

PATTERNS

ASCD Systems Thinking and Chaos Theory Network Newsletter

September 1999

From the Editor:

Having personally experienced the Loma Prieta earthquake in 1989, I find that the news of the more destructive earthquake in Turkey has triggered kinetic memories. I am feeling the terror of the aftershocks that had me sleeping in my car for days following the quake. And I am re-experiencing the sense of malaise, anger and shock that prevented me from cleaning up the mess for a long time afterward.

As I contemplate these feelings I realize at a deeper than intellectual level how very interconnected we humans are. I'm aware that by becoming a "systems thinker" I am being affected "holistically." I sense a shift in my *understanding* of the word "responsibility" — a shift in the *experience* of my ability to respond.

Upon reflection, the popular phrase, "*Think Globally, Act Locally*" holds deeper meaning for me now. "Think globally" becomes the *experience* of Earth shifting as a living system and "Act locally" becomes the *experience* of the shift in myself as an embedded living system. There is no "out there." There is no "me" as separate from "them."

I share this realization of a personal paradigm shift in order to emphasize that the "systems thinking" we speak of in PATTERNS is not only about intellectual understanding of living systems theory and systems dynamics, but about the experience of *being* -- the experience of interconnectedness with all the sadness and joy and ability-to-respond which that entails. In a way that I am not quite sure of yet, I believe that this is what Humberto Maturana's *Biology of Cognition and Biology of Love* is all about.

Teacher Education: A Priority

Excerpts from an Interview with Humberto Maturana

Chilean biologist, Humberto Maturana, with his student and collaborator, Francisco Varela, originated the concept of autopoiesis which is influencing our traditional theories of perception and cognition. What is known as the Santiago Theory of Cognition is described by Fritjof Capra in the March 1999 issue of PATTERNS (pp. 2-3). In the September, 1998 issue, Pille Bunnell, President of the American Society for Cybernetics and Kathleen Forsythe, the Vice-President, write of Maturana's great insight and life work known as the biology of cognition. The biology of love is introduced in the May, 1996, (pp. 8-9) issue where musician, Marnie Jones, writes of her experience of Maturana's theory of evolution which suggests that humans are love-based creatures.

Barbara: Humberto, you are doing a lot of work with teachers in Santiago, Chile. Would you say something about how this came about?

Humberto: This work began with the support of UNICEF in attempting to improve the education of children. They approached me and I said that it had to be done with the teachers, not with the children directly. I suggested that what I would do (with my colleague, Sima Nisis) would be to teach them the biology of cognition and the biology of love. My unspoken intention in doing this was to create a situation in which these teachers, through an understanding of the human condition, might discover self confidence and self respect.

These were teachers who worked in a very poor area of the city where there was much violence. They felt very poorly about themselves, had lost confidence and felt there was very little they could do. So the Ministry of Education opened a space for this work to occur and eventually, in recognition of taking a course of this kind, there was an upgrading of their salaries. The course lasted about six months, two sessions a week. This consisted of thinking about humanness, language, emotions, evolutionary history of human nature, how emotions participate in social phenomena from the particular perspective that the theory of the Biology of Cognition provides. The result of this was that the teachers' attitude about themselves changed and as they grew in self respect and confidence their relation with their students changed. This process caused the students to become supportive of their teachers because as the teachers trusted themselves, the self-sustaining dynamics in which the relationship became one of mutual respect allowed the students to trust themselves. The students then can go to the streets and not necessarily enter into the competing, difficult situations because their attitude about themselves had changed.

B: So instead of dealing with the symptoms of problems in the school you get to

Inside

Humberto Maturana.....	p. 1
From the Editor.....	p. 1
von Foerster/Maturana.....	p. 4
Network News.....	p. 4
Reflections.....	p. 5
Book Review.....	p. 6
Surf Notes.....	p. 6
Gary Bloom Interview.....	p. 8
Book Reviews.....	p. 10
Zephyr Press Response.....	p. 11

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From the Editor (continued)

In this issue we present an interview with Chilean biologist, **Humberto Maturana** and excerpts from a conversation he had with Cyberneticist, **Heinz von Foerster**, on the subject of the education of teachers. (Check our index of past issues to find other contributions from these two seminal thinkers. <http://www.haven.net/patterns/>)

In collaboration with the **American Society for Cybernetics**, we were fortunate to be able to bring these old friends together and to videotape Maturana and von Foerster (father of 2nd order cybernetics) in conversation concerning science and education. We believe they bring new meaning to what it is to be a teacher.

In a speech titled, "*Guiding Organizational Change: Lessons for Leaders from Complexity Theory*," presented at the Leadership Conference of Women Religious [LCWR] meeting in August, 1999, **Myron Kellner-Rogers** (Berkana Institute, PATTERNS July 99) describes the process of learning which we hope to stimulate. He states:

Any living system — from a microbe to a global organization — has the capacity to notice new information. If it chooses to be disturbed, it takes in the information and rapidly circulates it through an internal network of connections.

As information circulates, it gets amplified. It begins to accumulate meaning and the information itself evolves. If the information is meaningful and different enough, the system will no longer remain in its present form — it will let go, descending into what appears to be chaos.

Only then will it reorganize into a new form, recreating itself around new meaning. With this new meaning comes greater capacity to deal with the world.

In our network publication, PATTERNS, we strive to present information that is meaningful and different enough so that our readers can recreate themselves around new meaning

the root of the problem which is, basically, problems in relations between teachers and students.

H: Yes, and also thinking that the solution of the problem is in the teachers themselves. They have the ability to solve this. You don't have to provide an external *thing* for a solution but only change their attitude about themselves without telling them what to do. If you tell them what to do, it doesn't work. This is important! If you tell them that they have to love their students they will say, "Yes, but we do....it doesn't work....nothing happens." That is because they do not know about the evolution of love. They know how to talk about love but they do not know what love is in another. So this is important....to understand about our human past and to cover the basic conditions of self respect and self love.

