ENCOUNTER

EDUCATION FOR MEANING AND SOCIAL JUSTICE

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Editorial

The New Language of Reform

The battle for language is all but over for American education reform. The language of "standards" has replaced the language of "excellence" of the '80s. The supposed imperative for "excellence" had attracted a good deal of public attention, but the word was politically flawed and too vague. It smacked of elitism and a disregard for equity. Furthermore, it could not be consistently translated into operational terms. Politically, it worked for awhile; pedagogically, it had little meaning. The call for excellence was not grounded in an understanding of child development, of learning theory, intelligence theory, or research in curriculum and instruction. It was an economic and political term.

The word *standards* is far more specific and can be operationalized with relative ease. It is less a term of political rhetoric than of function. With it, reform shifted from questions of excellence, however perceived, to specific questions of what students ought to know and be able to do. This shift facilitated the activity of reform but did so by obscuring basic questions of the nature and purpose of education. The economic and political dimensions of excellence carried over without notice. The question now is one of means and means alone: how to provide educational experiences that effectively enable children to achieve the desired goals.

The notion of "standards" has all the political cache of the term "excellence" with virtually none of its liabilities. It has galvanized the political right and left. Where the left argued against excellence on the grounds of equity, the key issue now is how to divide the resource pie. The only argument remaining is how to ensure equal educational opportunity to achieve the new standards.

It also has conjoined the two streams of educational reform of the '80s. The first of the streams was governmental and corporate. It began with global economic competition and concluded with the perceived need for our nation to develop its "intellectual capital." The second stream began with research in intelligence, learning, cognition, brain development, and pedagogy. National economic imperatives were secondary if not antithetical to such reform. The major issues related to practice: the integration of Howard Gardner's Multiple Intelligences into classrooms, the organization of schools as learning communities, and the use of the techniques of cooperative learning, authentic assessment, content-based literacy, school-based management, to name but a few.

Now, both streams of reform have merged. Both have more or less embraced the concept of standards with the governmental/corporate stream focused more on setting benchmarks consistent with perceived corporate and governmental needs, and the research/practice stream more on the means of achieving them. With little exception, the right and left are unified, governmental and field-based reformers are speaking the same language.

Throughout the nation, states are raising the standards for high school graduation. Many are also setting the requirements for teacher certification or licensure as well as teacher education program registration to ensure that teachers in the field have knowledge and skills consistent with the new standards. The new language of reform, as embodied in Goals 2000, has created a consistent and cohesive pattern of funding where universities and schools throughout the country have framed their initiatives in terms of meeting the standards in the legislation.

There is an emerging cohesion and consistency in the terms used by governmental and corporate leaders, education officials, and educators — and it is frightening.

What is frightening is not the demand for intellectual rigor or the notion that education should prepare children for participation in the economy. The problem here is that education has become so narrowly conceived and so systematically organized that there is almost no place to consider what learning means to the learner in terms of the way he/she develops an understanding of self, other, and the world. It is as if the content of what we teach and the way we teach children to think have no relation to

the identities they develop, the values they hold, and the visions of life that guide their growth.

The objection here is not that standards, either directly or indirectly, prepare individuals for employment, but that they tacitly assume that earning money and spending it constitute the whole of life. There seems to be no language or place in schools to differentiate, as Ralph Waldo Emerson did, between "a working man" and "a man working." A more comprehensive view of the human being and the social and cultural functions of education is necessary.

What frightens me is that the notion of "standards" has nothing more to do with children than did the notion of "excellence." Furthermore, the political and economic foundations of the term are now assumed rather than openly debated. Political debate and dissent have diminished as the terms now used seem less ideologically contentious. The standards we speak of are not concerned with the needs of children, or sense of meaning and purpose in their studies, their sense of belonging in community, their sense of connection with the world and with others, their sense of moral responsibility and the purpose of life itself. The standards pertain primarily to what information should be in someone's head and how it may be processed to solve a particular problem. I have not seen a standard yet that focused on a child's sense of well-being. Nor have I found one that speaks to the importance of wonder, mystery, and simple joy in a child's life. Such concerns have been relegated to the "affective sphere" where we assume that things somehow will be taken care of by family, churches, and social groups of one sort or another. Yet, these are at the foundation of the child's education. These are the necessary ingredients to educate, to draw out, a person. They are considered by many as educationally irrelevant only because we have so narrowed the concept of education in intellectual and economic terms that we have lost sight of the life of the child as a person beyond the stuff that is in his or her head.

What is frightening is that the placement of schools in the economic marketplace (a key concept behind an economic rationale for vouchers and school choice) now has evolved into the identification of educational corporate profit centers. With standards come curricula; with curricula, books and software; with books and software, text adoptions and hardware investments. Every change ends (or will end) in a test, a test that will in turn start the next cycle of test-tailored products and services. Like all other profit centers, the bottom line *is* "the bottom line," not the needs or interest of the most vulnerable of underclasses, children. Let us not forget here that business tends to go where the money is. Consumers with less to spend get less.

In all this, there is no recognition of schools as cultural, as opposed to economic or political, institutions. As cultural institutions within a democracy, schools should be places where the resources of the culture are focused on providing children with the experiences and guidance they need to grow, first and foremost, into autonomous, morally conscious members of the global community. The seeming naïve idealism of such a conception of schools is not a function of dreamy hopefulness but of the definition of "autonomy" as "financial independence," and "social consciousness" as "corporate commitment to the national economy."

In this context, the purpose of this journal is to provide a forum for educators who wish to address the educational needs of children as children, as growing human beings rather than "intellectual capital," as well as the nature and purpose of schools as cultural institutions. It is a place to transcend the confines of governmental and corporate language or pedagogy focused only on "how." *Encounter* is a place to articulate alternative conceptions of education with a heightened sense of the need and possibility for meaning and social justice. The new language of reform has not so much introduced as systematically implemented an economic and political model of human beings and education. Its greatest threat lies with its success in obscuring fundamental human, social, and cultural issues, and in structuring a comprehensive system to control everything from funding patterns to lesson plans. The need for critique and for dialogue on alternatives has never been greater.

