of a defense system of maintenance down in the lowest evolutionary structures. Remember we spoke of the brain growth spurts at birth, age one, age four, age seven, and what happens at eleven and fifteen and so on and pointed out that each of these opens blocks of intelligences inherent to certain areas of the brain.

And they open up on target. That is, nature has an agenda. So many spins around the sun and this one is going to open up. So many more spins around and this one opens and so on. Six-year molars don't wait until we have a perfect diet for them to appear—they're going to come in somewhere around six or seven, regardless. Twelve-year molars don't wait for anything, they come right on in, as do wisdom teeth at around eighteen. Nature's agenda is a timed process.

It's the same with the opening of the higher centers for their full focus and development. If the lower structures have not been completed or we're stuck in them—in effect—the higher centers are going to open anyway. We will have access to the higher intelligences, but we will use them on behalf of our maintenance system and that's where the devolutionary process sets in and we get into trouble. Never forget that education or leading forth into knowledge is to lead us out of these maintenance systems. That is, we should be able to turn maintenance surviving in the world over to automatic pilot, over to the autonomic system. We ought to be able to take it for granted at a certain period and move on into the higher realms of human possibility. We don't have to give thought to the morrow, we don't have to worry about food, clothing, shelter, and all of that, that should be part of the automatic maintenance system. We should be able to leave it, forget about it, move on. But instead, most of us stay locked in it all of our life, fretting and worrying and so on. Why? Because of a failure: a full development and a failure of moving out of that embedment into a higher one. So education leading forth into knowledge really leads to our full biological possibilities; we get up into the higher centers rather than staying locked in down below.

There's a cycle to this business I want to talk about. This is the cycle of competence in all learning. You find it right from the very beginning. Greenfield and Tronic up at Harvard under Gerome Bruner in his department came across this years and years ago. I didn't deal with it much in my recent book *Evolution's End* because I'd been dealing with it for three books and I figured my readers were sick of it—but you can't count on that, can you.

The cycle of competence is a three-fold cycle. Briefly, the first stage is what has been termed *roughing in a new learning*. I would call this the first interaction with the model; the first interaction with a possibility. It's where you rough in the basic idea that something can be done. Then you have to fill in the details, which can take anywhere from seconds to minutes, even up to years and years and years. Filling in the details and relating them all together into a whole. It's a relational process, looking out into the world for all that which will fill in the details of this roughed-in notion and relate it all together into a whole functional unit.

Then there's the third and final period—I believe there should be four stages, but the last two are generally grouped together as one and I'll follow that convention—practice and variation. To me this is an exciting concept because when we get to the variation aspect we leave the entire animal kingdom light years behind and see what makes us truly unique as human beings.

As an example, let's take the little toddler, somewhere between fourteen months and two years old, who sees her momma open the kitchen cabinet doors that are down at floor level. They're held with a magnetic catch. This is the first time this has ever registered on her. She's been too busy with all the other structures of knowledge to create through physical interaction, getting a name, and so on, but now she spots this. Hey, that's a pretty interesting thing to do. Immediately after having roughed it in from the model imperative—monkey see, monkey do—she goes to filling in the details. This is a simple, concrete thing.

She toddles over, grabs the handle and gives a pull. The first time she might topple over. But she gets back up, tries again, keeps her balance this time, and finally gets that door to open smoothly. She's filled in the details with her own physical interaction. Remember, all learning in the first few years is sensory motor. She uses her own motor mechanism, her own sensations and concrete, real learning and begins to relate it. You'll see her paws, you can see the lights turning on: Ah ha, this is how it works!

Then what happens? The period of practice. She won't be satisfied with having opened that door once will she? What'll she do? She'll slam it over and over and over. You'll think okay, the neural structure has finally myelinated, all those long axons. It really is true.

Here are these sensory maps in the brain that are having to locate and fill in all about this new activity; they've all got to make connections that they've never made before. They've got to explore new axonal dendritic connecting links, get those synaptic thresholds lowered in a new way with all the muscles and nerves of the body. So it's a big deal all the way down through the motor processes and the learning process and the emotional relational processes and the cerebellum is involved and all of that has to stabilize. One time would not do it, just like one time with a story won't complete the circuitry. She's going to do it over and over, ad-nauseam.