If you tell them what to do it doesn't work.

B: We are so caught up in a testing mania in our schools, trying to get the best out of our teachers, when actually it strikes me that works against what you are talking about. You are saying we need to support them in an atmosphere quite different from that.

H: Yes, because if you have a system of tests what you do is to satisfy the system of tests. So the test doesn't test you, but tests the test.

B: This is hard for us to understand. I find that testing contributes to what I have noticed in teachers; that is that so many times they feel caught between their students and the administration, somewhat like being "caught between the devil and the deep blue sea."

H: That is why in this course the administration personnel *must* participate with the teachers. This is a very fundamental requirement because, if not, the contradiction you just mentioned exists and whatever the teachers want to do is immediately denied. There is no mutual respect.

Education is the transformation of living together

B: You talk about the biology of cognition and I've often wondered how this differs from Piaget's theories of constructivism in the process of learning.

H: The biology of cognition began with the question about perception. I was studying visual perception, color perception, and in this process I realized that the standard approach which thinks that to know is to know something external to itself, does not work. You cannot explain vision that way. And when I saw that, I took seriously something that, of course, everybody knows which has to do with illusion. When you have an illusion you do not know that you have an illusion.

B: That's a contradiction in itself.

H: But you only know it afterwards...you say, "Oh, that was an illusion." So you cannot claim that you can say something about something external to you because that something has to be validated by another experience. An experience of perception is validated by another experience. And an experience of illusion is invalidated by another experience. But at the moment you do not know whether you are going to validate the perception or invalidate it. So when I took this seriously then I realized that I had to deal with the question of the nervous system in a different manner. And then the biology of cognition arose as a manner of explaining cognition, perception, the operation of the nervous system without thinking that you have to deal with an external reality.

Now for Piaget there is a background of external reality that somehow confronts you. I claim that you cannot stick to those terms. This is a limitation. It is from the ground of the development of the biology of cognition that I claim that education is the transformation of living together. Children do not learn any subjects but learn to live with their teachers whichever way this happens to be — with the teacher or against the teacher — it doesn't matter. They become conformed in the space of living with the teachers. This

has nothing to do with an independent reality.

So in that sense this view is different from Piaget. I think that the very stages in which Piaget separates the transformation of the commutative processes of the children are not really stages of development but are cultural moments in the growth of children which are based not necessarily on a particular age but depend on how the cultural situation is. This is precisely because the world that the children begin to live is the world of the interactions of the adults. And the children need these adults if they are going to live to develop and respect themselves.

B. Are you saying that the relationship with the teachers is what the children learn in?

H. Yes. The teachers create the space in which the children will grow with the teachers.

B. In the process of transformation?

Whatever the teachers do is fundamental.

H. In the process of interaction. And this transformation will conserve the relation with the teachers. Now this relation can be satisfactory or not from the perspective of other persons. But this is what is going to happen. So whatever the teachers do is fundamental. In that sense, the task is to create the space of interactions in which these children will be conformed in a way in which they become self-respecting and respectable adults.

B. And self-organizing learners, life-long learners?

H. Oh yes, if the teacher lives with the students in a way such that the children develop the habit of learning by themselves. But if the children develop the habit of looking down upon themselves then this is the kind of being that they are going to be. This will depend on which relationships teachers have with the students. And this will depend on how the teacher looks at him or herself. The teacher who does not respect him or herself cannot respect his or her students.



From Change Agency Facilitator, Charley Webber's listserv <change-l@majordomo.ucalgary.ca> Sandra Murfitt comments on the contradictions in the work of educators. One wonders why any bright young person would want to enter the field.

Referring to *The Heroes Journey* by J. L. Brown & C. A. Moffett, (1999) Alexandria: Association for Supervision and Curriculum Development) she notes that the authors highlight some of these contradictions.

- the contradictions of conservative and liberal viewpoints operating simultaneously while vying for supremacy in public education.
- the political demand for uniform educational standards coming at a time when pluralism, diversity, and regional autonomy have never been more powerful.
- the persistent call for individualization of instruction, coupled with an equally strong demand for organizational consistency, uniformity, and control.
- the heightened public pressure, criticism and concern over the failures of urban schools that have resulted in a focus on stringent accountability and sanctions, rather than support for the repair of aging buildings and a provision of quality instructional materials and increased teacher and administrator professional development.

Murfitt further comments on *Synchronicity: The Inner Path of Leadership* by J. Jaworski (1996) San Francisco: Berrett-Koehler) Jaworski writes: "I began to feel I was indispensable to the whole process, that I was responsible for all the people involved, and that everyone was depending on me. The focus was on me instead of on the larger calling" (p. 122). Jaworski calls this a trap and something to be avoided yet the principal of a school is ultimately responsible and accountable for the operation of the school. How do we blend the two seemingly opposite realities?

These are dilemmas encountered by all educational leaders. Our interview with Gary Bloom, who strikes me as a natural systems thinker, may be helpful. (see p. 8)

that gives greater capacity to deal with the world. This is appropriate to the kind of learning necessary for teachers who are now required to address phenomenal changes in their students, changes in pedagogy and changes in the world.

We also have an interview with Gary Bloom, one of the authors of the article, "A School Without a Principal." (Educational Leadership. 1998 Vol. 55:7) He is now Assistant Director of the Santa Cruz New Teacher Project, a collaborative effort among the University of California, Santa Cruz, Teacher Education Program, the Santa Cruz County Office of Education and over a dozen school districts in the area. The SCNTP has been selected as one of three exemplary new teacher support programs for a nationwide study on teacher induction to examine how particular policies and practices can support effective, standards-based teaching and learning. Noting that teacher quality is the single most important influence upon student learning, Ellen Moir, NTC Director, reminds us that teacher development must be considered in the context of whole school change.