— Jeffrey Kane
Editor

Who Are They For?

A Neo-Luddite View of Computers

Jeff Edmundson

The growing use of computers in education raises questions not only about their educational effectiveness and their effect on funding priorities, but also about the very nature of learning and the teacher/student relationship.

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In 1990, my second year at Marshall High School, the principal was trumpeting his new technology plan. He talked excitedly of scanning into the big new hard drive the massive Portland multicultural baseline essays, teacher lesson plans, books full of data, and anything else anyone wanted to suggest. This was going to usher in a new age of education at Marshall. When I asked, "What is it for? How does it actually affect the classroom?" the principal said I was "negative." The scanning was completed, and nothing changed.

Several years and several more technological innovations later, Marshall still has among the highest dropout rates and lowest college-attendance rates in the state. Marshall is not alone. All too many educators have been seduced by the hype of technology. Even progressive educators get excited about multimedia and the Internet, and lend their voices to demands for equity in funding for technology. Properly skeptical of the limitations of TV as a teacher, progressives would never demand a TV for every student, but want as many computers as they can get.

Now, as many schools are sacrificing programs and begging business for money to buy technology, it's time to begin to really examine the question of "What is it for?" This essay will suggest that dedication to computer technology is misguided. Creatures of the profit system, computers are no more a neutral "tool" than is television, and they carry with them a whole package of ideas, messages, and dangers. Rather than uncritically advocating for computers, we need to learn some lessons from the much-maligned Luddites, and craft a vision of technology that is good for people and the environment.

People or Profit?

The historical Luddites were a mass movement of skilled workers in England from 1811-1813, organized to destroy textile factories that were displacing workers with new machinery. Contrary to popular misconception, they were not anti-technology. Rather, they were against "machinery hurtful to Commonality," that is, machines that destroyed traditional ways of living and thus the communities based upon them. Kirkpatrick Sale's *Rebels Against the Future* (1995), shows how they specifically fought against a conception of technology that celebrated profit-driven progress with no regard for its effects on people.

The catastrophic legacy of the last 180 years of "progress" since the defeat of the Luddites has born out their charge: From the automation of skilled work to the creation of ever-greater weapons of mass destruction to the increasing worldwide devastation of the ecosystem, the products of the industrial/profit system show the result of focusing only on short-term profit without concern for either human or nonhuman communities.

Similarly, I offer that computers threaten the best values of our educational communities. First, it should be clear that the same economic forces that drove 19th Century mechanization drive the technology industry. Computer technology has not been created to make people's lives better, despite the AT&T ads about faraway professors and the pretty myths of pioneers creating new computers in their garages. Born and brought up in the war room (Roszak 1986), the computer exists to make a profit. One needs look no further than the story of Microsoft head Bill Gates, whose ruthless drive for domination of the infant personal computer industry is a classic story of monopoly capitalism (Manes and Andrews 1993).

Schools are simply another market niche, as can be seen by a cursory glance at the business section of the newspaper, which regularly prints pie graphs showing the growing significance of education sales for the computer industry. A key to exploit this niche is the old marketing standby — planned obsolescence. New is good, old is bad. As the school year opens, teachers in my district are throwing out perfectly usable Apple IIe and Mac Plus machines because they have new, less out-of-date computers — and the kids won't use the old ones. Meanwhile, class sizes have risen as teachers are laid off.

Make no mistake, the profits in the computer industry are enormous. Not only is Gates already — according to Forbes — the richest man in the world, the mere whiff of the possible earnings, enabled by a compliant deregulating government, has driven a wave of mergers in the communications and information industries. The goal, as eagerly discussed in the business pages of the *New York Times*, is to unite computers, TV, telephones, and cable into total information/entertainment centers, controlled by a very small number of gigantic companies — now down to four, according to a recent expose in *The Nation*. Shouldn't we ask if it will be hurtful to "Commonality" to turn over our kids' minds to this technological/industrial complex?

The industry and its supporters make fantastic claims for the educational value of computers. Bill Gates (1995, 198), in his best-seller, *The Road Ahead*, claims that "the information highway will raise educational standards for everyone in future generations." Technology, he says, will "humanize the educational environment" (184). But two paragraphs later, he says, revealingly, that education will be like the production of custom blue jeans: "Any student will be able to enjoy the custom fit of a tailor-made education at mass-production prices" (185).

Following the Path of TV

The predictions by Gates and others are remarkably like those made for TV in its early years. Compare RCA president David Sarnoff's 1940s claim that TV will encourage the "greater development of the life of the individual ... and aid in the progress of mankind" (MacDonald 1990, 31), or FCC chair Paul Porter's in 1945: "TVs illuminating light will go far to drive out the ghosts that haunt the dark corners of our minds — ignorance, bigotry, fear" (41). Yet, at the same time Sarnoff and others were also developing the rating systems that would convince advertisers that enough viewers were being delivered to justify corporate investment in the new medium (Papazian 1991). When those powerful economic forces were handed control of TV, its future was assured as an instrument of entertainment and profit. We know

what that has meant for our students, from the violence to the encouraging of compulsive consumption to the diminished attention span. But few understand the ways TV undermines cultural practices that maintain community. Jerry Mander (1996, 352) quotes a Dene woman on the introduction of TV to a group of native communities in northern Canada: "The effect has been to glamorize behaviors and values that are poisonous to life up here. Our traditions have a lot to do with survival. Community cooperation, sharing, and nonmaterialism are the only ways that people can live here. But TV always presents values opposite to those."