Why? One of the things will be the myelination of new long axons connecting to various structures. The brain will seize up all the things that take place until finally there'll be a kind of a maturation of the new neural patterning and the muscular response to it will be established and the practice period should be over with. But then she doesn't stop pounding the door at all. Suddenly there is a complete and total entrainment. She has a 100 percent entrainment in this new muscular activity that leaves no energy for anything else.

She isn't involved in this activity. She *is* the activity. She isn't learning a new movement, she *is* that new movement. She there's no subject dichotomy here at all. There's a complete subjective involvement, an embedment in that activity, an entrainment of the system on that learning. Once it's complete she can stand back from her own learning and pound that door out of the sheer joy of a new skill developed. Do you follow this? A new skill developed. Once a child learns to jump rope he'll jump rope madly by the hour. That's what this little toddler is doing. She's now pounding out of the sheer joy of something new she's learned to do that she can stand over and above and direct rather than just be it. I emphasize this because it's important to remember. The total entrainment period is over now, she's just having a great and joyful time with it. Then she stops and looks around and the greatest period of human life comes in.

We speak of a chemical that drives the brain to search continually for novelty, that's the one that drives the upper structure, looking for that which is new. If she stopped at this point we have no correlation of one learning to another. There would be no way to take one learning and apply it on an ever wider basis. That comes through variation.

Now what's she doing all of a sudden? She has stopped and looked around and said ah-ha, what new world can I conquer with this new tool, this new ability? And she goes over and tries it with the other doors. She wants to pound those for awhile and then she'll look for other types of hinged objects, literally searching for ways to take this neural pattern and apply it to ever greater fields. What happens to each one of these new devices that she tries it on? New connections are made and the basic neural structures involved in that structure of knowledge both stabilize and expand.

So now finally she's discovering all the hinged objects and nothing is safe in the house now. There's the potty seat, the music box, and all these other things: she wants to pound them up and down and exercise this new ability, which will then lead on into further and further unrelated fields.

And some partially related, such as jar tops. Any kind of top sitting on something else she will now start to explore. Which means that the basic structure is being expanded into completely new territory and this will be an expansion of the brain itself, new axon dendrite connections being stabilized, myelinated, and so forth.

That's the variation stage. Now let's look briefly at what negative things can happen with this. I know I'm always presenting these marvelous things and then showing the negative possibilities, but we do need to know about them. This one example—the little girl pounding on this door—really did happen. She was not my child, but she did exist, pounding on this door. She'd really just discovered this thing and she was pounding with all her might and the telephone rang, right there in the kitchen. Mom said, "Honey stop that, the phone's ringing, hello!" And there was no response whatsoever from the child. She went right ahead pounding and pounding: she was in the practice stage. So her mom said, "Honey, I said stop that, I'm trying to talk." And, of course, pound, pound, pound, and finally the mother was shouting at the child, "I said stop it!" No response whatsoever. Finally momma threw the telephone down, went over, picked her daughter up, literally dusted her britches, and said, "Can't you hear me, I'm shouting, I'm telling you stop that, I can't hear on the telephone!"

Of course now the child is screaming, the telephone conversation is pretty difficult, the whole thing is a great big mess. Why did the child not pay any attention to what she was saying? Because of entrainment. A new learning in this early child requires 100 percent of the energy of the system focused on that one particular developmental adventure. No energy is left over for processing other forms of information.

The child didn't respond to momma because the child didn't hear momma. There was literally no energy left for that kind of thing and so when suddenly the practice period is broken out of the clear blue sky by momma picking her up and dusting her britches, it's a complete non-sequitur, isn't that what you would call it? Completely out of logic; doesn't fit anything. Now a few times like this when the child is attempting to explore the world and practice it to vary her structures of knowledge and she gets clobbered for it because a parent says "Don't!" and the child doesn't comprehend because of the entrainment factor, then what is going to happen?

Little by little the child will find that they can't afford to entrain. They can't afford to invest all of their energy on a new learning because they can't trust the world around them enough to turn their back on it. That means they're going to split their psychic structure, they're going to split the energy of the brain/mind between an attempt to practice and their defense system guarding against a world that might clobber them out of a clear blue sky for no particular good reason.

