

The Chain of Hearts: Practical Biology for Intelligent Behavior

Pille Bunnell and Kathleen Forsythe

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I had a dream. A group of North American children came to me and they showed me the state of their hearts. It was a horrific vision that overwhelmed my senses and tears ran down my cheeks even as I lay dreaming. Just as the hunger, hopelessness and anguish of famine on other continents have overwhelmed me; the children showed me that there was an equal poverty of the soul besetting the children of the lands of plenty. They told me that, when they dream, they try to build a daisy-chain of hearts to hold the ones who need the help the most...they asked me to help them...to bring the chain of hearts into the world, so each child will know that he or she is legitimate just as they are.

The dream occurred in 1986. It was powerful enough to have me change my career and my life and to follow a path that, through many circuitous routes, brings me to where I am today and to the inspiration of a child called Hope who lives in all of us and in our future and compels us today to pay attention to what has heart and meaning in order that she may survive and the chain of hearts may continue.

The vision of Hope motivates our work, and the image from my dream, of children linked in love, gives this educational initiative its name.

Kathleen Forsythe

The Context

It is the spring of 1999 and another massacre of children by children has just taken place, this time in Littleton, Colorado¹...the worst in a series of incidents of children killing children in the United States, in Canada, in Britain...

What kind of human beings do we want our children to become?

How can we guide our children along the path of their becoming human beings who respect themselves and other people? The conceptual grounding that addresses this basic question is the biology of love.

¹ On April 20, 1999 two teenage students at Columbine High School, in Littleton Colorado, walked into the school, opened gunfire, and killed 12 students and a teacher before taking their own lives. This event shook the nation, particularly as it was followed by other episodes of child violence in schools throughout North America.

Such incidents of child precipitated violence, reported in the national news and sensed as a growing public concern, point to a pathological dysfunction in the development of the children involved. We believe that such dysfunction is systematically conserved, from generation to generation, by children living individual adult-child interactions that are based, not in love and respect, but in coercion, violence, tyranny and aggression -- whether in the home or in our institutions. Much of this has become accepted implicitly as "the norm" in a society steeped in media violence, and living in a belief that competition and aggression are the laws of nature (Bunnell, 1999).

We do not have to continue in this. We as humans do have freedom through reflection. We can reflect on two questions ...

- 1) *What kind of human beings do we want our children to become?*
- 2) *What kind of human community do we want our children to generate through their living?"*

As we reflect on these questions, we literally change what we are, and how we live. How we live determines what we become. It is our manner of living, not the genome, which is the basis of evolutionary change (Maturana and Mpodozis, 1992). Consequently, the concerns that we are now facing are far from trivial. How we address them will determine the kind of species we will become, and, indeed, the species we are presently in the process of becoming (Bunnell, 1997). The human species is currently classified as *Homo sapiens sapiens*, the doubly wise hominid. Perhaps this very designation is somewhat arrogant, and indeed we think that the name *Homo sapiens arrogans* or *Homo sapiens aggressans* (Sonntag and Bunnell, 1996) would better describe much of our current manner of living.

However, even though we have been living in a culture that promotes competition, with success and domination for the winners, over the last few thousand years, our long history of two million years in the evolution of humanness has left us with a configuration that has not yet been lost. We remain a species that feels well when living in a loving manner. Whenever we are faced with a choice between love and not love, there is that in us which responds to love.

Perhaps we still have it within us to remain, or become again, *Homo sapiens amans*, the loving human. It is this fundamental biological configuration that we speak to in the development of the experiential course described below. We can act on the premise that we are still loving beings. We can act in trust that all our various cultural configurations have not yet changed our basic biology as the loving animal.

"Only if parents and teachers respect themselves is it possible for them to respect their children and students and not deny them in their recursive interactions with them.

Only when the parents and the teachers accept themselves, is it possible for them to accept both their children and their students and not deny them in a recursive devaluation of their being.

Only if parents and teachers respect and accept themselves is it possible for them to trust, respect and accept their children and students, and correct what they do and not deny them as they do so, inviting them to reflection in the openness of awareness.

But for that to happen, most teachers and parents must be reeducated in the biology of love, so that they recover self-love, self-trust and self-acceptance, in the awareness that they themselves and the children have all that they need for education to be a joyful, spiritual, intellectual and aesthetically wonderful manner of living in which children can become happy and socially responsible human beings.