Like TV, information technology is developing almost exclusively within a realm of profit. The profit system's molding of TV is replicated by its molding of information technology. One can go through, for example, Mander's (1978) explication of why TV should be eliminated, and find a parallel with nearly every aspect of information technology. As TV is essentially a vehicle to deliver viewers to advertisers, so the information highway is rapidly filling up with Web pages devoted to ads, and so are many e-mail boxes filling up with junk mail ads. As TV is a crucial part of our throwaway culture, so the computer hawkers encourage us to become dissatisfied with our six-month-old slow-as-a-snail machines, and to dance a jig for software upgrade Version 3.222. As TV limits imagination, so even the best of educational software encourages kids to use their "imagination" by following narrow preset forms. Take, for example, the popular program *Storybook Weaver*, in which students create stories by choosing among predrawn backgrounds and characters. Many "imaginary" characters are remarkably like popular cartoon figures, thus encouraging children to reproduce familiar TV culture rather than genuinely using imagination.

And as TV undermines traditional cultures, so computers carry hidden demands when they are used by low-tech cultures. Consider one of the supposed advantages cited for use of the Internet in schools: that we can encourage global understanding through communicating with people in other cultures. But in order for someone in rural Mexico, for example, to exchange e-mail with a U.S. student, the Mexican must acquire the money to buy the computer, the electricity to power it, must usually learn written English, and must learn the codes of linear print-based culture. In short, the Mexican must become more like us.

Interactive Control

But the computer is different than TV, some say. *It's interactive!* And therein lies the rub: because computers communicate back and forth, they are amazingly useful for the purpose of control.

Barbara Garson (1988) demonstrates what anyone who's worked in the business world probably already knows: computers are a more powerful tool for monitoring, watching, and keeping tight control on employees than scientific-management guru Frederick Taylor could have dreamed of. Phone workers such as operators and reservation agents find they are timed, measured, and harassed if they don't meet the computer's definition of efficiency. Office workers always have the machine counting their production. Even stockbrokers and executives are being subjected to software measurement by experts who contend that "if there is an output, it can be measured." The effect of this is to give greater control over the work process to management, and allow the hiring of cheaper, less-skilled workers.

How might this apply to schools? In our eagerness to put all our computers on networks, we overlook the fact that technology has consistently been used by management to further the control over and deskilling of workers — from the stopwatch to the assembly line to numerical control (Rifkin1995). For education, this is not as simple as the stereotypical fear — the replacement of teachers with computers — though that's on the agenda, too. What is much more likely in the near term is that computers will radically reduce teachers' freedom. Networked computers always have a central control center, run by a system administrator, who is the only one with the passwords to run the system.

As an example of the potential, a recent letter to the editor from a teacher detailed how the networked computers in her room allowed the principal to insist that students be on a certain drill program for 20 minutes each day — and to monitor that in fact every child signed on for the requisite time.

How else might creative principals find to use the new power of the network? In my school system, there is already a policy that administrators can read any e-mail that is sent on the system. Couldn't principals monitor or change a teacher's grades? Monitor any outside phone calls when phones are tied into the system? Use the system to dig up dirt on the personal life of union activists?

The Computer Affects How We Think

But the computer is not only a commodity or a control system. It is a medium of communication, and thus encourages a particular form of knowing and thinking. Yet, the common assumption of technophilic teachers is that computers are a neutral tool — "it just depends on how you use them." Used right, they claim, sounding quite like Bill Gates, computers can empower students to learn independently and connect with others around the globe.

But as Chet Bowers (1995, 79) explains, any technology carries certain cultural ideas that tend to amplify some aspects of experience and reduce others. For example, "the telephone amplifies the ability to project voice over great distances, but reduces the use of the other senses." Similarly, the computer amplifies "the explicit knowledge of a cultural group, ... (while) what gets reduced as legitimate knowledge are the tacit, contextual, and analogue forms of knowledge" (84) that are part of face-to-face experience. Ultimately, Bowers states, "computers are the epistemological machines of the scientific/technologically oriented middle class culture ... embodying the view of the individual as the basic social unit, knowledge as derived from objective data ... (and) change and technological innovation as manifestations of humankind's progressive mastery of nature" (89). The technological way of thinking is not conducive to understanding the ways culture and language shape our reality, to encouraging community, or to seeing our connection to nonhuman nature.

Although in many ways, the computer amplifies the modern, linear, print-based form of knowing, the miracle machine holds much more in common with the television. And like the television, it is in the end destructive of the positive aspects of the print culture, as well as to remaining traditions of face-to-face oral culture.

Neil Postman (1985) contends that TV has bred a culture that is essentially focused on entertainment. He traces the roots of this back to the commodification of information that was begun by the telegraph (though as Bowers points out, the commodification process goes further back — printing itself first enabled information to be easily separated from face-to-face interaction [1988, 80]). As information becomes ever more quickly transportable, it becomes increasingly disconnected from any specific social function.

When telegraphy combined with radio and photography, the technological result was TV. The particular form of the technology created within the capitalist world is the commodified one of entertainment. It's not just that TV is entertaining, Postman (1985, 87) points out, it's that "it has made entertainment itself the natural format for the representation of all experience." Business, elections, education, and even religion are changed by the need to use the epistemology of TV: dominated by the image, fast-moving, and above all — fun.

This is replicated in much of the computer software that dominates educational catalogs. Looking just at education software, we see that the repeated god-words are "compelling," "entertaining," "makes learning fun." My college alumni magazine recently spotlighted graduates working in the high-tech field. One works for a company producing educational software "that is entertaining, meets high educational standards and can be delivered anywhere in digital format." It "consists of interactive games that require children to solve problems in order to advance through entertaining plots." Even the content choices are bound by entertainment value: following the success of *The Oregon Trail*, which focuses on the adventure of the journey, albeit from the narrow point of view of the white male pioneers (Bigelow 1995), a series of "trail" games was spawned that send students out to wander the Yukon, Africa, the Amazon, and on a "quest" for the Maya.

