Component Three: Cooperative Learning

The formal organization of firstness, secondness and thirdness according to the relational circuit makes possible a pattern of cooperative behavior among three people that accelerates learning. Basically, this pattern amounts to taking turns in the different positions of the relational circuit and using the three different skill sets to learn accordingly. The pattern of cooperative learning regulated by the relational circuit stands in stark contrast to the pattern of learning that regulates our current school system.

Our current system can be seen as a mirror of industrialization. Gutenberg's printing press gave us the first mass-produced object,- the book. By understanding the nature of the printed book, renaissance educator, Peter Ramus, was able to conceptualize the modern classroom. He designed classroom pedagogy to take full advantage of the fact that the new printing press could turn out multiple copies of the same book. The printed book allows the teacher to organize the classroom in neat rows of individuals, assign homework, and set up a curriculum based on a table of contents. Textbooks, workbooks, and homework are all organized in a linear sequential curriculum

that replaced the tradition of reading aloud from hand-copied manuscripts in small groups with a master teacher. The classroom became a factory for literate knowledge targeted at individuals that fragmented the coherence and consistency of oral cultures.

Students organized in Earthscore teams of three are not bound by the format of learning proper to the printed book. Using the relational circuit as a figure of regulation means the process of cooperative learning can take place according to a sustainable pattern of human relationships, without hidden dependence on the format of any particular learning technology. In Earthscore, the tail of technology does not wag the process of learning. The process of learning is regulated by the relational circuit. Students can use a variety of learning technologies- including print, drawing, video, and computers. The use of the learning technologies is determined by their availability and appropriateness for a particular learning task. But the learning process itself is regulated by the relational circuit.

There are four variations on the Earthscore pattern of cooperative learning: 1) Shared Observation of the Environment 2) The Tricolor Talking Stick Protocols, 3) Threeing (A non-verbal practice) 4) Computer Groupware.

Shared Observation of the Environment

In most learning tasks, Earthscore uses the local ecology as a common reference. Students as observers can take turns paying attention to a natural phenomenon using the three different skill sets. For example, if a three member team were to produce a photographic interpretation of a natural site, they would cooperate in the following manner. The observer in the first position might do a shot of the texture of bark on an evergreen. The observer in the second position might do a shot of the trunk of the same evergreen rising out of its specific ground site. The person in the third position might do a shot of the whole tree with the pond in the background. When the team approached a deciduous tree, they would change roles. Another phenomenon, such as a pond, would be the occasion for another role change. As I will show in detail in the fourth component, this way of working together can be used to create a shared perception of environmental realities. To indicate here how this system operates, I will report on a pilot project which used shared observation of the environment.

During the spring of 1989, fourteen eighth-grade Dalton School students from multicultural backgrounds used Earthscore to monitor winter-to-spring changes in a stream in the Black Rock Forest above New York City. The first phase of the project took place in the classroom. With the classroom itself as an example of an environment, I showed the students how to use their three generic skill sets to interpret any environment. Following their affinities for each other and for different tools of observation, The Black Rock Rangers then divided themselves into four teams of three for their fieldwork: the video team, the word team, the image team and the number team. Out in the forest, the students used their various technologies in the three different skill sets to interpret four different sites along the stream. The video team scanned the sites for aesthetic images, such as surface water, images of specifics, such as a particular rock, and images of pattern, such as the interaction between water and rock. The word team interpreted each site in poetry, factual descriptions and reflections on the forest ecology as a whole. The image team draw and photographed to understand the aesthetics, the facts and the ecological context of each site. Using tape measures, PH kits, thermometers and calculators, the number team produced diagrams, measurements and calculations at each site.

The learning that took place at the stream site was vividly evident when the Rangers shared their findings with each other back at school. The following scenes from that sharing are included to suggest the quality of their learning experience.