That is a big task, no doubt, but as we attempt it, let us be aware that there is a particular practice that can help us: let us not correct the being of the child, only his or her doings, inviting him or her to reflect and act in awareness of what he or she does, in self-respect and not in obedience.”

(Maturana and Nisis, 1995)

The dream of the chain of hearts inspired us to begin the work of introducing the biology of cognition and the biology of love to parents and educators in North America. We are seeking to work in co-inspiration with others who wish to restore humanness as the basic tenet of the education of children and young people. It is only in learning to understand ourselves as a loving species that we can truly understand and love the biosphere enough to make the changes necessary for our survival (Bunnell and Sonntag, 2000). It is only when we educate for humanness that we can generate a society where all children can live lives of dignity and worth.

Conceptual Basis

We are inspired by the work of Dr. Humberto Maturana, a Chilean biologist who has developed the biology of cognition² through neurological research and the consideration of its implications. The biology of love, which is the focus of our work, is a dimension of the biology of cognition. Given the growing incidence of violence among children and young people, and the crises of intergenerational patterns of abuse, it is indeed hopeful that Dr. Maturana’s work shows us a basic therapy for restoring love as a grounding emotion. His work points to a method of intervention which can take us to the origins of our humanity through evoking consensual relationships characterized by tenderness, caring and intimacy. He and his colleagues (Maturana and Nisis, 1999) have found that such relationships are so fundamental in our biological dynamics that once initiated they become self-sustaining.

Dr. Maturana’s experimental work in the biology of vision (Lettvin et al., 1959, Maturana et. al., 1968). and perception is considered seminal.³ His explanation of the nature of the living system, of autopoiesis, developed over thirty years ago, has provided a profound and systemic definition of the dynamics of living (Maturana, 1970 and 1980). Over the decades he has expanded this work into the biology of cognition, into the neurological and ontological and evolutionary basis

² The biology of cognition explains in neurological, evolutionary, and developmental terms how all living things bring their two domains of existence, the physiological and the behavioural. into congruence. Cognition is not synonymous with “thinking” as we usually understand it. However, since we humans live in a languaging niche part of human cognition does entails conscious thought. The biology of cognition comprises an extensive body of work, for the fundamentals please refer to Maturana, 1980.

³ There are hundreds of references to this work in Biological Abstracts, and several lineages of research and practice derive from it.

of emotioning, languaging and intelligence (see Whitaker, 1999, for overview, bibliography and tutorial).

The body of work that underlies this paper is unusual as it is set in a constitutive ontology⁴, rather than the transcendental ontology that is taken as underlying truth in current cultures. Given the focus and scope of this paper, we can only note that the biology of cognition shows how it is that we, as living beings, constitutively live in an ontology that arises through our living. It thus explains how all sciences, as well as other ways of knowing such as aboriginal wisdom, are valid. These different ways of knowing represent different manners of living grounded in human cognition. It will, however, be evident here and there throughout this paper that what we present arises in a different way of seeing than common in current western cultures, and thus may require a little more thought than may at first appear. Words, for example, are intentionally used in unique ways to evoke concepts not normally present in English; for example the verb “emotioning” is invented to show that emotions happen as a dynamic flow authored by a living being. The impetus for the Chain of Hearts course is to evoke a fundamental understanding of the biological basis of love and its implications to education, without requiring the participants to know the ontological grounds.

Love as a biological dynamic

When we think of love, we usually think of it as a sentiment, or a feeling, or a thing that happens to us, or as something we may give or receive. In biological terms love is a relational dynamic⁵. All the emotions that we distinguish in our living refer to particular relational dynamics. This does not mean that emotions do not have anything to do with the bodyhood. Different emotions have different ways of bringing the bodyhood and the medium into a coherent flow. Thus an emotion corresponds to a complex anatomical and physiological configuration such that we may say that we are literally different beings, with different bodyhoods, as we live different emotions. As we, through language, have the capacity to “step outside of ourselves” and comment on our condition, we transform the various sensations associated with the different bodyhoods into emotions that we claim to “have”.