Unpacking the implications of entertainment, Postman (1985, 147-148) suggests three "commandments that form the philosophy of education" of TV. First, "thou shalt have no prerequisites ... no previous knowledge is to be required." Second, "thou

shalt induce no perplexity." Anything that must be thought about is painful and to be avoided. Third, "thou shalt avoid exposition like the ten plagues visited upon Egypt." Because the careful sequence of true discussion is boring, everything is turned into a story.

These commandments are followed slavishly by information technology. Internet Web pages rarely have text longer than a few paragraphs. They are filled with graphics and short pieces designed to keep the viewer's attention for a few moments before the *click!* to another graphic. The similarity to the TV remote control mentality is illustrated by the term "cyber-surfing," derived directly from "channel-surfing" (itself a metaphor for skimming a surface). And the latest innovations in programming are designed to make the Net even more like TV — adding full-motion video as well as live audio and video. Clearly, the Net is moving as fast as it can away from even the vestiges of the thoughtful understanding that come from Postman's print-values of exposition and perplexity.

But let's say a teacher or student does indeed find "information" beyond entertainment. This free-floating, out-of-context "data" has an appearance of truth, and thus feeds the myth that learning is collecting objective facts. Progressive teachers have long been fighting the idea that textbooks contain objective truth. We know that the ideas that guide the selection of evidence and the interpretation are inherently political. It is all that much harder to see when, like much on the Internet, it is often without a clear source; without the context and sequence that a book or even magazine can have; and is vested with the authority of a supposedly neutral machine — "computers don't lie." Yes, we can try to teach kids to think critically about these issues, and we should. But at the very least, the computer makes it more difficult by undermining the skills such thought requires. At the worst, it entraps students more deeply in the sticky but shallow web of commodified entertainment culture.

A Neo-Luddite Approach to Computers in Schools

A small, but growing Neo-Luddite movement is raising questions that apply to educational computing. Rather than smashing computers or other technology, they are defining an intellectual position and a way of living that puts communities and people above technology. Rather than giving in to the assumption that technological change is inevitable, they say that any technology must be evaluated for its effect on communities and the environment, and only adopted if it does more good than harm. The Amish, for example, have lived this principle for generations.

A computer user myself, I am not yet prepared to call for the abolition of computers in schools. But I believe progressive educators should be radically more critical about the impact of the technology on schools. Below I suggest some beginning principles and questions, which I loosely call Neo-Luddite, drawn partially from psychologist Chellis Glendinning (1990) and Kirkpatrick Sale (1995).

1. *All technologies have a political and moral dimension built in.* Technologies are not neutral. They are created by specific interests to serve their needs, and contain ideas and values inherent in the way they are designed. People who use the technologies will absorb those ideas.

2. *Educators must carefully examine all technologies for their social, cultural, and environmental effects.* How does the use of a technology change the way students relate to one another? How does it affect the way they think? Does it create greater control by central administration? Does it disrupt existing cultures? Some Native American communities followed the principle of considering how any action would affect the seventh generation. This guidepost is particularly critical in an era of ecological crisis.

3. *Good schools are those that emphasize positive, human, face-to-face interaction; encourage deep, critical thinking; and further democracy, peace, and justice. A technology is destructive if it diminishes those.* Students on computers are not talking to each other or to teachers; e-mail rarely has the depth of face-to-face conversation. Students who produce papers that have attractive design and graphics but little to say are not becoming thoughtful citizens.

4. *Ask of every piece of hardware and software: Was it designed to meet an important educational goal, or was it designed to do what the computer is good at?* Much educational software uses a game format — and the content is chosen by what will fit that format. Math

drills may not be the best way to learn math, but computer math focuses on drill. The Yukon Trail is probably not a key part of history, but it fits into the adventure game model, so it gets produced. Other aspects of the computer influence content choice, too — speed, graphic attractiveness, manipulability.

5. *Teaching students to think critically about technology should be central to our curriculum.* As the accelerating impact of technology and technological thinking brings our planet closer to disaster, we must examine this impact from as many directions as possible. Those of us who try to teach critical thinking about TV and other media know how difficult it is to get students to question what they enjoy. But we need to extend beyond teaching skepticism, to help students see the political and cultural values that are built into technology, and to work with them to fashion a vision of a different way of living.

A succinct summary of these principles was made recently by Theodore Roszak (1996, 14): "1) Find out what Bill Gates wants your school to do. Don't do that. 2) Keep a pre-computer image of education in mind at all times, remembering that education predates high-tech."

Many articles in *Encounter / Holistic Education Review* understand this implicitly, describing education that tries to encourage "Commonality," rather than accepting the culture and vision carried by information technology. The explicit critique offered here can be a tool for consciously resisting the technophiles and their corporate sponsors.

And what if computers are forced on us without consideration of these principles? Perhaps the Luddite form of resistance wasn't so crazy after all....

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New Editorial Board Members

Dr. Riane Eisler is internationally known as the author of *The Chalice and the Blade: Our History, Our Future*. She is the co-director of the Center for Partnership Studies and consults for business and government on the partnership model. She has written over a hundred essays and articles for publications ranging from *Political Psychology*, *Behavioral Science*, and *The UNESCO Courier* to *Futures*, *The International Journal of Women's Studies*, and *The Human Rights Quarterly*. Dr. Eisler is a Fellow of the World Academy of Arts and Science and of the World Business Academy. She also serves on many boards, including the International Scientific Advisory Board of *Pluriverso* and the Editorial Board of *World Futures*.