Video Team and Everybody:
John, Ben and Jeremy are showing their video work from the first day. Shaky camera, scattered shots with no coherence. Pieces of trees. Rocks. Random, tough to watch. They don't know what they are looking for. Everybody is suffering through their experimentation. Suddenly the camera settles on the stream and smoothly pans with the moving water for about thirty gorgeous seconds. Everybody cheers.

Word Team and Image Team.
Maya is delighted with Chantal's photograph of a site with a rusty pipe. She shows the photo to Sonia and Simone, her partners in the word team. They all love the photo and laugh about how Simone and Maya had both used the phrase ”protruding pipe' in their poems. Sonia picks up a photo of rushing water and turns to Linda, the student coordinator who had written a poem on her own. “Linda, look at this photo. It would

go so well with your poem." Chantal reads Linda's poem out loud and the image team and the word team discuss how Linda's poem personified the stream.

Number Team and Image Team:

Two members of the number team, David and Jefferson, have been trying to develop computer graphics that show each of the four sites the Rangers studied in Black Rock. They are looking through the photos with Linda, the student coordinator, and Amy from the Image Team. Jefferson spots a photo of whitewater against a rock. "Nice shot," he says, "we wanted to figure out how the chaos of the white water would erode the rocks, you know, use chaos theory somehow." His remark is offhand and he goes back to looking through the photos. After a while it is clear that David and Jefferson can't find photos to help them with their computer graphic project. Linda and Amy go back and forth with them about what photo angles would be best for computer graphics. They settle on a set of angles for the image team to take photos from during the next Black Rock trip.

Staying in their teams, students then organized a very successful presentation of their interpretation of changes in the stream for fellow students and faculty. This modest pilot program demonstrated that teams of eighth-grade students can use technologies very effectively to interpret an ecology using the Earthscore categories. I might also mention that the pilot also demonstrated that actual experience at an ecological site made a significant impact on student learning. The experience of Black Rock was extremely important to the students. Rain-outs were a great disappointment, one student got his father to take him and another member of the number team on an extra trip to the forest so they could get more reliable data.

The Tricolor Talking Stick

The cooperation necessary among students to work together in threes, as in the Black Rock Project, does not come naturally to the students. The Tricolor Talking Stick Protocols are designed to prevent certain problems from arising within the group, so the group can learn together as a team with optimal results. The problems are:

1) Two or more people talking at the same time.
2) Someone dominating the group or manipulating the conversation.
3) People being left out.
4) Confusing as to the roles people are playing in conversation. Is someone throwing out a suggestion, reacting or mediating?
5) Confusion between helping and competing. If I think I am helping you and you think I am competing with you, pain and confusion will result.
6) Failure to consider a topic or situation in a comprehensive way.
7) A vague or arbitrary decision making process.
8) Relational tensions accumulating so the group splits apart.

I will describe the protocols in detail and then explain how they preclude the eight problems stated above.

The talking stick is a round, fifteen inch length of wood with a diameter of between one and three inches. The stick is painted with three five inch bands of solid color: yellow, red, and blue. The red band is in the middle of the stick.

Each group of three gets one stick. The stick is passed around among the trio, each member indicates the role he/she is playing in the conversation with the

other two by where they hold the stick. Holding the yellow band indicates that one is exercising the first skill set. Holding the red band indicates that one is exercising the second skill set. Holding blue indicates use of the third skill set. Sometimes the emphasis is on the role the person is playing: initiator (yellow), reactor (red), mediator (blue). Example: Yellow throws out an idea, red reacts and blue mediates. Sometimes the emphasis is on what the person with the stick is paying attention to: feelings (yellow), facts (red), or patterns (blue). Example: Yellow listens for emotion and feeling as someone presents an idea, red listens for the specific facts and blue listens for the reasoning behind the idea and the overall context.