In this issue we have the second of Claudia L'Amoreaux' column, *Surf Notes*. The real time dialogue we schedule following the receipt of each issue of PATTERNS is on our website, <www.haven.net/patterns/> and is beginning to gather participants. In July we had a lively conversation with Heiner Benking from Ulm, Germany. Please note directions on how to get there and when. (p .6)

A lively discussion on the principles of andragogy found on the Change Agency listserv is relevant to this issue.

<change-l@majordomo.ucalgary.ca>

Andragogy, being the education of adults as different from children, is under discussion. Larry Phillips mentions Andragogy principle #10 which states that *facilitators and learners collaborate in the learning process. Planning, evaluation, and responsibility for*

learning are shared.

Larry comments; "I've always thought these assumptions should apply to pedagogy. The only reason not to is that kids are smaller than adults."

I agree and I also like his email motto....

Make Quantum 2000 happen!

Network News

We are very pleased to announce that **Carole Cooper** has agreed to be **Co-Facilitator for the STCT Network**. As a founding member, she has always been there ready to help. She will be conducting the annual meeting of the network at the **ASCD Conference in New Orleans, March 25 - 27, 2000**.

Carole is the Director of Inner Actions in Education, a unique organization that works in partnership with schools and their communities to transform educational institutions into collaborative learning communities. Their goal is the development of interdependent, responsible lifelong learning systems.

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January, 2000 will begin the fifth year of this network and the bi-monthly publication of **PATTERNS**. We are pleased that we have grown slowly but steadily in membership which now stands at **86 paid members**. In order to pursue our intention of providing further services we are asking those of you who have been receiving complementary issues to consider paid membership.

Please Note:

My e-mail is changed to :

bvogl@cruzio.com

Webmaster,

Claudia L'Amoreaux

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In Conversation Heinz von Foerster and Humberto Maturana

Heinz: One of the points of our conversation yesterday that is the most intriguing, which I cited from one of your books, (*Autopoiesis and Cognition*, with Varela, F. Reidel, Boston, 1980) is that the world in which we live is not external from us—is not independent from us; it is a world which we construct—which we create. This is a very profound shift. The question which arose is what is the implication of this shift of position for education?

Humberto: I think that the most significant consequence for education is that it tends to look back at what happens with the teacher in the relationships. Because education will not be so much concerned with ideas and understanding about the knowledge of the words, but about what is happening in the relationship between the teacher and students. If it is so that the world arises in the interplay of our living together, then which way do we live together so that the world that arises is the one that we want to live in?

Heinz: My observation regarding this point is that people have become more interested now in learning instead of teaching. The shift in the interest is in what takes place when children learn. My interest is in the position of *discover* or *invent* as a very important shift because if you discover, you already have an "out there," but if you invent then you are creatively active in producing the universe in which you like to live.

So I think it is a stimulant for the children to invent with their teachers the mathematics, the geography, the world or something like that in which they want to live. There could be cooperative games amongst the children where they are allowed to do things by themselves.

The world is not independent from us.

It is a world which we construct.

Humberto: Yes. But that inventing of the world together should occur in a rather innocent manner... not necessarily speaking about there being no independent world from us—about inventing it—because one needs to see a world. So I think that the central theme would be the awareness that the students would be conformed in living together with their teachers. And the question would be, how do I behave as a teacher such that in the transformation of the children by living with me, a world arises which is pleasant to live in and in which these children acquire the abilities to do certain things? It could be mathematics, geography, biology—whatever it is.

Heinz: The main shift for the teacher is that he or she doesn't enter the class saying I know everything. I have to tell you what I know and you have to learn what I know. Instead s/he enters saying "I know nothing. Let's find out what's going on." An invitation to search, to create, to participate in a game that constructs the universe in which they all want to live. It is not so that knowledge is transferred from one brain to another, but in a participatory game in which both the teacher and the students learn together about whatever they create during the learning procedure.

Humberto: So the students will learn by living with the teacher to do with the teacher the way the teacher does things.

Heinz: Yes. There was this wonderful man by the name of Gordon Pask. This crazy British educator always said that the teacher has to be a learner and the students had to be teachers. So what are the students to teach? The students are to teach the teachers who they are and the teacher has to teach the students what he is and he has to learn from them who they are so that they can develop a real dialogue and not a one-way monologue.

Humberto: Hummmm. We were speaking yesterday about Science.

Heinz: If you assume that science is nothing else but finding the truth regarding how the universe is, it is my suspicion that it is essentially in science that you support the

(continued on next page)

notion of truth and therefore have an outside external universe independent from us. But if there is doubt that we can ever know how the world really is, then the question of science could be that you don't establish the truth regarding any observation you've made about the universe.

Humberto: Yes, but the essential thing there is that you practice this possibility of looking and asking questions about what you are saying — whether it is valid or not. So the children could learn that too and in this way could acquire this ability to be aware of what they are doing in the world in which they are being together with the teacher.

Heinz: Absolutely, I think that is very interesting — that the children are aware of what they are doing and also know that what they are doing is not necessarily always to conform to a pre-set series of truths. But so they can develop notions that are not yet there. We can distinguish two kinds of questions; the legitimate questions and the illegitimate questions; the *legitimate* questions are those to which the answer is not yet known. The *illegitimate* question is that to which the answer is already known. Can we build a school system in which only legitimate questions are asked?

Can we build a school system in which only legitimate questions are asked?

Humberto: So the question would be to create an interaction with the students that would give rise to the generative process of written kinds of "knowledge."