Dr. Jesse A. Stoff, a graduate of Adelphi University and New York Medical College, lives in Tucson where he is the medical director of Solstice Clinical Associates and specializes in the care and treatment of people with severe and chronic diseases. He has written and co-authored several books including the bestseller *The Chronic Fatigue Syndrome*. He lectures frequently at national and international medical conferences on viro-immunology and teaches CME courses for the Arizona School of Medicine on immune reconstitution. He is also the director of the Stoff Institute for Medical Research, a nonprofit organization that researches and develops new medicines and supplements to immuno-modulate the immune system.

Maturing Outcomes

Arthur L. Costa and Robert J. Garmston

As our understanding of educational outcomes matures, our perspective expands from activities to content, processes, dispositions, and finally mindstates.

> ... new frameworks are like climbing a mountain — the larger view encompasses, rather than rejects the earlier more restricted view.
>
> Albert Einstein

Decisions made by policymakers, teachers, and curriculum workers about what should be taught in our schools will shape the minds of our children. The character of their minds, in turn, will help shape the culture in which we all live. Schools serve children best when they broaden the meanings children know how to pursue and capture (Eisner 1997). In this article we present a systematic map of educational outcomes intended for use by educational leaders. The map represents increasingly broader levels of curricular and instructional decision making. Constraints that narrow educators' focus will be described and leadership strategies intended to expand and enlarge the thinking of staff, curriculum policymakers, and the community will be suggested. Examples will be described of how this map serves educators in four leadership functions: managing, monitoring, mediating, and modeling.

While we do not reject a more restricted view, we value, as Eisner does, that the broader the meanings which children know how to pursue shapes their minds and ultimately will create citizens who are better able to contribute uniquely to our democratic society and a global community. Our hope is to offer future citizens a curriculum developed around broad outcomes and focused on enduring, essential, transdisciplinary learnings, which are as appropriate for adults as they are for students, and are congruent with the vision of continuous, life-long learning and with the mission of a learning organization.

A Map of Increasingly Broader, More Encompassing Educational Outcomes

From examining the literature on instructional objectives, teachers' cognitive processes, and exploring our own experiences, we surmise that there are at

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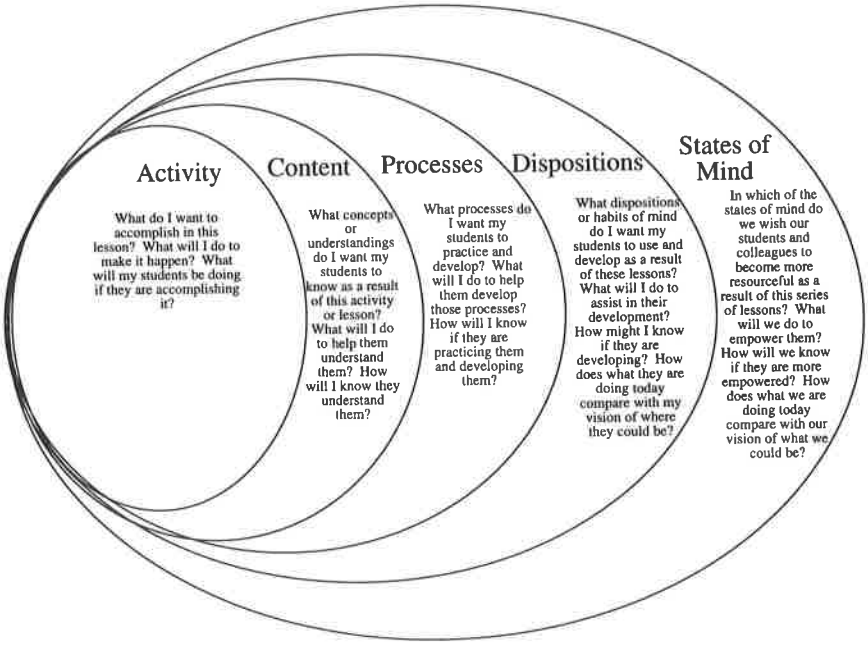

Figure 1. Outcomes

least five nested levels of outcomes, each one broader and more encompassing than the level within, and each representing greater authenticity. They are summarized in Figure 1, which is adapted from Costa and Liebmann 1997b.

Outcomes as activities

Inexperienced teachers may exhibit episodic, teacher-centered thinking and simply be satisfied to accomplish *activities*. For beginning teachers, for whom everything is new, the cognitive demands of the classroom may be more than the working mind is designed to accommodate. Their own survival and keeping students engaged from period-to-period and day-to-day often dictate their instructional choices. Their decisions include: What do I want to accomplish in this lesson? What will I do to make it happen? What will my students be doing if they are accomplishing it? Teachers might describe an outcome as, "Today in social studies I'm going to show a videotape on Mexico." Success is measured in terms of: Did I make it through the lesson? Were students on task? Did they pay attention?

Outcomes as content

As teachers increasingly gain familiarity with classroom procedures, their students, and themselves, mental energy is freed to consider the cumulative affects of these activities — what concepts and principles are students learning? While teachers maintain interest in day-to-day activities, they are now employed as vehicles to learn *content*. Teachers ask: What concepts or understandings do I want my students to know as a result of this activity? What will I do to help them understand? How will I know they understand the concepts? In the Mexican history lesson, for example, the videotape is used as a means of helping students understand the principal causes for Mexico's struggle for independence from Spain. The teacher's focus is on what concepts and understandings students will know and how that knowledge will be recognized and assessed.

Outcomes as processes

As teachers continue to mature, content begins to be selected for its generative qualities (Perrone and Kallick 1997). Content becomes a vehicle for experiencing, practicing, and applying the *processes* needed to think creatively and critically and are basic to life-long problem solving: observing and collecting data, forming and testing hypothesizes, drawing conclusions, and posing questions.