A specific example will be helpful here. Participants in a school to work curriculum I designed are asked to develop their best alternative to getting a "job" in the industrial sense. Each person presents his/her alternative to a group of three for feedback. The group then questions the person about their alternative by moving down the ladder from the person's alternative as stated (blue) to red (facts supporting that alternative) to yellow (mood, intuition that helped generate the alternative). This is a non-confrontational style of inquiry and the phrasing of the questions should reflect a non-advocacy approach. In

fact, the exercise suggests using certain types of phrases to make sure the inquiry is not mistake for confrontation.

Blue

If I understand your correctly you are saying that If.....then.....Am I right?

Can you show me how you got from the "if" to the "then"? I did not follow you.

Red

What are the facts behind your statements?

How could you verify these facts?

Yellow

How do you feel about the alternative you've developed?

What was you mood as you thought about what you could do?

Confrontation, however, is possible within the talking stick protocols. Often it can be healthy. With a talking stick, participants can combine the three non-confrontational generic roles with advocacy or adversarial roles. Confrontation or non-confrontation is indicated by the way a person holds the stick. In the non-confrontational roles of yellow, red and blue, the stick is held vertically. To

indicate confrontation the stick is held horizontally with the ends pointing at the two people in confrontation. Basically at any point in the exchange among the three, one member of the team can directly challenge another member of the team of three by laying the talking stick on a horizontal line between the two of them and addressing that person in the type of adversarial statement described below. The person addressed directly can then turn the stick around and respond. The third party can also enter into this exchange if one of the two points the stick at the third party. Three times back and forth between two parties is a reasonable limit. Then the stick must be pointed at the third party or pointed upward by one of the people arguing. By pointing the stick upward that person is either going into yellow with a fresh initiative or asking the third party to go into yellow with a fresh proposition that might resolve the argument. The trio then works through the fresh proposition in the three roles. If there is no consensus among the three then the decision-making procedure, shown below, comes into effect.

Inquiry and cooperative take place with the stick pointed up. Questioning from an advocacy position is a symmetric confrontation with the stick horizontal. This type of symmetric confrontation is often more productive if someone willingly lets people see the reasoning and the facts and the feelings associated with his

or her position. Certain introductory statements can go a long way toward making the confrontation formal and clear enough to be productive. Here are some samples of proper confrontational phrasing.

"Here is how I understand the context in which I am stating my argument..."
"Here is how I define my terms."
"I am assuming..."
"Here's what I think, here's how I came to think this way..."
"I came to this conclusion because...
"Here are the facts I 'm basing my argument on."
"Here are some examples of how I think what I'm proposing will effect sustainability."

Decision-making is also part of the Talking Stick Protocols. Briefly it works as follows. When three people work together on an exercise, each has a domain determined by the generic skill set indicated by his or her color on the stick. In one's own domain, one's decision cannot be overridden by the two other members of the triad **unless** a predesignated fourth party (a facilitator or other workshop member) agrees with the other two. Then three can override one.

However, if the fourth party does not agree with the two then the decision made by the one in charge of the domain stands. Experience in actual work situations with this method has been positive. No one feels his or her decisions will be overruled in a arbitrary chain of command. Moreover, some people come to see the two others plus the fourth party as a safety net, allowing them to entertain risky decisions, knowing they have a triad of consultants to rein them in.

I said that The Talking Stick Protocols are designed to prevent certain problems from arising in small groups so that the group can work together with optimal results. I will now indicate how the protocols resolve the eight problems stated above.

1) Two or more people talking at the same time.

The person who holds the stick talks. The others listen. Each person gets a turn. The stick is exchanged in an order appropriate to the exercise. Simple.

2) Someone dominating the group or manipulating the conversation.

Taking turns with the stick in different roles allows for a sharing of leadership and prevents any one person from becoming entrenched in fixed position of power.

3) People being left out.

Normally when you get three people together, two tend to combine and push out the third. Two is company and three is a crowd. Some cultures have interpersonal tactics that neutralize this tendency. For example: in parts of China if A asks B a question in the presence of C, B will answer the question facing C as if C had asked. The point is not to exclude the third party. The talking stick insures that three can work cooperatively by taking turns in three different roles. When there is a fourth or fifth party, they can await a turn in the trio, play a backup role, or start a new trio.