Each set of relational dynamics creates, in its happening, a domain of living that can be characterized by the actions that are possible in that domain. For example, if one is angry, one cannot sincerely kiss. Consequently, we can tell the emotion by observing the behaviour. We

4 Ontology has to do with the nature of being. A transcendental ontology assumes a singular reality that transcends whatever we humans may do, which we may attempt to discover or discern. Based in this premise we create various systems wherein some people have a privileged access to “truth”, and where people attempt to convince each other of the validity of their particular version. Constitutive ontologies are based on lineages of experiences in various non-reducible but intersecting domains, consequently they allow multiple objective “realities”. Cohesion between such realities is attained through interobjectivity. What is particularly relevant to this paper is that both adequacy and responsibility arise naturally in a constitutive ontology, but are systematically eroded in a transcendental ontology. For further reading, including an explanation of why a transcendental ontology cannot be biologically supported, see Maturana, 1988.

5 The term relational dynamic refers to a particular flow of behaviours that connect a living system with its medium. For many living beings, including ourselves, the relevant aspects of its medium are predominantly other living beings, hence the relational dynamic usually pertains to a particular individual or group behaving in a particular configuration, or emotion.

usually know that someone is angry by noticing how he or she acting. We can abstract what is common in all the behaviour that can take place in any particular relational domain, or emotion. For example, love is the domain of those relational behaviors through which the other arises as a legitimate other in coexistence with oneself. The “other” applies not only to another living being, but also to oneself, or one’s circumstances. Without the requirement for any transcendent validation of the “other”, the living system is able to sense without prejudice or distortion.

Thus, the biological dynamic which is connoted by love, is a domain of living in which there are no distortions of the systemic coherence being lived. Living in love constitutes well being, as one lives in a fluid dynamic congruence with one’s circumstances, whatever they are. In the absence of love an organism lives the continuous breakdown of those systemic coherences. In us humans this happens as we live in various other relational dynamics, and the concomitant configurations of bodyhood -- namely the emotions of mistrust, expectation, fear, uncertainty, envy, ambition or competition. Such manners of living lead to changes in anatomical and physiological processes, towards a dynamic configuration of internal relations, that compensate the lost systemic coherences (Maturana and Nisis, 2000). Such compensations may appear in ways that, in the extreme, we refer to as pathologies which manifest in various manners, including violence.

As compensation takes place, the proper bodily configuration for the relational dynamic of love does not easily arise spontaneously, but may be evoked by the configuration of the medium -- that is through being engaged by another being which generates the appropriate relational space. Usually we call such behaviour “friendship”, whatever formal relation (peer, parent, teacher) this happens in. When we intentionally behave in such a manner as to restore systemic coherence for another, we usually call it “therapy”, and use various activities as the carrier for the relational space of love.

Love and the evolution of human intelligence

Dr. Maturana and his colleague Dr. Verden Zöllner have identified the fundamental role that emotion plays in human development. They show that our capacity for relational behaviour, as well as the development of language, arise in the close relationship between the child and the adults who care for and nurture the child, be they parents or teachers. Indeed, they present a most compelling explanation of the origin of the human species, of language and intelligence, through the unique expansion of infant care and extended childhood that occurred as our ancestors lived in small groups characterized by trust and love (Maturana and Verden Zöllner, 1999).

This is what our ancestors lived, and preferred to live, and in conserving this preference, it expanded and expanded to become the basis of humanness. The result was the constitution of a system of lineages whose evolutionary history was centered on love as the basic emotion in community relations, as opposed to aggression or competition, as has happened with other primates like chimpanzees. We have evolved as a loving animal, this is what characterizes us. And the 5 to 6 million years of this evolution has brought with it all our other attributes - in particular, our bodies, our expanded intelligence, our languaging, and eventually our technologies. Human language and intelligence expands together. Language arises as a manner of extending our capacity for the consensual behaviour which we conserved through being a loving animal. Intelligence arose as a manner of expanding the capacity for languaging. Intelligence and languaging grew as a circular progression that supported our ancestral manner

of living. We now show this inheritance in our bodyhood, and we retain this dynamic in our development. Even now human intelligence manifests and expands in conversation. It is the quality of our conversational interactions that gives rise to the behaviours that we call intelligent.