Process outcomes are of greater valence than the outcomes of subject specific content, because to be literate in the content students must know and practice the processes by which that content came into being (Paul and Elder 1994; Tishman and Perkins 1997). At this level, teachers decide: What processes

do I want my students to practice and develop? What will I do to help them develop those processes? How will I know if they are practicing and developing them? In extending the Mexican history example: Students plan a research project to support their theories that the heroes of the Mexican Revolution were as courageous and brave as those of the American Revolution. Students present an exhibit demonstrating their understandings and develop rubrics for judging the exhibits and working together effectively. Additionally, they reflect on and evaluate themselves both individually and collectively as to how well they met the criteria of both the project's completion and for cooperative group work.

Outcomes as dispositions

With increased maturity, systems thinking emerges about outcomes. When a vision is shared, an entire staff transcends grade levels and subject areas. Panoramic outcomes are more likely to be achieved because they are reinforced, transferred, and revisited throughout the school, at home, and in the community.

The transcendent qualities of systems thinking about outcomes may be found in *dispositions* or *habits of mind:* enhancing one's capacities to direct and control persistence, managing impulsivity, creativity, metacognition, striving for precision and accuracy, listening with empathy, risk-taking, and wonderment (Costa 1991; Tishman and Perkins 1997). All teachers, regardless of subject area or grade level, can agree on these desirable qualities. Persistence is as valued in social sciences as it is in music, math, and physical education. Creative thinking is as important to science as it is in the auto shop and the arts.

With a focus on dispositions, the historical isolation, disparity, and episodic nature of curricular outcomes are minimized. Furthermore, the dispositions are as applicable to developing adult capacities for effective problem solving and continuous learning as they are to students. All members of the learning organization continue to become more thoughtful. Schools which employ these dispositions report a startling drop in discipline and behavior problems (Tschumy 1997). The outcomes for students and the work culture of the school become congruent and synonymous. In schools that have focused on dispositions, parents were found to be more supportive of teaching, learning, and assessing at this level because they could relate such habits of mind as persistence, checking for accuracy, questioning, and using precise language to their own jobs, careers, and professions (*Video Journal of Education* 1997).

Activities are still taught. Content is selected for its generative nature, processes are practiced, but they now accumulate into grander, more long-range outcomes. Instructional teams rather than individual teachers decide: What dispositions do we want students to develop and employ? What will we do to assist their development? How might we work collaboratively to determine if students are developing such dispositions over time? What will we see or hear in student behaviors as evidence of their growth? How might we practice and assess our own growth toward these habits of mind through our work together?

In the Mexican history lesson, the teacher builds metacognitive capabilities by having students consciously discuss and employ the skills of listening with understanding and empathy. Operational definitions of these dispositions are generated and observers collect evidence of the group's performance of these skills. Upon completion of the project, students evaluate their own performance using feedback from the observers. Students draw causal relationships not only among the effects of their collaborative skills and task achievement, but also between empathy and the sources of revolutionary movements. Questions are asked such as: What metacognitive strategies did you employ to manage and monitor your listening skills during your work in teams? The emphasis is on internalizing these dispositions as individual and community-wide norms and all staff members plan for such dispositions to be encountered and transferred across various disciplines and learning situations. As a result, staff members and the community develop a shared vision of the characteristics and qualities of their graduates.

Outcomes as mindstates

We consider five human capacities, or *mindstates,* as catalysts — energy sources fueling human thinking, learning, and behaviors — as the next level of

outcomes. They are the wellsprings, nurturing all high performing individuals, groups, and organizations (Costa and Garmston 1994). They are the beacons toward increasingly authentic, congruent, and ethical behavior. As educational outcomes, we want not only our students and our colleagues but also ourselves to amplify these five characteristics.

- *Efficacy* is the human quest for continuous, lifelong learning, self-empowerment, mastery, and control. We have the capacity to make a difference through our work, and we are willing to take the responsibility to do so.
- *Flexibility* is the human capacity to perceive from multiple perspectives, and endeavor to change, adapt, and expand our repertoire of response patterns. We have and can develop options to consider about our work and we are willing to acknowledge and demonstrate respect and empathy for diverse perspectives.
- *Craftsmanship* is the human yearning to become clearer, more elegant, precise, congruent, and integrated. We can continually strive for excellence, and are willing to work to attain our own high standards, and pursue ongoing learning.
- *Consciousness* is the unique human capacity to monitor and reflect on our own thoughts and actions. We monitor what and how we are thinking about our work in the moment, and are willing to be aware of our actions and their effects on others and the environment.
- *Interdependence* is the human need for reciprocity, belonging, connectedness, and to become one with the larger system and community of which we are a part. We will all benefit from our participating in, contributing to, and receiving from learning relationships; and are willing to create and change relationships to benefit our work.

Teachers might facilitate learning and drawing upon the mindstates by having students analyze how functional and dysfunctional groups respond to and resolve tensions and conflicts: What resources can they draw forth to become more flexible, efficacious, conscious, craftsmanlike, and interdependent when solving problems? Students are invited to display the behavior patterns of each and then inquire as to the probable mindstates from which such behaviors evolve. From these learnings students draw implications and generalizations about the effects of cooperation, listening, flexibility, and precision in life situations. They recognize mindstates necessary to achieve highly effective groupwork in organizations and in society. They revisit the Mexican history lesson analyzing the mindstates of major leaders and groups and make applications to their own school community.

At this level, outcomes are drawn not only from the mindstates of consciousness, flexibility, interdependence, craftsmanship, and efficacy, but also from the ways these interact with the school's expressed values, culture, and mission. The staff decides: In which mindstates do we wish students and colleagues to become more resourceful? What will we do to capacitate their development? How will we know when the mindstates are amplified? How does what we are doing today compare with our vision of what could be?