4) Confusion as to the roles people are playing in conversation. Is someone throwing out a suggestion, reacting or mediating?

The three colors on the talking stick can be used by the participants to clearly indicate what role they are playing.

5) Confusion between helping and competing. If I think I am helping you and you think I am competing with you, pain and confusion will result.

In normal interpersonal relationships, we often confuse each other about the manner in which we are relating. I may think you are in a symmetric relation to me like two boxers going toe to toe. You may think I am in a complementary relation to you, as a student to a teacher. This confusion can be emotionally difficult and counter productive for the group.

In the talking stick protocols, all complementary, asymmetric relationships clearly take place when the stick is held vertically. All adversarial, symmetric relationships take place when the stick is held horizontally.

6) Failure to consider a topic or situation in a comprehensive way.

The three basic roles indicated by yellow, red, and blue provide an approach to everything that is relevant to a topic or situation. Just as any color can be created from yellow, red and blue; so any topic can be approached in a comprehensive way using the three skill sets.

7) A vague or arbitrary decision making process.

While the decision-making procedure in the talking stick protocols can be used to override one person, that overriding happens according to a formal procedure that respects his or her point of view. No one can position him/herself to make an arbitrary decision. Nor is a two against one coalition ever allowed to have decision-making power.

8) Tensions in relationships accumulating so the group splits apart.

The principal reason why tensions accumulate and tend to split relationships apart is that participants get caught in an escalating pattern of reacting to

each others reactions. Sometimes this happens in a confrontational symmetric fashion such as in a shouting match or a fist fight. At other times it happens because the escalation takes place in a non-confrontational, asymmetric way. An example would be two people who avoid confrontation at all costs and, eventually, separate because they can no longer communicate.

The Talking Stick Protocols preclude these escalating patterns in three ways i) escalations happen more readily when there are only two parties involved. The protocols involve the constant presence of a third party mediator ii) the role of reactor is legitimate and clearly marked as such. Through constant rotation however, participants are never stuck in a reactionary role. iii) Escalation happens when people get locked in confrontation or non confrontational patterns. The protocols require a constant shifting back and forth between these two way of interacting. One way serves to preclude the other from going too far. Relationships become sustainable.

Threeing

Before I developed the Talking Stick, I developed a non-verbal choreography for three people I call Threeing. Knowing how Threeing developed will be helpful to educators. The process began with my membership in a small research group that met during 1970 at Roosevelt Hospital's Center for the Study of Social Change. Basically, we were exploring the effects of video feedback on interpersonal behavior. My role was that of gamemaster, responsible for setting up different recording and replay situations. One of the other people involved in the group was Al Scheflen, author of *How Behavior Means,* (1974). Based on years of research, Scheflen has a very grim view of human behavior. He argued that it doesn't matter what poetry is going on in your head, your interaction in small groups is controlled by a very restricted repertoire of behaviors that we share with other mammals: greeting, parting, combat, courtship, territory, etc.

In reaction to Scheflen, and propelled by personal dynamics, I thought that while he may be right, things need not be that grim. Given video's power to let us see our behavior patterns, perhaps we could "invent" behaviors that would provide more flexibility in our interpersonal relationships. My intuition was that if I could figure out how to stabilize three person interaction, a new flexibility in human relationships would be possible. After the Roosevelt group had

dissolved, from 1971 to 1976, I produced forty-five hours of experimental video of three person interaction, trying to "invent triadic behavior". Threeing came out of this period of experimentation. The choreography for Threeing is presented in Appendix III.