Intelligence is something very basic. It happens in all living systems. Intelligence has to do with the ability to participate appropriately in changing behaviour and changing relations. In this sense, intelligence, like emotion, does not take place in the brain, although intelligence does require a central nervous system to be experienced. We will refer to the capacity to flow in an appropriate manner as “plasticity”. Intelligence is a basic phenomenon that has to do with the plasticity for participation in changing relations.

We distinguish intelligence in another when we notice such plasticity. When we say a person is intelligent, we refer to the plastic flow in whatever relationship the person is participating in, including relationships in various conceptual domains. Accordingly, intelligence is not primarily the capacity to solve problems, rather it is the capacity to participate in the generation, expansion and operation of consensual domains - as domains of coordinations of behaviors and emotions through living together.

Our ability to live intelligently depends upon the circumstances of our lives and whether these circumstances have supported us to live in sufficient self-respect to be able to act in a fluid dynamic congruence with our circumstances. In other words, our ability to live intelligently is deeply influenced by the emotions we have lived in the circumstances of our lives. However, we all have the bodyhood (including our nervous system) that enables intelligent development -- this is our evolutionary inheritance.

The Biology of Love and Teaching

How do we bring the conceptual understanding of the biology of cognition to people who are not specialists in cognition? How do we shift our behaviours, and our institutions such that basic humanness, as understood in this view, is restored? We believe this can be accomplished through evoking understanding that happens in the dynamics of experience. In the view of human evolution presented above, at one time we acted in the biology of love without conscious concern. From where we now are, we cannot return to that state without conscious understanding. What this entails is experiencing our own basic biological competence while observing how it is that we actually live in consensuality with each other. We are changed as we both experience and see the role emotions play in the development of our cognitive processes. We, as parents and teachers can thus comprehend how the quality of our interactions with children enables their development as caring, self-respecting and responsible humans.

As Dr. Maturana says in his paper “Morals and Ethics in Education”:

“To educate in the biology of love is basically simple, we just have to be in the biology of love. We have to be with the children under our charge in education as we are with our friends, accepting them in their legitimacy even if we do not agree with them. All that our friends do is legitimate even when we object to their doings or are in serious discrepancy with them in that respect. In friendship discrepancies or disagreements are opportunities for reflections in expanding conversations, not occasions for mutual denial. This is why we can talk with about everything with our friends. In friendships there are no demands, indeed when a demand appears, the friendship comes to an end. Finally, there is total

mutual trust and openness for collaboration in friendship because we are with our friends and do things with them out of pleasure, not from obligation. Friendship is a word in our culture that, most of the time without our awareness, connotes the biology of love.” (Maturana, 1997)

The Initiative in Chile

In collaboration with Dr. Sima Nisis, and supported by UNESCO, Dr. Maturana developed a course for teachers, documented in the Spanish book “Formacion Humana y Capacitacion” - Becoming Human & Training in Education (Maturana and Nisis. 1995). It consists of a series of short experiential workshops that lead teachers to their own understanding of the emotional basis of our humanity in the biology of love. These workshops are currently offered as a series of evenings over a six month period. Teachers who complete the course are credited, and receive an increase in pay.

At the beginning of the course many teachers are bewildered by what the biology of cognition appears to say, for it is very different from what they have learned as “truth”. From the perspective of what they have learned, the exercises may not initially appear to make sense. They cannot see that what they have learned does make good sense from a new perspective. They cannot see it yet, as they are trapped by what they have already learned. The new perspective is thus introduced in a delicate matter, in a way that does not require the participants to deny that which they have learned. What happens, usually after a few sessions, is that an opening is created for an expansion of looking wherein existing knowledge is not denied, but incorporated in a more fluid way that enables a different way of living.

One of the teachers who participated in the course tells this story (Maturana and Vogl, 1999):

“I teach in an impoverished area where I have a class of 12-15 year olds. These students are generally very restless and unruly, moving about all the time, making me uncomfortable. I realized that if I could be uncomfortable, so could the students. So I said to them “I do not like to be where I do not like to be, so I imagine you also do not like to be where you do not like to be. Now I see that you move around so much that you must like to be where you are seated. Please sit anywhere that you wish.” So the students moved around, and sat here and there, and after a while they had each found a spot and were ready to attend to my class.