The child's unquestioning acceptance has to be honored in every respect and when our intellectual commands appear and break the pattern, what's going to happen? Little by little they won't go with this complete involvement, this complete entrainment. We say our children can't concentrate. What do we mean by concentrate? Concentrate the totality of the energy on a single specific task. Well, later on they won't be able to do that because they've got to remove some energy from the task and reserve it to maintain their defense system against a world they cannot trust.

As long as you can't trust your world implicitly and totally you can't become again as a little child. Without an absolute implicit trust in the maintenance system taking care of you it's impossible to entrain or concentrate your energies on any single task. You're a house divided against yourself: one half trying to defend against the world, the other half trying to do what it takes to survive. The cycle of competence is a critical thing to be aware of in all children's learning. You can see it sometimes very clearly, other times it's much more subtle. Remember it can last for a long time.

We're going to talk about concrete operational thinking. This is Piaget's term and I realize that a lot of people today object to this over-stress of the cognitive and the ignoring of the affective emotion and so on, but it's still quite legitimate for one of the aspects that opens at age seven. At age seven when the milk teeth fall out what do we find happens to dreaming in children? All of a sudden animals disappear as their principle form of dreaming and are replaced by the human being himself. And we find that all sorts of other profound changes take place.

All societies throughout history have realized that somewhere around age seven the child reaches a certain capacity for reasoning. Now you might not think the seven-year-old is reasonable, but let me tell you, there's a fantastic difference between the four or five-year-old and the seven year old and the change into this new capacity for reasoning occurs very suddenly, almost overnight. I want to make it clear that this is my theory, but I've never been so sure of anything in my life: this is topological within the brain. The reptilian structure is completely stabilized, the emotional cogence and structure are completely stabilized, and then we have the energy to open up the totality of the neocortex—except for the frontal lobes—for development.

Remember that the frontal lobes, evolution's latest addition, are still forming their neural tracks throughout childhood and adolescence; the process is not complete until early adulthood. So the frontal lobes—the newest parts we've got—aren't in this, but the rest of the brain structure essentially is.

We're talking about the child knowledge shifting as an ego structure out of it's predominant embedment in the two lower systems and becoming able to access all of this much more advanced evolutionary brain structure. From this point children can look on this behavioral thing without being quite subject to it. Remember that the three-year-old doesn't have a temper tantrum; they *are* the temper tantrum. But suddenly at age seven if they have a temper tantrum they know it on some level and they kind of enjoy it. The four or five-year-old will do that too, but now there is real objectivity and the child is ready to start the first real forms of socialization. At this time you'll find them shifting from the nest towards society as a whole. It's a slow shift; it really hit it's full peak at about age eleven.

I still think Piaget's definition of concrete operation thinking is correct. He spoke of it as the ability to operate on concrete information and change it according to an abstract idea. An abstract idea. Now, I know what this is. This has to be hypothetical; there are not too many people in the neuro-sciences who will accept this lock, stock, and barrel as I do. But I do know that because it's from this neocortical structure—which is causal—it essentially has to do with causation itself. From this position higher up the evolutionary string you can act on the emotional relational structures which bring about or give shape to actual physical experience. Here in the world/body/physical theme we can, from the lofty position of age seven, reflect back on what's presented to us and without totally identifying with it.

Remember that the open, unquestioning acceptance of the given applies throughout the first seven years. Piaget loved the example of the tall thin flask that holds one pint of liquid and the short fat flask that holds one pint of liquid. Now to the early child who is one with the world structure that forms around them and not fully objective to it, anything big and tall is the most and anything little and short like me is the least. Right? Okay, so we fill the tall flask full of liquid, pour it into the short one, and it fills it right up with nothing left. We tell the pre-logical child, it must be the same amount of liquid. Oh no, that's the most. So you pour it back in the first flask and say, it fills it up doesn't it? Yes indeed. Then they have to touch the flask—oh no, this holds more. How can it hold more if you can pour it all into the other one? Some must just disappear, or you've got more. This is what Piaget called practical intelligence, never questioning the way things appear.

Suddenly at age seven, after the shift takes place in concrete operations, the kid is offended by you. Of course they're the same amount of liquid. Why? Because they're now perceiving things from a reflective objective standpoint.