Staff and students learn to draw upon the five mindstates to organize and direct their resources as they resolve problems, diagnose human frailty in themselves and others, plan for the most productive interventions in groups, and search out the motivations of their own and other's actions. They become the desirable meta-outcomes not only for staff, students, and community but for each of us as well. The desired outcomes for us and those we hold for others become as one.

What Keeps Perspectives Narrow

Educational leaders are presented with a dilemma: how to think big when so many forces influence us to think small; how to establish powerful, authentic outcomes of this magnitude when well-meaning policymakers, zealous parents, and community leaders encourage schools to narrow the focus of their educational outcomes. Several examples of limiting signals include:

- *National goals and assessments, resulting from political expediency instead of reasoned values.* Making a national goal of and assessing students' reading and math at fourth and eighth grade levels to compare scores with other nations makes a public statement that quality education means improving scores on tests of reading and math skills (Kamii, Clark, and Dominick 1994). (Increasing numbers of research studies, however, indicate that higher test scores result from

using process-oriented, conceptually based instruction.)

- *Mandated curriculums and traditional assessments of students' discreet, micro-performances based on reductionist theory.* Decades of Newtonian-oriented, behavioristic principles of learning focus us on students' performance of minute skills and low-level knowledge rather than broader, more essential outcomes.
- *The self-sealing logic of past and current systems of outcomes.* Much like a dog chasing its tail, the level of adopted outcomes sets the intent and instrumentation of assessments. This cycle seals systems into a mindset that outcomes are significant because they are easily and immediately measured, barring consideration of working for more enduring, long-range outcomes.
- *Our historical obsession with the disciplines as separate stores of knowledge to be acquired which places boundaries on content and keeps school staffs divided.* The organization of curriculum into static compartments may be a helpful classification system for allocating time, writing textbooks, hiring and training teachers, or organizing university departments. This archaic conception of the disciplines, however, conveys an obsolescent and myopic view of what constitutes knowledge (Costa and Liebmann 1997a).
- *Schools' and districts' change efforts using an episodic, activity-based approach.* Proudly striving to keep abreast of educational improvement practices, some schools adopt an array of innovations (such as block scheduling, inclusion, cross-grade groupings, interdisciplinary instruction, technology, mentoring, whole language). Teachers and administrators soon become overwhelmed integrating all the disparate pieces. Knowledge-vigilant organizations, however, view school change from a broader perspective as a process of revealing and emancipating human and organizational resourcefulness.
- *Cognitive immaturity.* Another, most elusive proposition relates to the cognitive capacity required to comprehend, value, and simultaneously hold and work for educational outcomes that meet the test of authenticity described above. Such cognitive complexity may be attainable only by persons in later developmental stages of cognitive growth (Kegan 1994).

How Leaders Support Maturing Outcomes

How can educational communities, constrained and limited by existing mindsets, curriculum, and mandated assessments, mature in their capacity to think about more potent, multiple, simultaneous, and complex outcomes? Educational leaders, maintaining their focus on the bigger picture, can support their organization, staff, and community to think in broader terms.

Developing cognitive complexity

The pathway from novice to expert educator is an evolving journey towards the peak of one's capacity — a highly evolved human, capable of operating interdependently, while maintaining and remaining true to a clear sense of personal identity; growing toward greater mental complexity and away from perceiving the self as separate from others and at the center of the universe. As adults in this culture evolve through the systems by which meaning is made, they progress from the *interpersonal* — in which they internalize uncritically the values and beliefs of others. They seek validation from external criteria and their personal identity is defined by relationships to people and ideas.

A beginning teacher's focus on activities may be representative of this initial stage of meaning making. In time, and with mediation, humans evolve into the *institutional stage;* they have relationships but are not defined by them. Now they become self-authoring, self-standard setting, and are validated by internal criteria. They develop their own psychic institution, and, like all institutions, they expend energy trying to protect their boundaries resulting in self-sealing logic and limited flexibility (Kegan 1994).

Still other teachers, but not all adults, Kagen cautions achieve the transition to the next stage — the *post institutional* (and rarely before age forty). In this most advanced stage of human development, teachers are committed to continual inquiry and occupy a consciously interdependent relationship with their environment. They are open to questions, possibilities, conflict, and reconstruction of their own assumptions, practices, and ways of being. Gifted and burdened with these complexities and perspectives, teachers work to develop students in similar direc-

tions of self-assertiveness and integration (Garmston and Lipton 1996).

Maturing teachers who live in a rich school culture of complexity, creativity, and collaboration, operate at multiple levels of authentic outcomes simultaneously as lessons are planned, as students' needs are considered, as the immediate and long-range goals of the curriculum are assessed, and as the environment of the school and classroom are arranged. Educators who function at broader, more complex levels of personal development think beyond the immediate purposes of a lesson and envision the potential of fully functioning human beings. These attributes become integrated into outcomes for themselves, students, colleagues, their organization, and the community.

The maturing outcomes map

Anthropologist Gregory Bateson (1972) formulated an early notion of relating systems of learning to human growth. Dilts (1994) then applied this form of systems thinking to education. The major concepts are:

- Any system of activity is a subsystem embedded inside another system. This system is also embedded in an even larger system and so on.
- Learning in one subsystem produces a type of learning relative to the system in which one is operating.
- The effect of each level of learning is to organize and control the information on the level below it.
- Learning something on an upper level will change things on lower levels but learning something on a lower level may or may not inform and influence levels above it.

Staffs begin to realize that authentic outcomes are subsystems embedded inside other subsystems. In such arrangements, different types and magnitudes of learning occur relative to the system in which one is operating. Each more overarching, complex, and abstract level has a greater impact upon the learning of the level within it. Since each level affects the interpretation of the levels below, changing meaning on an upper level changes decisions and actions at lower levels; changing something at a lower level, however, does not necessarily, affect the upper levels. When teachers deliberately adopt and assesses *dispositions* as outcomes, for example, it changes the design of their *activities*, determines their selection of *content*, and enlarges their assessments. The bigger the circle in which the outcomes live, the more influence they exert on the values of each learning.