Shortly after this, the Inspector came, opened the door, and found the students sitting all over the place. He asked what was going on. The students all looked at me, so I told him we were doing an experiment. The Inspector said that was OK for today, but tomorrow everybody had to be seated in their proper places. So the students asked me what were we going to do now? I answered “Well, we must be intelligent. We must invent a way that satisfied the Inspector and allows us to do what we do. So let’s talk about it.”

After a while we decided that we would work in groups, so I told them to arrange themselves in groups and sit wherever they wished. After a bit of moving around, everybody was settled and ready to work again. When the Inspector returned the next day, he asked “Now what is happening?” and the students answered “We’re having teamwork, Sir!” He answered “Oh well, then!” and walked away.

I saw how this experience created a whole new atmosphere such that the relationships changed, and we had a universe where the students felt free to talk. The essential thing was that I was able to listen to their emotions. Students have to be free. If you listen to their emotions, they are free. If you do not listen, they are not free.”

In the Chilean schools the teachers reported that once they began, the response of the students served to conserve⁶ and expand the teacher’s competence and pleasure and thus the change became self-sustaining.

“As a child grows in a human community he or she becomes a human being of the kind proper to the community in which he or she grows.” (Maturana and Nisis 1995)

The Initiative in Canada

We have developed a course called The Chain of Hearts, which re-introduces children, parents and teachers to the simple experience of becoming human. The Chain of Hearts, (Maturana, Bunnell and Forsythe, 1999) extends and expands the South American work, with a focus on the North American culture and educational system. In it, we have re-contextualized and expanded what we consider to be seminal work in the biology of cognition for the North American culture.

In our experience, as well, we have found that neither reason, nor emotion, is adequate in itself. The course works through an interlacing of experiences with a context of explanations that enables the participants to begin navigating their daily lives based on the understanding.

We have found that if one emphasizes reason, then argument results, and people begin to live in a tyranny of competitive argument. On the other hand, if one focuses entirely on emotion, then a personal tyranny results wherein emotion becomes the determining factor in one’s living. Thus, focusing on either reason, or emotion, as primary results in distortions of living. Only the continuous interplay of these two aspects of cognition can result in a way of living, and of being with others, through which understanding, and eventually, wisdom can arise.

Consequently each workshop in the Chain of Hearts begins with a very short presentation of about 15 or 20 minutes. This is followed by a series of exercises. After each exercise the participants talk about their experiences and the insights they had. This conversation is conducted in a manner that results in the experience of co-inspiration ; that is each person has their own insights, inspired by the reflections of the other participants. The presenter becomes one of the group who may expand and enrich the understanding by providing further anecdotes or an enlargement of any area in the conceptual domain. Thus we integrate reason, and the flow of emotions in the course itself in a manner that models what we intend to convey.

The whole set of workshops consists of 20 units; organized in groups of four. The first four comprise what we consider the minimum foundation from which people may begin to expand the understanding on their own.

⁶ Conserve: to maintain constant during a process of change (Webster’s Collegiate Dictionary, Tenth Edition, 1994) We choose conserve rather than preserve, which has a similar meaning, as the latter has a connotation of stasis or of proprietary access (as in a game preserve).

Intelligence: a topic in the Chain of Hearts

In this section we present some of the content that is relevant to the topic of Intelligence. In the Chain of Hearts the information presented below is covered in several units.

We claim, as do Maturana and Nisis (1995, 2000), that love is the only emotion that expands intelligence. Maturana (1980) develops the conceptual grounding for this in the biology of cognition, as the following sections, drawn from The Chain of Hearts (Maturana, Bunnell and Forsythe, 1999), seek to explain this claim.

We are equally intelligent

From a biological point of view we humans are all equally intelligent. Our languaging brain is enormously plastic⁷. It is this plasticity which allows us to generate endless recursions in language, which lead to new domains of living, without any end. The fundamental neuronal plasticity needed for living in language is so gigantic that we are fundamentally equally intelligent.

Of course, there are individual variations in realizing this fundamental plasticity according to whether we have had some malnutrition in our development, or brain damage or disease, or whether we have lived a life that has put us in situations of constraint, despair, or rejection. However, the initial constitution of all human children is essentially equal in the domain of intelligence.

What many of the various measures of 'intelligence', such as the IQ, do is to measure the degree of cultural inclusion of a person, and not his or her capacity to participate in a plasticity of consensual behaviour.