They're above and looking down on what's presented to them and able to evaluate it from a completely different logical system. These are the beginnings of real logic. They're not too logical until about age eleven, but this is the beginning of that logic: the ability to operate on a concrete event with an abstract idea.

Again, the child can't generate their own abstract ideas generally, we have to present them with a model to activate the process. They will activate their concrete operational stage exactly to the extent that they are given models for it. So what does a child need at this period?

My daughter said, "All we need to do is make things and sing," and she was right. Steiner spoke of the child not coming fully into the body until the milk teeth go and that shift takes place at age seven. Notice the profound difference of physical movement between the five-year-old and the seven-year-old. All of a sudden at age seven kids can handle their bodies beautifully. They're in complete control; their coordination is superb. This is when they'll begin running, climbing trees, leaping, jumping, jump rope, riding bicycles, staging and so on. They love anything that requires maneuvering the body; they discover the body from a completely objective standpoint.

Steiner spoke of children "coming into the body for the first time." This is actually just a figure of speech; in reality the psychic structures have kind of moved out of the body enough to look at it and say wow I've got this instrument I can use in so many marvelous ways. That's a part of concrete operational thinking. They're standing objectively superior to the body process and begin to play with it, like they would an instrument.

Another aspect of concrete operational thinking is making things. A child is passionate about making things during this period. And they'll make anything from anything: Lego's, erector sets... they need materials to work with to make other things. What is concrete operational thinking? Taking an egg, some milk, some flour, a few little chemicals, and so forth, putting them together in a certain way and popping them in the oven and having this great transformation take place—cookies. That's a miracle of pure concrete operational thinking. We take rough clay and learn to work with it and suddenly that rough clay becomes a beautiful vase or a pot. That's taking a concrete object and turning it into something radically different. That's concrete operational thinking.

So we find crafts proliferating; any art form at all is appropriate to concrete operational thinking. Not art as creation or self expression but as making things is critically important to a child at that stage. And there are other forms of concrete operational thinking.

There are esoteric forms of it that I'd like to mention. Here we get into the almost embarrassing aspects of concrete operations which western science won't deal with at all. Western science is a very exclusive operation. They allow into their acceptability only that which supports their frame of reference. Anything that doesn't is a threat to the integrity of the scientific body of knowledge and is rigidly excluded. For good reason—anything that doesn't support my theories, I exclude. That's my privilege as well. So we find that a lot of things that go on in this world and open at age seven as possibilities the scientific community will neither accept nor admit as legitimate scientific information.

What else do we find happening between six and seven? The biggest brain growth spurt of all. What do we mean by a brain growth spurt? Not necessarily more neurons, but more connecting links between them. Estimates are that by age seven a single neuron may connect anywhere from 50,000 to 60,000 other neurons. In an adult, 10,000; in a seven-year-old, 50,000 to 60,000. And there are 100 billion neurons, any one of which can connect with 50,000 to 60,000 others. Multiply 100 billion by 50,000 to 60,000, figure in that any of them can shift their mode of operation in any way to accommodate the others, do all this on a multi-level simultaneously, and what do we have?

An infinitely open system that has no limitations whatsoever. Any conceivable structure of knowledge can be built. But one thing is necessary: nature's model imperative. Nothing can happen until the child is given a corresponding model of that possibility in his physical environment to act as a stimulus to activate and generate and bring about the maturation of the aspect of the neural system that will allow that possibility. Again, the model imperative is the issue.

So, let's look at what we find in our country during this period of concrete operational thinking, when children are desperate to take things of the physical world and put them together in new ways according to ideas. Do we give them ideas? Not many. We have them seated at desks, working with abstract processes. Abstract processes are most appropriate after age eleven. If we just let all that alone until about age eleven, they'd polish off our whole educational structure in two to three years, believe me. There have been experiments which prove that right down the line. Concrete operations are what they desperately need to do.

Look at some of the things we don't model but other societies do. The Australian Aborigines do some extremely peculiar things during that period. The Balinese used to choose their trance dances at age seven because after age seven these little girls could walk across coals of fire and not be burned.

Before then you're taking a little bit of a chance with it. I view several esoteric events as examples of concrete operational thinking. Let's start with the most extreme of all.