Heinz: The task of the teachers is much much larger than the demands of the teacher in the earlier educational system. In the earlier system the teacher might learn rules of the game by heart and now he has to be ready to uphold the rules of the game with young people who might come up with ideas he never thought of before. He has to learn to give the green light although he doesn't understand the ideas yet at all. You know how ingenious young people are. It is fascinating if you allow them to do their own thing.

Humberto: Yes. What about the relations—the way the teacher relates to the students?

Heinz: As a co-player. They are playing a game.

Humberto: If you are a co-player then you must have a very loving relation with your fellow players. How do you do that?

Heinz: If he is selected to become a teacher then this should be a prerequisite.

Humberto: And in his training as a teacher also. Of course, this is a utopian point of view but I'm living in a utopian world.

Heinz: (laughs) That's lovely!

Reflections on Teaching Dynamics and the Biology of Cognition

Humberto Maturana tells of a teacher he knows in Santiago, Chile who is teaching a class of 12 to 15 year olds who are very unruly, moving about all the time, making her very uncomfortable. She realizes how she feels so she says to the students; "I do not like to be where I do not like to be so I imagine that 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 not like to be where you are seated. Please sit together where you wish."

So the children move around and sit here or there wherever they want to be and that changes the whole atmosphere such that the relationships change and they have created a new universe in which they are free to talk. This is an essential thing. The teacher listens to the emotions. Children must be free. If you listen to that, then they are free. If you do not listen to that, then they are not free.

How do we teach teachers to become a teacher? *One has to teach teachers to listen... to themselves, to the children and to others.*

Now the same teacher found herself, shortly after this, with the following situation. The Inspector came, opened the door, and found the children were not seated the way they should be seated. He asks what has happened here and all of the children look at

the teacher. She says, "We're doing an experiment." The Inspector says, "OK. For today its OK but tomorrow you must be seated in the proper place." And he went away.

So the children ask the teacher, "What are we going to do?" and she says, "Well, we must be intelligent. We must invent a way which satisfies the Inspector and allows us to do what we want to do. So let's talk about it."

They talk about it and they decide that they will work in groups. So she said "Well, arrange yourselves in groups whichever way you wish." Again, they move around and arrange themselves wherever they want to be... in groups of 5-6 students. The teacher says, "OK, now each group will be a team and one of you, each day, will report and talk with me about the difficulties you may be having in whatever task you are performing which we have assigned the day before." So, each day one of the students from each group would be in charge of the reporting and then explain to the other students.

The next day the Inspector returns and asks, "What is happening here?" and the children say, "We're having teamwork, Sir"..... "Ohhh, very well," he says and he walks away.

Heinz comments.... "That's not easy to make that bridge but if you do it you are a very good teacher. *Your story shows the consequences of your basic idea...that we live in a world that is not external and not independent from us. It is a world that we construct, that we create.*



The creations of new learning communities that include rather than exclude, that create knowledge rather than only apply it—and that offer challenge and support—these provide the greatest hope for teachers who are learning to teach or in the process of transforming their world and their work.

*Ann Lieberman
emeritus professor,
Teachers College,
Columbia University*

(continued on next column)

Surf Notes

by Claudia L'Amoreaux

Randall Whitaker's Observer Web: Your Internet Nexus for Autopoiesis and Enaction

In the process of preparing to interview Humberto Maturana in August with Barbara, I did an extensive search of the web for related sites. Randall Whitaker's Observer Web is the motherlode. Its origins are in an email newsletter called *The Observer* that Randall initiated after an August 1992 discussion at the **Dublin City University** conference on "*Autopoiesis and Perception*" with **Francisco Varela**. At the time there was no forum dedicated to the discussion of autopoietic theory. All of *The Observer* issues, past and current, are now on the web, along with a tutorial, an in-depth Study Plan, the Encyclopaedia Autopoietica (dictionary of terminology) and an Online Reading Room of Maturana's and Varela's articles.

Here's a suggested route through this rich resource center...begin with the tutorial—a brief overview of the key concepts in the work of Humberto Maturana and Francisco Varela. Follow that with a visit to the Study Plan. Here Randall has organized the material to progress from light (brief overviews) to serious (substantive introductions), with secondary/follow up literature and a suggested syllabus. He explains: "*The real difficulty in approaching Maturana and Varela's theories lies not in their complexity but in their novelty. Because it takes a while to catch onto and shift into these thinkers' perspective, the listed readings are ordered so as to provide a 'graduated' progression.*"

The light and serious sections are each followed up by Randy's Recommendations. *Here is his advice for the light path...*

"If you are willing to only read one book on the subject, it should be the more substantive (and the more difficult) volumes listed in the next section. If you must limit yourself to the light stuff, I'd recommend a combination of *The Tree of Knowledge* (for basic notions) and *The Web of Life* (to place Maturana and Varela's work in the context of current trends)."

And for the serious...

"There is no substitute for the original source — i.e., the primary literature. You should read either *Autopoiesis and Cognition* or *Principles of Biological Autonomy* to obtain a strong foundation in autopoietic theory. I've often been asked which one should be read if there's only time to read one. That's a good question, but I've never decided on a final answer. *Autopoiesis and Cognition* is more difficult reading, and its early terminology can be confusing. Nonetheless, I find that this is the book I always return to when I want definitive explanations. On the other hand, *Principles of Biological Autonomy* covers much of the same material (and much, much more...) in a more readable fashion. My advice is that you will be well-served with either book. Owing to their relative rarity, your choice will probably be made based on which one you can obtain most readily."