Love expands intelligence

Emotions modulate the operation of intelligence as a concrete aspect of everyday life. Thus, envy, fear, ambition, and competition restrict intelligent behavior, because they narrow our attention and our vision (in all our senses). These emotions prevent us from seeing the other, or from seeing the circumstances we find ourselves in. This we know in everyday life; we show this when we say “he is blinded by ambition” or “she is frozen with fear.” If you consider your experiences, you will likely see, as we claim, that the only emotion that broadens our vision is love. In love we accept ourselves and the circumstances in which we live, thus expanding the possibility for intelligent behaviour. In this sense, love is visionary.

When, through criticism of their being, we undermine the respect for themselves that boys and girls naturally enjoy, we restrict their intelligent operation. Living in continuous control of children's behaviour, because we do not really trust them, has the same restrictive effect on their intelligence. This is also the case with continuous devaluation of children's behaviour and continuous demands for their obedience or compliance.

⁷ Plastic: capable of adapting to various conditions (Webster's Collegiate Dictionary, Tenth Edition, 1994) We use “plastic” in referring to intelligence as the ability to participate appropriately in changing behaviour and changing relations.

We restrict the intelligence of others, particularly our children, and ourselves with our own blindness, vanities, and insecurities when we live in mistrust, ambition, competition, or fear.

Evoking intelligent behaviour

Since we exist in relationship, and our intelligence arises in relationship, the nature of the relationship affects the emergence of intelligent behaviour. It is not just a matter of unpleasant or stressful emotions masking our “real” intelligence in an interaction. An interaction that does not encourage and evoke the plastic flow of our behaviour actually limits our intelligence. Students become intelligent in the interaction with the teacher. The same is true of parenting.

One of the greatest releasers of intelligent behaviour in all those around us is to accept the intelligence of the others. It blossoms forth. In a culture where some have to be less intelligent than others (grading, competition, etc.) this fundamental acceptance is often missing. Our ability to live intelligently depends upon the circumstances of our life and whether these circumstances have supported us to live in sufficient self-respect to be able to act responsibly, in an experience of freedom.

Intelligent living is broadened when we live in mutual respect, and it is restricted or diminished when we live in fear, competition and ambition. If we, as parents, teachers and caregivers, are not aware of this, we are blind with respect to what happens with our children, and we deny them in creating situations that diminish their intelligent living.

Understanding through experience

The notions addressed in the above text are understood through participation in several exercises that lead up to the unit that explicitly deals with Intelligence. Most of the exercises are designed to allow the participants to sense the relational domains generated in contrasting manners of doing the same thing, and from both sides of a conversation. For example, one exercise which distinguishes the correction of a person’s being, from the correction of what they are doing, is played by partners who trade off being the instructor and the student (or the parent and child). Another exercise is designed to show how performance in a situation where someone is being evaluated is altered by the emotion of the instructor who is performing the evaluation. Yet another exercise is designed to reveal that the flow of a conversation, whatever the content, is entirely different if the instructor/teacher/conversant assumes that the other is intelligent, and that what they have to say is meaningful in the domain that they speak it.

It is not easy to describe an experience such that it is lived as an experience, rather than read as an explanation. The following excerpt from a novel (Bunnell 1999b) describes one of the exercises from the Chain of Hearts in a manner intended to evoke the experience in a reader. In the novel a mentor (Elder) is assisting a young woman (Linda, speaking in first person) to prepare for college exams, and during a break he proposes a game. Elder holds his hand up in a loose fist and asks Linda:

“What do I have in my hand?”

“*Nothing. Air.*”

“Imagine something. Anything.”

“*A cow!*”

“Ohhh! you saw the tail sticking out!”

Somehow he made it seem as if there really had been a miniature cow in his hand! He held up his hand again.

“What do I have in my hand?”

“Ummm.... A train!”

“Ohhh, you heard the clickety clack!”

And there I was, hearing the train, and I couldn't help but laugh. And again.

“What do I have in my hand?”

“A cookie!”

“Ohhh, you could smell it!”

I could.

“How do you do that! How does it become so real!”

“Try it.”

So I held up my fist, loosely curled around nothing, and asked Elder:

“What do I have in my hand?”