While developing Threeing, I read Gregory Bateson's writings about the Iatmul and Balinese peoples. (Bateson 19??, 1958, 1972). Bateson worked with the Iatmul people in New Guinea as an anthropologist. Among the Iatmul, the tension between males and females is so strong that Bateson wondered why the culture simply did not explode. What he discovered was that the Iatmul had worked out an elaborate transvestite ceremony called *Naven* that muted tensions by shifting the roles between genders at critical points. In studying the Iatmul, Bateson conceptualized the notion of "schizmogenesis." The word means "growth of a split".

Bateson saw splits as a result of cumulative interaction between two parties. He identified two sorts of interactions that tended toward splits. One sort he called symmetric, the other, complementary. People in a symmetric interactive pattern do similar things that tend to reinforce each other. Two boxers standing

toe to toe and slugging it out are in a symmetric relationship. Other examples of symmetric interaction would be keeping up with the Jones or the arms race.

People in a complementary interactive pattern do dissimilar things that tend to reinforce each other. An exhibitionist is encouraged by the applauding of a spectator. Dominant people are encouraged by submissive people to be more dominant. The interaction between a dependent child and a succoring mother can grow progressively monstrous.

Originally two parties may find in each other the resolution of a difficulty. As they continue to interact, however, the differentiation demanded by the particular combination of complementary and symmetric modes will tend to distort the personalities of the participants. Discomfort will follow. Ambiguities of interaction will accumulate as misunderstandings grow. Mutual resentment toward the other as the source of the distortion enters. Jealousy develops as each sees overdeveloped in the other that part of themselves that has been suppressed by the pattern of interaction. No longer does the resolution originally achieved hold sway. Each party simply enters into a pattern of reacting to the emotional reactions of the other party and the relationship moves exponentially toward a split. Facility in switching from complementary to

symmetric modes of interaction can be used to hold in check the runaway of either mode. The trouble, however, is that reliable context markers to indicate whether the relationship is in a complementary or a symmetric mode are often lacking . If A thinks he is helping B, but B thinks A is being competitive, pain and confusion result . Once skizmogenesis goes beyond a certain point, the relationship cannot be held together, cannot be sustained.

In the context of changing the modern world into sustainable societies, managing skizmogenesis is critical. Unsustainable societies can't hold themselves together. They split apart. They fall victim to skizmogenesis. In American society the tendency to split apart is very strong. Religious denominations multiply. Conflicts that become violence are daily news. The need to litigate conflict chokes our justice system. Families break up on a regular basis. Race relations seem caught in a spiral of cumulative tensions. The gap between rich and poor widens. As does the generation gap. The tensions from this tendency to split apart plague our families, our educational institutions and our work places.

After studying the Iatmul, Bateson studied the Balinese. In Bali, Bateson found and described a culture in which there were no skizmogenesis. Children are

reared to distrust cumulative interaction. If two people quarrel, they are forbidden to speak to each other. If they do, heavy fines result. No quarrel is allowed to disrupt the steady state of the society. A rich, non-climactic art, permeates the culture. The Balinese talk of the time before the Westerns came as "when the world was steady".

In inventing the relational circuit and the cooperative learning patterns it makes possible, I sought,-and found,- a pattern of interaction that is non schizmogenic. Complementary interaction takes place in the first, second and third positions. Symmetric interaction takes place in the in-between positions. The interaction keeps shifting back and forth so that neither pattern becomes cumulative. Schizmogenesis is precluded. A steady state of interaction develops, like in the Balinese culture as described by Bateson.

Threeing is a heterarchic, non-verbal, non-schizmogenic and way for three or more people to organize themselves without excluding anybody. When you are with two people, there is a normal tendency to choose one and exclude the other. For example, you cannot look into four eyes at once. Threeing provides a formal way of relating that allows someone to balance his/her interaction with two other people without anyone being excluded. Behavior is not based

primarily on gender, age, race, class or culture but on relationships that emerge from the positions in the relational circuit outlined on the floor. A participant can change her/his relationship to other participants simply by changing position in the floor figure. The practice of Threeing precludes excluding people, precludes skizmogenesis and thereby precludes factions. Precluding factions gives a group of people the opportunity to sustain learning together.