Randall proposes the study circle as a valuable approach for engaging the ideas in depth. In the Study Plan he offers a syllabus for a one semester introductory course and proposes this as the basis of a study circle. He writes, "*In my experience, newcomers to autopoietic theory require between one to three months of reading and discussion to 'catch on' to the gist of these novel ideas. If possible, a study circle approach (small reading group with lots of focused discussion) will yield the best results.*"

If anyone in the PATTERNS community is interested in going to this depth, the DialogueZone of Haven is set up to facilitate study circles. Barbara and I would be happy to work with you to get this going—it would be in the form of an email discussion list using eGroups (digest version available). Let us know if you are interested, by email, or join us live for a conversation on October 2 (5 pm Pacific) in the DialogueZone of Haven. (Visit <http://www.haven.net/patterns/welcome.htm> a few days ahead to register to participate.)

Links

Observer Web: <http://www.informatik.umu.se/~rwhit/AT.html>

The Observer Archives: <http://www.informatik.umu.se/~rwhit/ObsArchive.html>

Tutorial: <http://www.informatik.umu.se/~rwhit/Tutorial.html>

Study Plan: <http://www.informatik.umu.se/~rwhit/StudyPlan.html>

Encyclopaedia Autopoietica: <http://www.informatik.umu.se/~rwhit/EAIntro.html>

Reading Room: <http://www.informatik.umu.se/~rwhit/ReadingRoom.html>

System Dynamics in Education Project (SDEP) at MIT

Since this issue of PATTERNS focuses on teacher education, I thought some readers might be interested in the SDEP website. The System Dynamics in Education Project is a group of students and staff in the **Sloan School of Management at MIT**, with **Jay W. Forrester**, founder of system dynamics, as resident mentor. Their K-12 system dynamics email list is archived at the website. They

facilitate discussion on the use of system dynamics and systems thinking in K-12 education. Jay is very present on the list, along with an active core group of teachers who are catalyzing some very innovative programs in their schools.

I was especially interested to find SDEP is offering a **Guided Study Program in System Dynamics**. It started early this month, and runs through May, 2000. This is the third year of this distance learning program. Here's a brief description:

The Guided Study Program is organized around the "Road Maps" series (a series of chapters on system dynamics which can be found online at <<http://sysdyn.mit.edu>>) and some of the "classics" in system dynamics literature. Weekly (and occasionally bi-weekly) assignments include readings from papers in Road Maps, exercises based on those papers, additional questions on the topics of study, readings from the classic system dynamics literature, and modeling exercises. Participants will receive comprehensive general solutions to the assignments as well as detailed feedback, corrections and suggestions on their individual answers. Progress of participants is monitored by a team composed of MIT undergraduates with experience working for the System Dynamics in Education Project. Members of the team, the GSP tutors, are authors of many of the papers in Road Maps. Professor Forrester, as the head of the program overlooks the work of the tutors. Each week the team reports back to the System Dynamics in Education Project group meeting with Professor Forrester to relate progress of participants and discuss questions that arise. Material covered will be similar to the past years, but experience gained in prior years will serve to improve this year's Program. Participants can reach tutors individually through e-mail and get feedback on questions and concerns.

I recommend starting with the mail list archives to discover the buried treasure on this site.

Links

System Dynamics in Education Project at MIT: <http://sysdyn.mit.edu/>

K-12sd Mailing List Archive Page: <http://sysdyn.mit.edu/k-12sd-email-list/archive/home.html>

K-12 Email Discussion Group sign up: <http://sysdyn.mit.edu/k-12sd-email-list/home.html>

The Edge-ucation Matrix of Haven

The last review this month brings us closer to home. I'd like to invite you to visit **The Edge-ucation Matrix of Haven** (for background on Haven, see PATTERNS May 1999). The Edge-ucation Matrix is a resource center with a specific mission to encourage and support the design and evolution of online learning communities. *This winter we will begin offering our first courses, called Journeys, and the more in-depth Edge-ucator's Path.*

The "Journeys" are short explorations and study circles for small groups focused on themes like "exploring online learning communities," and "gardening in the schools: hands on deep ecology." The **Edge-ucator's Path** is an in-depth practical apprenticeship on designing, creating and evolving online learning communities, rooted in ecological thinking and evolutionary learning principles. Journeys and the Edge-ucator's Path will be hosted using an innovative web-based distance learning environment with optional asynchronous video messaging and one to one videoconferencing (using inexpensive video conferencing cameras). I am facilitating the "exploring learning communities" Journey and Barbara Vogl will be facilitating the "gardening in the schools" Journey. We'll both be mentoring participants on the Edge-ucator's Path.

Read the details in the Edge-ucation Matrix and stay tuned for official start dates. Feel free to email us with any questions. We'd love to hear from you if you're interested in participating.

The Edge-ucation Matrix:

<http://www.haven.net/edge/matrix.htm>

....it is crucial that critical thinkers who want to change our teaching practices talk to one another, collaborate in a discussion that crosses boundaries and create a space for intervention.

bell hooks

Teaching to Transgress: Education as the Practice of Freedom

*When spiderwebs
unite
they can
tie up a lion.*

Ethiopian Proverb

Empowering Teachers

Gary Bloom was the Superintendent of the Aromas-San Juan Unified School District in central California, when Anzar High School was established with the commitment to shared decision-making and site-based management. (See the article, A School Without a Principal, in ASCD Educational Leadership issue on Reshaping School Leadership, Vol. 55 No. 7, April 1998, pp 48-49) He is now Associate Director of the New Teacher Center, University of California, Santa Cruz, Department of Education. I spoke with him about the empowerment of teachers at Anzar High School and the expansion of his own professional development at the New Teacher Center.

Barbara: Anzar High School is now in its fifth year and I'm impressed with how it was able to develop a team leadership model without a Principal in place. I see it as a shining example of what Humberto Maturana maintains is the essence of good schooling—empowered teachers create empowered students in the space of the relationships.