On the island of Sri Lanka the God *Caterorgmaul has a twenty-eight mile radius around his principle temple: step outside and there ain't no God *Caterorgmaul, step inside and you'd better be careful. For thousands of years, in his honor, about one hundred people have undergone a preparation of three weeks and then walked across pits of burning coals in the central temple. This happens periodically, several times a year, and there have been many legitimate scientific studies of it.

Their pits are six feet wide, twenty feet long, and recessed below ground level. The heat will melt aluminum on contact; no onlooker can stand closer than twenty feet for any period of time. Wads of paper thrown toward the pits will burst into flame about five feet away. This ceremony has been photographed, filmed, scientifically measured, and studied. Every conceivable scientific instrument has been brought to bear on the phenomena. What's happening? The God must seize them and give them the power to walk across the fire.

I've taken part in something similar. I've been exposed to 1380 degrees Fahrenheit, far hotter than the Sri Lankan fires. I went over an hour in direct contact without sensation, knowing only absolutely ecstasy. I was blown out of my mind, delighted. I wouldn't—and couldn't—do it again; I'm afraid. But at the time I wasn't and I couldn't be hurt and knew it.

At any rate, these Sri Lankans walk across fires and now people are doing it in this country as well. Michael Skye is one of the most remarkable and intelligent people doing it. The beds used here are nowhere as intense as those of Sri Lanka, but believe me, forty feet across white-hot coals is a long way to go, and some people lie down on the coals and so forth. In Sri Lanka some people run across, some stroll across, some hold hands, some sit down, women scoop up white-hot coals and pour them on their heads without their hair catching fire, and their cotton togas that drag never burn. But three percent of the people who walk the fire have their capacity break at some point. Instantly their clothing and hair flare up. Attendants with long wooden hooks try to get them off the fire and seldom can. They nearly always are killed very quickly. I've said before that I love that three percent because it gives us a control group—we know that the fire is working and that the test is legitimate.

The same thing used to occur in Borneo; it's a very common practice. Even ancient Greeks and Thessalonians used to walk fire. The point of this is, very briefly, that this is a form of concrete operational thinking. It's simply the higher cortical structure—coming from higher up the evolutionary stream—involved in a creative process, acting on the emotional cognitive system. This is the relational aspect of things, how everything goes together and relates, enabling us to change the interaction between our bodies and the physical world. Simply put, it's a shift within the neural system—the higher acting on the lower—that is just one step beyond the child's ability to finally look at the tall thin flask and the short fat flask objectively. What else is it a step beyond?

Remember the child in the early stage of imagination and play seeing the inner image in his mind's eye? He sees the road roller going down the street mashing everything flat and says, "That's what I'm gonna be when I grow up!" He doesn't have a road roller, so he finds a spool of thread and shouts "A road roller!" and plays for hours and hours. And as Vitkonisky saw long ago, he's created an inner image, the imagination has created its own world image of that road roller. The child has looked outside for an object he can control, projects the internal image on the external image, and sees it as not a spool, but a beautiful road roller, and plays in his modulated or modified reality, a reality he is shaping and changing according to his own internal process. It's nature preparing for the really great movement of the human being into the unknown. Now, at age seven, comes the sudden possibility—if he's given the right models—to do what? To literally change an external object, physically change it into the nature of an internal abstract or non-localized idea. It's simply the next stage as we move on up the hierarchy of development.

Let's look at some other forms. Here I'm going to have to use my same old examples, all of which I've taken part in. In 1982 a United States Army colonel with his Ph.D. came to my next door neighbor, Robert Monroe, who has the Monroe Institute in Virginia. The officer was in charge of Delta Army, a group of very smart army officers set up to investigate the rumor that there was some connection between mind and reality. The study was set up back in the '70's simply because the army had heard through intelligence that Russia was investigating the subject. So twenty-five of us, ages five through seventy, sat around in a circle and the colonel stood in the center of the circle and within twenty minutes he had twenty-three of the twenty-five of us bending heavy stainless steel into every conceivable shape. The young people were the first ones to do it. A five-year-old boy—he's out of my time scheme, this should really only happen around six or seven, but he was precocious and there are no real limits on any of this—corkscrewed his heavy, thick stainless steel fork from the tine on down to the shank in a perfect, very tight corkscrew.