The non-verbal Threeing version of Earthscore's cooperative learning can be incorporated into a curriculum most easily in the realm of art, performance or cooperative games. Threeing can also be used as a pure exercise, without commitment to an immediate learning objective. A regular regime of such exercise in an educational institution would strengthen the capacity for cooperative relationships among students. Just as the practice of T'ai Chi enables someone to maintain well being, so the practice of Threeing can help people maintain healthy relationships. Maintaining healthy relationships for their own sake is a good idea because when problems arise, people with well exercised relationships can respond together better than people whose relationships have atrophied through misuse. To meet unforeseen challenges, a sustainable society must have what Bateson calls a 'budget of flexibility". By

this he means "uncommitted potential for change". The practice of Threeing increases the budget of flexibility for learning in small groups.

Triadic cooperative learning also opens up a new approach to multicultural perspectives about sustainability. Admittedly this approach comes out of the Western tradition and, therefore, is not neutral. While Earthscore cannot claim to be neutral, it does offer a non-directive invitational approach to cooperation among members of our species, regardless of cultural heritage. I think the three generic skill sets can find equivalents in any culture. The relational circuit is perceptually self evident and, as a geometric figure, could become as commonplace among cultures as the circle. The circuit is not hierarchically. It supports a way of working together without a fixed hierarchy. Moreover, the non verbal interpersonal practice of Threeing is based on physical characteristics common to our species, such as, we all have a front and a back and we all can move our arms and make sounds. In Threeing, language difficulties are bypassed. An art of behavior can ensue.

As an artist, I have used Threeing to design a "Tricultural Tournament" in which performing couples from three different cultures come together to invent a repertoire of cooperative behaviors. (Ryan 1993) In a multicultural educational

setting, such an event could be developed for children from different cultural heritages. The event could be linked to study circuits in which students recombine in different teams of three to explore sustainability using the talking stick. The students would be the authorities on their own cultures. The formalities of the process would provide them with a way to respect each others cultures' while at the same time generating ideas for cooperative sustainability. Another educational possibility of triadic cooperation would be for cooperative teams of students from different industrial cultures to use this minimalist approach to learn, together, about sustainability from indigenous cultures.

One legitimate question raised by the cooperative learning patterns used in Earthscore is the question of what happens to the individual? How does the individual fare in a world of trios? Before I answer this concern at a philosophic level, let me make clear some things that the emphasis on trios may have obscured.

While working in threes is key to Earthscore, the format of working in threes can easily be used to focus on one person. For example, in a listening exercise, one person might tell a story and three other people provide feedback to that person, each of the three working from a different generic skill set. The story

teller can integrate into his storytelling insights from all three skill sets. Or a single person could tell a story on audio tape and listen to him or herself, learning as a single person, using all three skill sets.

Another thing to realize is that the various forms of cooperative learning in Earthscore: Shared Observation, Talking Stick, Threeing and Computer Groupware, all presume voluntary cooperation. To the extent possible, the situation should allow learners to choose their co-learners. In practice, this means that as a teacher, you should choreograph the cooperative learning so members of your group can constantly recombine with different members of the whole group. I provide a template for how to do this in Appendix IV. One key strategy is for the members of the trio to choose each other out of a larger pool. For example: all those strong in the first skill set go in one corner, say , the Yellows: the second skill set in another corner, the Reds: the third in another, the Blues. You may need to balance this out by keying off someone's second strongest skill, so there are equal numbers in all corners. Once all have found their corners then each Yellow chooses a Red. Each Red agrees to work with the Yellow. Each Red suggests a Blue that is acceptable to the Yellow. Both approach the Blue. Blue agrees to work with the Yellow and the Red. In effect, members have chosen each other. Of course, as a facilitator you might also

take on the burden of mixing and matching as you see fit. But if the group seems to want to exercise choice, they should be allowed to do so.