Gary: I think one thing that's important about Anzar is that it isn't built upon one person's vision. When the school district was first created a number of the founders had a relationship with the Coalition of Essential Schools and Central Park East in New York. Although we were an isolated rural Community, that connection was significant. The fact that we were a small school lent itself to being a teacher-led school and made the evolution more natural. I think the first couple of years of any institution's history are really critical. They establish the culture. If you set the right kind of foundation in place everything down the line comes much easier.

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empowered students in the
space of the relationships.*

B: When you started Anzar who hired the teachers?

G: A year before the school opened we hired a lead teacher, not an administrator, but a lead teacher. That individual was responsible for working with me and the Board to flesh out our vision for the school; to work out the nitty gritty pragmatic stuff around having a site, designing curriculum, and also took the lead role in the logistics of the hiring process. But Anzar from the git-go has insisted on involving parents, students and staff in the hiring process, although the final say is left with the governing board.

B: The School Board is an elected body so you must have had support in the community.

G: The fact that each teacher serves as an advisor to a small group of students and follows them through four years means that teachers have the opportunity to build relationships with students and families

B: I notice that communication is a high priority at Anzar. Could you say something about the five communication guidelines and the communication contract with teachers?

G: Initially, with a staff of six the first year a whole lot can happen at an informal level but even then communication conflicts began to appear. As the school grew it became more and more obvious that the base of most of the problems that occurred among the professional staff were communication issues. There needed to be specific discussion and some ground rules laid out. In the traditional hierarchic structure where roles are clearly defined and there's "us" and "them," communication issues can be compartmentalized. You can't do that in a collegial team. You have to work things through. This required the staff to work hard at making some communication guidelines and making some commitments to one another around communication.

B: I imagine that the students were aware of the amount of time teachers were spending doing this. How were they brought into this very important learning experience?

G: In my opinion Anzar has not fully capitalized on the potential student learning that can take place by involving students in a meaningful way in school governance and decision-making. But I think the school is doing a better job in recognizing the importance of listening to student voices and creating structures in which that can take place. Like bringing them regularly into staff meetings in order to hear their concerns and the use of structures like fish bowls as a way of eliciting students' voice.

B: How do you describe fish bowls?

G: You put a small group of people in the center of the room and ask them to have a discussion with each other with the people outside of that circle as observers. For students who are intimidated by an adult audience, creating a fish bowl, I find, allows them to quickly forget about those folks on the outside and open up. You gather a lot more information than you would through a traditional discussion or presentation.

B: I have felt for so long that dialogue is a skill that we do not teach and it seems to me that what you're doing there is providing the chance to learn the dialogue principle of listening.

G: I think there is a lot of work to be done around finding meaningful ways to engage students and to hear their voices.

B: Yes, I agree. If systems are primarily relationships and schools are based on the kinds and quality of those relationships then, in a sense, the school teaches itself. The school, in the process, is learning about itself—which, of course, is Second Order Cybernetics. Is this fish bowl process still being done at Anzar?

G: Yes. It's become a regular part of the practice because people found it was immensely valuable. Students at Anzar feel more empowered than those at typical high schools—there are more issues brought out because I think students now understand that their voices matter.

B: So they begin to own their own school.
G: Yes. There is a really high level of ownership at Anzar because it is the teachers who run the day-to-day operation of the school. In a typical high school it's easy to go into your room, shut the door, and teach US Government and go home at 3:30. That can't happen at Anzar. If the school is going to endure, teachers have to be a part of

(continued on next page)

that larger process. The size helps. It would be much harder to do in a school of 2000 as many high schools are.

B: Its very hard to go against our habits of hierarchy. What did you find the greatest challenge in preventing teachers from slipping back into old habits?

G: If someone came to me as Superintendent and said they need to buy 40 globes, my internal dialogue is not "where's the money to buy 40 globes? Can I say yes or no to this person right now?" It is "what's our process for deciding whether or not to buy globes and how do I refer this question into the process?" And then we design a process that is inclusive and democratic— that is based on a plan and a vision as opposed to being arbitrary. Hierarchical systems are a patriarchal model where you go to Grandpa and you sit on Grandpa's knee and ask him for goodies. And if you are in good graces with Grandpa you leave the room with goodies. We're all conditioned to that from the time we're two. There is a tendency for us to want answers. A lot of what happens in schools is crisis driven. People get into the modality of going from one problem or crisis to the next and you get stuck in "fix this, fix this, fix this." They can never get their head above the crisis orientation to look at what the overall plan and process is. One thing that shared leadership forces people to do is to have process because if decision-making doesn't rest on one person, then conflict shows up really fast if you don't have a process for making decisions.

B: Anzar has been so successful in turning the tide, why did you leave Anzar to come to the New Teacher Center?

*There is a really high level
of ownership at Anzar*

G: This was a huge learning opportunity and a chance to play in a larger sand box. In a way, it is just honoring my own commitment to ongoing professional growth. I think people need to be offered new challenges.

B: Anzar began with the networking of Essential Schools and the whole concept of networking became a way of governing there. Now, here, I understand that you are working with school principals in a coaching situation and I suspect sharing the Anzar experience. Is one of the pluses for being here that you'll have more effect on more people?

G: The New Teacher Center works with new teacher development, both locally and at the state and national levels. We're doing training, research and policy level work. So it's a chance to explore these issues from the ground up. The work that we're doing here is very consistent with the kind of culture and systems approach we have at Anzar. We believe that the key to the future of the teaching profession is the empowerment of the teachers—building collaborative cultures within teacher ranks—nurturing teacher leadership—preparing teachers to be facilitative teachers and leaders—and to support systems and schools that will support that approach to teaching. So I work with administrators to help them to create those kinds of cultures within their schools. So it's all part of the same vision.

B: And what work on State policy are you doing?