This can't be done mechanically because the metal will fatigue and snap at some point. And then it went around the room, we watched children tying knots into knives and rolling the handles of spoons up into balls and so forth. At a certain point the metal gets warm and flexible and you can do anything with it you want.

Now a physicist friend of mine at the University of Melbourne in Australia, heard about this and had been for several years bending metal inside sealed glass cases. He would take a round tubular glass and put a steel bar inside it and simply stroke the glass case and the steel bar would at some point—he never knew when it would happen—contort into various shapes and tie impossible knots in itself.

The metallurgist working with him showed me spectrographs that proved that the metal, when bent in this fashion, had changed its whole chemical molecular structure as opposed to metal bent by artificial or mechanical means which bring about fracturing of the surface and so on.

In 1976 I believe—and I may stand to be corrected on that—Brian Josephson, Nobel Laureate in Physics, worked at his laboratory in England for many weeks with a young boy wired up to an electroencephalograph, body sensors, and so forth. They would surround him with a dozen physicists and psychologists and place a bar of steel about twelve feet away and he would concentrate on it and at a certain point give a little twitch and the bar would contort into various shapes and occasionally disappear.

Brian Josephson was very shook up by this. He made the mistake of stating publicly that we must revise the laws of physics, they don't cover how things really are. They sent the boy over to the University of Toronto and a Dr. Joel Whitan worked with him for another six weeks under precisely the same conditions and experienced a parallel set of events. They could work only with steel, that was simply the necessary medium. They found that the steel would contort or move every time and that the boy had no idea what was going to happen. He couldn't direct it, shape it in any way, or predict it, but when the steel bent the boy's brain registered movement in the cerebellum, which is connected with movement, and in the central reptilian structure, the one dealing with the physical world itself. Part of the brain operated in another part of the brain and this was then registering in the external world. Why would it register in the external world?

If you recall we spoke about fields of intelligence, mathematical intelligence as Gardner calls them, and how they have to be universals on which the brain draws. This is that frequency realm on which the brain draws; Carl Prebrum spoke of how it aggregates into groupings according to the intelligence or the ability or the history of our planet that it's dealing with.

Now these are the intellectual fields or the intelligence fields. There are also emotional fields—if you don't think there are emotional fields, you're only half alive. Haven't you ever walked into a room and felt the entire emotional feel of that room? Do people need to tell you that they're at each other's throats even though it's silent? No, you know it and so do children. They live in the emotional fields of their parents.

Then there are the physical fields that the primary reptilian structure deals with. Our brain present us with our physical world. These are the ones the physicists deal with in the science they call quantum physics. But what about the emotional fields that give rise to this; the relational fields that bring about relationship of the energies? What about the great causal fields that give rise to those energies? They can't deal with those with their instrumentation and so they discount them and say they don't exist. And so as a result, Brian Josephson says, well we must revise our laws of physics. No. The laws of physics apply perfectly well to physical process. They just will not apply to the parallel processes inherent within higher evolutionary structures.

In 1983 Bob Jahn, was dean of the school of engineering at Princeton University. He has Ph.D. in Physics and is now head of some of the biggest operations at NASA, controlling huge sums of money. He's one of our most brilliant physicists. We together at an educational conference at University of California Berkeley and Bob *Jahn got up and talked about his anomalies project. He had spent ten years on this project tackling all the anomalies—enigmas—that science was afraid to go near. He finally published a huge book in about 1987-88 on the margins of reality. They had run thousands upon thousands of tests and found that even people brought in right off the street could radically alter the functioning of electronic equipment without touching it. Even though he proved these things in thousands of trials and tests, the rest of the academic world said, "Well he was a good physicist in his time..."

So, again, the system moves to protect the integrity of its status quo while people constantly try to break through and expand the scientific process up into the higher evolutionary structures of the brain. All of this is simply a part of concrete operational thinking. The child will be able to do whatever the model structures present for them. But, if we look closely and read Bob *Jahns, Russell *Targ, and some other physicists, we see that what happens is subject to a high degree of chance. The individuals involved are never quite connected with it. There is a certain element of the idiot savant in all this paranormal phenomena. The idiot savant, you remember, with his IQ of twenty-five: if furnished the right stimulus, it simply comes through that field. He has no control of it and he doesn't know how it happens. All this paranormal stuff that we're talking about, no one knows how it happens. They only know that if they give themselves over to it and allow it to happen, it happens through them, but not because of them.