Essentially, these cooperative formats neutralize the effect of choice on relationships. That is to say, the rules of interaction never force you to choose one member of trio and exclude another. However, within the protocols you still can make choices. The choices you make should be guided by your understanding of how best to balance the cooperative learning of the trio. Of course, this requires mutual consideration among members of the trio. If one member of the trio feels that this trio is not showing him or her enough consideration, that person has the option of leaving the trio, finding another trio or working solo for a while.

Working on one's own with the categories of Earthscore is also a distinct possibility. The computer Groupware is set up so a student can do just that. Also, in the traditional format of a group discussion, the three prime categories can be used to guide the discussion.

All these format possibilities indicate the range of flexibility that can be found in groups that recombine in teams of three for various learning purposes. Yet

within the choreography of recombining trios, there is a philosophic change from what we know as individualism. This change has to do with the difference between working with a logic of classes and working with a logic of relationships.

I recall once, in answer to a question from one of my teachers, referring to someone as an individual. My teacher took out a pack of matches, ripped one match out of the pack and held it up to me.
"What would you call this?" he said.
"An individual match', I said.
He said, "Why do you use the same word to describe a person?"

The individual match is a mass produced member of the class of things called matches. The human individual is a member of a class called humans, obviously not mass-produced. The individual may also be a member of many subclasses of human. I am an adult male writer. There are many people in this classification. And there are many not in this classification. All females writers, for example. I can narrow my classification even more by saying I am a U.S. citizen who writes about education. I do not write about ducks. Using such classifications, it would take many such separations from others to arrive at a

situation in which I was in a class by myself. Or, following a strategy of direct identification, I could say I am the writer, Paul Ryan, author of *Video Mind, Earth Mind.* That, too, puts me in a class by myself. But both of these strategies have me relating to others via a logic of classification, -- not relationships. I may appear in a list of American male writers in a bibliography in-between an Oscar Ryan and a Peter Ryan, neither of whom I ever met. Relating by classification is radically different than relating by, well, relationships. The word "relationship" comes from a Latin verb

fero—I carry

ferre—to carry

tuli—I have carried

latus—to have been carried

The word "difference" comes from the same verb. The verb "fere" was used to mean "to bear" or "to carry" a child. Your relatives are those you differentiate yourself from in terms of events of childbearing. Your cousin, your mother's sister's child, is the one who was carried by a woman who was carried by the woman who carried the woman who carried you. I am the second son of Margaret Roggeman and James Edward Ryan. My position determines my

relationship to my four siblings. My singularity has arisen genetically and in relationship to the singularities of my siblings and my parents in a matrix of relationships. Yes, there are certain patterns that can be classified as common to second oldest son, but they cannot specify my singularity in my relational nexus. The cooperative learning proper to Earthscore develops a person in a way more like the singularity that arises in families than the individualism that arises in classification systems. I see this as an enrichment of the uniqueness of each learner, not a diminution. The sort of fullness of feedback among people in a healthy family situation can be formalize for learning using the cooperative patterns in Earthscore. Not, of course, with the same intensity, intimacy, loyalty and staying power,- that would not even be desirable, - but with a potential far beyond the education of individual in classes that we now practice. Learning as part of recombining teams that provide a fullness of feedback would be a far richer learning experience that learning as part of a class of individuals, each competing to be a stand out in the class. The classroom devised by Peter Ramus has run its course. If we are to learn the patterns that connect us with nature we must cultivate patterns that connect us with each other. Cooperative learning according to a logic of relationships is one way to do this.

Computer Groupware

The cooperative learning pattern using Groupware has been incorporated into a program developed at Dalton's New Lab for Teaching and Learning in a program called Creating A Culture developed by two colleagues, Jean Gardner and Warren Johnson. This Groupware....Descriptive Text to be Developed.

Questions

1. What is the normal pattern when three people get together?

Exercises to be developed.

Outline part of the relational circuit on the floor. Ask students to connect the lines.