G: We're heavily engaged right now with a new bill in California called AB 1X which requires school districts to implement a peer review program. This involves providing peer support to unsatisfactory veteran teachers. It's a state-wide mandate. We don't necessarily believe that it should have come down legislatively the way it has but we think that it provides an opportunity for the teaching profession and for administration to work together towards a common goal around improving our relationship and around strengthening the teaching profession. So we're creating a dialogue between the California Teachers Association and the California Federation of Teachers which are the two primary teachers' unions in the state, and the Association of California School Administrators and the California School Board Association in an effort to arrive at a statement of common principles in relation to implementing the new law. We're just about there and it looks like it will be a successful effort. To the best of our knowledge it is the first time these four organizations have come together around implementation

of legislation in school districts.

B: So this is really networking.

G: That's right. It's an attempt to build a collaborative relationship between interests that are more typically adversarial.

B: In this information age we are requiring different kinds of teachers yet we have licensing for the old kind of teacher. Is there any movement toward changing the licensing of teachers?

G: There are two cross currents going on around teacher licensure. On the one hand we have a huge teacher shortage in the United States of crisis proportions. That is forcing districts to hire unqualified teachers and States are loosening standards in order to bring teachers in. On the other side of the dynamic is the recognition that teaching is more and more difficult and complex and we need to do a better job in preparing people for teaching. I think the shortage is winning out, particularly in urban schools where up to 75% of teachers don't have the proper credentials and there is a tremendous amount of turnover. In recognition of that, teacher induction programs are expanding all over the country. One of the few places where California is ahead of the country is around teacher induction programs. That's good because the bulk of learning to teach is to learn by doing and induction provides teachers with the support for that learning. There's a lot of discussion around the country about alternative pathways to teaching. There are a number of people who have started other careers and found them unsatisfactory and are interested in coming into teaching.

They need to be well prepared to be effective teachers. We need to make the pathway into teaching work for them. We also need to make the salaries work for them. So it's an important dialogue fueled by the shortage.

B: To me, teachers are the key to how schools are going to change. It strikes me that you are in the eye of the cyclone. What you are evolving here is going to have a lot of effect.

G: We often fail to recognize the complexity of schooling and people coming from the corporate technological world often fail to recognize this. They often alienate educators when they represent that they have simple solutions. Schooling has all the complexity of multi-layered interpersonal relationships and is embedded in the com-

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Book Reviews

by Barbara Vogl

The Professional Teacher: The Preparation and Nurturance of the Reflective Practitioner.

by Kay A. Norlander-Case, Timothy G. Reagan, and Charles W. Case.

Jossey-Bass Inc. San Francisco. 1999.

ISBN 0-7879-4560-9 (pbk 165 pp)

This book is one of a series of narratives titled the Agenda for Education in a Democracy. It is published in collaboration with the National Network for Educational Renewal (NNER) which emerged from the research done by the Center for Educational Renewal at the University of Washington and the independent Institute for Educational Inquiry founded in 1992. Written by leading faculty at the University of Connecticut School of Education, it focuses on the collaboration of the University of Connecticut and several Hartford public schools. John Goodlad, codirector of the Center for Educational Renewal and president of the Institute for Educational Inquiry, sees the story that unfolds as one of "redesigning virtually every component into something quite different from what existed before without stopping the traffic of future teachers from crossing the bridge to practice."

Goodlad notes that what is happening in the school-university partnership represents a productive coupling of preparation and practice. Furthermore, "an ethos of critical self-appraisal is as characteristic of renewal as its lack is to individual, institutional, and societal stagnation.....What is most worthy of continued critical attention and retention in the Connecticut setting and each of the others in the National Network for Educational Renewal is not an exemplary program in place but an infrastructure of educational renewal in progress." (p.xx)

Throughout this book, Systems Principles of the priority of process, the priority of relationships, the recognition of complexity, and the Second Order Cybernetic Principle of self-reflection are illustrated in the research and real-life examples of good practice. For example, noting that teaching cannot be compared to other professions, Roger Soder reminds us of the moral worth of teaching as a profession. "*Teachers can legitimately argue for such worthiness because of the moral imperative that results from the nature of children and the nature of the relationship of the teacher, the parent, and the child.....The nature of the relationship is morally praiseworthy.*" (pp. 14-15)

This is a well-researched and lively treatment of a new standard for preparation and induction into teaching. It also encourages the assumption of leadership roles for teachers in the educational renewal and change dedicated to democratic principles and service within a complex whole community.



3 Cheers for Teaching! A Guide to Growing Professionally and Renewing Your Spirit

by Bonita DeAmicis

Zephyr Press, Inc. Tucson, AZ 1999 ISBN 1-56976-094-2 (pbk 141pp)

This is *the* book to accompany this issue of PATTERNS. It provides a personalized guide for teachers to build the self-esteem which Humberto Maturana demonstrates is so necessary to creating the relationships required for student learning.

Our role as educators is complex and integrated. It requires us to love the excitement and adventure of growth—and requires us, as teachers, to take part in the national dialogue on education. This book is based on a comprehensive view of what we know about education. It is for teachers who want to thrive, not just survive in these troubled times of fundamental change. Teachers have the power to influence change from the bottom up and should be encouraged to do so.

Advocating that teachers take over the responsibility for their own professional planning, DiAmicis provides practical suggestions for self-reflection and planned growth. The author, a practicing teacher herself, also advocates self-directed forms of assessment. This is not to say that it is not necessary to get a variety of feedback on one's own performance but, as the "good" teacher in Maturana's story demonstrates, (p. 5) teachers who learn to listen and respond to themselves, to their students, and to others create the world within which they want to live.

This small book provides the stimulus and support to achieve the optimal experiences in work which psychologist Csikszentmihalyi describes as the experience of "flow," so much a part of happy and fulfilled lives. The exercises are designed to prepare teachers to be self-defined, self-reflecting professionals and potential leaders in the challenge of systemic change in schooling.