“A mouse!”

Immediately I imagined a mouse, wiggling around inside my hand, squeaking as if it wanted out.

“Ohhh, you could hear it squeaking!”

Linda and Elder talk about how the game works, then Elder comments:

I showed it to you because it is something that you will find useful throughout your life.”

“O.K.”

“When the other person tells you what you have in your hand, you have to invent a clue that makes him (or her) right. That's the important part. You are listening to him or her with the intent of making the statement valid.”

“Yes...”

I didn't see how this would be useful.

“The same applies to any statement made by another person. People don't make nonsensical statements, unless they are just playing, and then you would know. But when they say something that doesn't seem to make sense to you, the trick is to find the domain, to find the particular way of seeing the world, in which what the person says does make sense. That's the only way you can listen to them. Otherwise you are just listening to yourself.”

“I see... Elder, is that what you do all the time? Is that why it's so comfortable to be with you?”

Teaching Intelligence

On reflection we can see that the teaching of intelligence, like teaching wisdom (Maturana and Bunnell, 1997 and 1998), is not something that can be done as a manipulation of students in any form. There is no information, no data, no procedure which will result in intelligent students. But this does not at all mean that a teacher cannot create a context and behave in a manner such that intelligence arises. This is why it often happens in a school that one teacher is considered “lucky to get all the smart students”. The students become smart according to the emotioning of the teacher. Teachers can indeed open a path for their students such that their own living, for the rest of their lives, will become a self enhancing expansion of awareness in all the dimensions that manifest as wisdom. Teachers no more need to “teach” children this than parents need to “teach” their babies to talk. But teachers do need to do something analogous to what parents do that enables their children to discover their existence as humans, and to begin the recursive consensual coordinations which manifest as language.

To evoke intelligence, teachers must live with their students that which they wish the students to learn. Students learn the teacher, not the topic, and if the topic is part of the teacher, they learn it. Thus, too, students learn the manner of living that leads to ever expanding intelligence. In this sense the most important thing a teacher can do is to expand his or her own living and awareness, and to accept his or her own adequacy and legitimacy. Out of this all the rest will flow, without effort or strain. To teach intelligence, a teacher needs only to play with the students in the fullness of the knowledge and understanding that pertain to the domains that are being taught. Teachers have always known this, we have but offered you some of the biological explanation of how this happens.

Conclusion

The Chain of Hearts is still in the process of development. The first group of students who attended the course in the spring of 1999 in Vancouver had this to say:

“For me it’s the experiences that bring it to life. From doing them I recognize patterns in my own life. And doing them with a partner I can feel it, and this makes it easier to carry it into the everyday. The experience is the most important part.”

“The explanations are explanations as gifts, not explanations as ego.”

“It is wonderful to carry the experiences and understanding out into the week. And because we do it on a regular basis, I can live it. I have been trying it out with my two roommates who are arguing with each other, and it really works. With what I now understand I am able to change everything, and really put it into practice.”

“The theory behind this course is great. I have been reading about and taking workshops in several different things to do with the human condition - spiritual and other. For me this is like a new horizontal doctrine. Kind of like a contemporary Taoism or Confucianism, something suitable for this time. The current situation has never been seen before. All the other practices were developed for a uniform culture, one ethnic background, or one ideology. The old thinking does not work in the current situation. Now there is no single culture, so it is very important to have something that crosses all of them, that has to do with our basic humanness. That is what this is about.”

In our current culture we learn to think that we are only good if we are better, intelligent only if we are more intelligent than the others. But this is a big trap. We are equally good, and equally intelligent, and we do not need to pat ourselves on the back for our great intelligence and care, or for our wisdom. We can take pleasure in this, and recognize that it is no little thing to rise as legitimate, loving, intelligent, and even wise beings out of a culture which makes this difficult. And if we do so, we may indeed become *Homo sapiens amans*. And as we do that, there are enormous implications to the way we live together with each other and with the rest of the biosphere.

Our experiences in developing and teaching the biology of love, as a practical aspect of the biology of cognition, encourages us that it is possible to restore to our educational systems the fundamentals of our humanity and with this, the love and hope with which we adults, whether teachers or parents, wish to gift our children through the quality of our living with each other.

How we live with our children is how they become.

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Note:

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