This simply indicates a potential of the human mind/brain structure, perhaps not even one nature intended us to develop, but one that's there to let us know that we're not hemmed in by any restrictions at all. Once I found myself for over an hour completely superior to the effects of fire on flesh, nothing was ever the same to me again. Once I realized that I could under certain circumstances bend stainless steel—kids eventually did it without touching the steel at all, I couldn't do that—I realized that we're not limited as in the ordinary academic viewpoint. We're not just the Skinner-box pigeons or naked apes the academic world has presented us to be.

We have vastly more within us than that. So this is concrete operational thinking, but does the child need all this esoterica to develop it? Far from it. Making things and singing, making cookies, using erector sets, building little houses: all these things that they want passionately to do are simply concrete operations. Taking one material, and turning it into something else will certainly be all the development they need. They don't need to walk on fire or bend metal to accomplish what should be done between seven and eleven. I used to think those things were important. I now believe they're the peripheral kind of things that can accidentally happen because of the way the system is structured.

Forcing a child into premature absorption in academic process during this period of concrete operations is, to my way of thinking, a real error. Why? Because you're robbing from this period and trying to achieve what should be the result of the next period too soon and the child loses both ways. You lose the best of both worlds.

Premature abstractions. What do I mean by that? Well we now find physics and chemistry being taught in the third grade. The subjects are pretty watered down, and it's not to say that the kid doesn't need it—but they're bored with it, they don't want it yet. Who cares. Now why do they not care? Because any and all possibilities are equally valid to them. Oh sure you can do that, but so what? You can do anything else, the child is saying in effect.

Now let's look at the difference between that and what's going to happen at age eleven. At age eleven all sorts of things are going to happen in that brain system and suddenly children are capable of the discipline of restricted thought. They can look at chemistry as a set of equations and formulas—do this and this and this will happen. In the seven to eleven-year-old set where all things are equally possible they can't restrict their thinking in that way. If you turned them loose in the laboratory they'd blow themselves up if given half of a chance. They're not ready for it. They're not ready for the rigid controls of mathematics. In mathematics all things are not equally valid at all. Everything stands for its own particular meaning and it must be that exclusively and the way the whole structure works is a very tight logic. You must be able to follow that logic and exclude all other things from it. The early child has a brain full of incredible possibility and just isn't interested in that kind of a limited, rigid approach. They have very little discipline and don't need it at that point when everything is possible.

The triune brain hypothesis that I've been presenting here—following Paul *McKlean—gives us a way of understanding this. People say it's only a metaphor, but boy, is it physically real. The higher structure playing on the lower structure and changing it is something all of us have known intuitively all of lives. When we speak of this wise guy who spoke a long time ago about coming into dominion over the world, what do you suppose he meant? “Dominion over the world” means simply being able to utilize the higher evolutionary structures that nature has given us. To do what? To gain control of the lower evolutionary structures so that we can use them freely and move on into the higher.

What is happening today is we're using all these higher intellectual processes simply to dominate and try to predict and control an infinitely complex universal system and there's no way in the world intellect can do it. Intellect operates in a very linear, digital way: either/or. Your classical truth tables of logic really are the picture of modern day intellect. It's either/or and there's no in between. Either A or not A, the law of the excluded middle, you can't have it both ways: this is the whole scientific premise. And you must follow that discipline, but when you do you'll end up using it on behalf of the lowest evolutionary structures. This is essentially devolutionary.

Anything that is devolutionary becomes destructive, and the strange destructiveness that's sweeping the world today, threatening the very planet itself, is simply this intellectual attempt to predict and control every event. In order to really open up into these evolutionary structures of the mind we need a complete open-ended faith that the lower system will take care of us once it's developed. That really sounds like a preacher speaking, doesn't it... but it's the truth. That's where we stand. A child knows this, and we have to really beat him into submission to get him to leave the natural system and adapt to this highly artificial intellectual process.

Touch the Future
Joseph Clifton Pearce
Learning & Education

From the video series
Reaching Beyond Magical Child
Copyright 1984

So the first fifteen years are spent locked in on coming to terms with what is presented here, learning about it in order to move beyond it.

END