The contents are divided into three straightforward sections: Part 1. **Know Yourself**, Part 2. **Develop a Plan**, and Part 3. **Take Action**: Included, are discussions of creating an ideal vision, reflecting on old habits and assessing the heart, mind, and soul of being a teacher. Personally, I found the emphasis on attitude along with the hints on maintaining and celebrating, particularly helpful. There are useful suggestions for all—beginning and experienced teachers alike. Humorous cartoons by Morgan Kent and poetry by Kathleen Gunn add to the overall enjoyment of this well-written book. It belongs on every teacher's bedside table.



A License to Teach: Raising Standards for Teaching

by Linda Darling-Hammond, Arthur E. Wise, Stephen P. Klein

Jossey-Bass Publishers, San Francisco. 1999
ISBN 0-7879-4680-X 215 pp

Because the great masses of students today need to be educated for thinking work rather than low-skilled factory tasks, and educational success is a necessity rather than a luxury for a chosen few, schools are being pressured to change. Major reforms of teacher preparation and major restructuring of the systems by which states and school districts license, hire, induct, support, and provide for the continual learning of teachers is needed.

The authors propose an approach to licensing teachers based on their work to design the structure for a professional system in Minnesota. The book includes assessment development initiatives in California and some of the work of the national Board for Professional Teaching Standards. All examples have in common an understanding of teaching as:

- **reciprocal**—intimately connected and responsive to students' needs,
- **complex**—dependent upon many kinds of knowledge and understanding that must be integrated and applied, and
- **contingent**—reliant on consideration of context, including the nature of students, subjects, goals, and situations.

For systems thinkers, this rings a bell. Throughout the book the emphasis is on quality assessment as opposed to quantity testing. Given the shortage of teachers, the authors note: "The potential teacher candidate who is weighing the inducements of teaching against other professional careers may demur, concluding, "alas, me thinks thou dost test too much." (p. 95)

This is a valuable comprehensive presentation of current research. Linda Darling-Hammond is professor of education at Stanford University and co-director of the National Center for Restructuring Education, Schools and Teaching. (NCREST) at Teachers College, Columbia University. Arthur Wise is president of the National Council for Accreditation of Teacher Education (NCATE) and Stephen Klein is senior research scientist at the RAND Corporation.



Teaching As The Learning Profession: Handbook of Policy and Practice

Editors: Linda Darling-Hammond and Gary Sykes.

Jossey-Bass Publishers, San Francisco.
1999 ISBN 0-7879-4341-X (411 pp)

This substantial book has its roots in the National Commission on Teaching and America's Future formed in 1994 and is divided into 4 parts: "Re-thinking" teacher education, professional development, organizations for teacher learning, and policy. The chapters, contributed by a variety of educators, present a wide range of research and analysis, many of which were solicited as background for NCTAF. The co-editors were executive director and consultant, respectively, to the Commission.

A consistent insight throughout the book is the extent to which deep, flexible, and confident understanding of subject matter makes possible the kinds of professional autonomy and responsiveness that teaching of all youngsters requires. Teaching is an on-going learning process. 🍏🍏🍏

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munity, embedded in the political setting, embedded in the economy, history and culture. Magnitudes more complex than anything in the private sector.

B: There's a lot of talk of commercializing schooling. How do we develop a public dialogue—take time out as your teachers did at Anzar High School—around the design of the kind of schooling we as a society want? It would be interesting, and I believe fruitful, to bring Bela H. Banathy's work in the systems design of education together with the New Teacher Center.

G: What drives my work and the work of many of my colleagues is the commitment to democracy and to the role of public schools in a democracy. If we let go of that commitment then our fundamental social structures are in jeopardy. There are those who want to dispense with that and we can't let that happen.

B: It seems we need to spread the networking of those groups committed to education for a strong democracy. Perhaps public dialogue as a vehicle for public education in developing democracy might be a next step. 🍏🍏🍏🍏

Zephyr Press responds to a Review by teacher Faith Heald in PATTERNS, July 1999.

In her review of Robert Barkman's new book for teachers, *Science Through Multiple Intelligences*, Faith Heald objects to a statement in Barkman's introduction that reads "what often separates scientists from nonscientists is their ability to see patterns..." She feels this isolates and elevates scientists above practitioners who study patterns in other disciplines.

However this short quote is taken out of context. Barkman's introduction identifies the ability to recognize patterns as a key human skill.....the quote comes from a section of the introduction subtitled "Patterning in the World beyond School." It follows sections on patterning as a key function of the brain and a game activity designed to show students that they can both create and discover patterns within the classroom. Although the book focuses on natural patterns that are generally studied and taught under the rubric of science, the author's approach to educating students about patterns by no means grants scientists exclusive rights over them.

Heald also finds the book's "exercises for the educator to use" to be uninspired; she feels they will not help educators teach "in a holistic way." Yet the book is composed of projects for students and teachers designed with educational best practices in mind: they engage many types of intelligence; they awaken student curiosity and harness that curiosity to inquiry; and they involve students with the real stuff of nature—leaves, bugs, water drops. For example, a project on lichens guides students toward discovering how lichen's growth patterns represent the accommodation of a living thing to its environment as well as providing opportunities to examine the larger patterns of how humans shape nature—lichens are an indicator species for air pollution. The projects lead students to specific concepts while not excluding serendipitous discoveries.

To study lichens, or ripples, or fish ears in this way is to seek patterns that link parts to wholes. The student is engaged, body, heart, and mind, in understanding patterns in nature at all scales, from water droplet to global climate change. The skill of pattern recognition that students practice in these projects can and hopefully will serve them in contexts beyond the science classroom, as the author's introduction suggests.