If we wish to influence an element deeper within the system, each tiny adjustment in the environment surrounding it produces profound effects on the entire system. This realization allows us to search beyond the dispositions for systems to which humans naturally aspire in their journey of human development, which, if affected, would also influence one's capacity to learn (Garmston 1997).

Using the maturing outcomes as a strategic, metacognitive map, leaders can identify the current level of thinking about outcomes in a discussion or in a product. Leaders can choose to work within the existing level of thought or to mediate a group's or individual's thinking towards a broader, more encompassing level.

Strategies for Generating More Complex, Encompassing Thought

Examples within four leadership interventions are explored: managing, modeling, monitoring, and mediating.

Managing

Leaders who have the capacity to manage resources can make deliberate decisions about the use of those resources to broaden, heighten, and enhance outcomes. Leaders will be alert for opportunities to intervene in such a way as to broaden a group's or individual's outcomes by clarifying core values, assessing at higher levels, directly instructing, and deliberately structuring.

Clarifying core values. Leaders can articulate beliefs about how students learn in documents that drive conversations, decisions, assessments, and reporting in all curriculum and instructional practices. They will activate committees to stay current with emerging literature and findings in order to contrast and align present practices with most recent findings. Agreements about student expectations can be derived from thoughtfully facilitated school-community conversations linking what is known about learning.

Assessing at higher levels. Since what is inspected communicates what is expected, thoughtful leaders can design and report assessments at the level *above* where a group or individual is operating. Teachers naturally assess achievement at the same level as their outcomes. Content level assessment, for example, measures skills and knowledge achievement. Processes, dispositions, and mindstates, however, require multiple assessments: portfolios, interviews, performances, and direct observation. To monitor and assess students' development of dispositions requires data to be accumulated systematically, over time, and from multiple perspectives (Marzano, Pickering, and McTighe 1993). Development of mindstate resourcefulness requires assessments of characterization (Krathwohl, Bloom, and Masia 1964) and self-evaluation under conditions of duress and conflict (Bloom, et al. 1956).

Directly instructing. Leaders can teach about nested levels of increasingly complex outcomes through staff development programs, as a prelude to the work of any curriculum group, as a framing device in deliberations about instruction and assessment practices, as a communication to parents about school goals, and in orientations for new faculty (Saphir and Gower 1988).

Deliberately structuring. The confluence of multiple perspectives enriches the thought within groups. Leaders can, therefore, design group assignments and composition by timing and defining tasks so that stakeholders from diverse levels of maturity, beliefs, and styles must collaborate. Teachers from different disciplines might be paired in peer coaching and other collaborative arrangements. A diffusion of knowledge and assumptions about learning occurs when teachers from different disciplines plan together, observe in each other's classroom, share responsibilities for student learnings, or are assigned the same students for multi-year periods.

School leaders can structure environments to maximize certain forms of interactions. Multiple classrooms intentionally designed around a common teacher-workroom enhances interdependence. A single lab, shared by all science teachers and students, increases connection-making among all the sciences. Schools (such as Prairie Ridge High School in Crystal Lake, Illinois) can be designed so as to build flexibility into the very walls and passages of the edifice making it necessary for the staff, students, and community to function in interdependent ways (Saban 1997).

Modeling

Leaders must walk the talk. Probably the most powerful intervention is for leaders to behave in a manner consistent with their beliefs and values. Staff, students, and community members are constantly alert to cues which signal congruence between the stated beliefs and values and the overt behavior of the leader. Leaders model by publicly stating their outcomes in the broadest terms and explain their actions in relation to the five mind-

Table 1.

Level of Thought	About	Words and Metaphors as Indicators
Activities	Objectives	To: "Pay attention, participate, complete, on task, take notes..."
	Assessments	Teacher observation, counting, recording
Content	Objectives	To: "Know about, understand, comprehend, grasp, remember"
	Assessments	Quizzes, tests of knowledge
Processes	Objectives	To: "Infer, conclude, criticize, to explain, to interpret, hypothesize, to reason, to analyze, to support with evidence..."
	Assessments	Performances, applications, exhibitions
Dispositions Habits of Mind	Objectives	To: "Develop perseverance, to manage impulsivity, to be reflective, to become more intellectually strategic..."
	Assessments	Demonstrations over time, anecdotals, rubrics, portfolios, checklists, self-assessments, self-descriptions using meta-cognitive maps.
Mindstates	Objectives	To: "Draw upon resources; to employ capabilities and maps, to demonstrate beliefs and values; to act in accordance with..."
	Assessments	Characterization self-assessment of own performance under duress, self-evaluation using an internal set of criteria, seeking feedback from others.

states. They specify the behaviors on which they are working, make public the rationale for choosing them, and ask others to monitor and provide feedback about their skills, effectiveness, and congruence with stated values (Hayes 1995). Such leadership is invested in people at all levels of the organization as they perform their multiple functions of planning, coordinating, communicating, influencing, coaching, consulting, and assessing (Garmston and Wellman 1995).

Monitoring

Leaders constantly monitor themselves, their interactions with others, the allocation of available resources, and the environment for indicators of the level of outcomes being described, cited, reinforced, or valued.

Self-monitoring implies asking one's self, what are my intentions and motives at this moment? It means keeping in mind the map of the interaction (See Figure 1 above). Self-monitoring implies being aware of one's own words, values, and actions.

Monitoring metaphors means listening to others' words and implicit thoughts about lesson design, curriculum decisions, assessment strategies, or staff development plans as indicators of the map level at which they are currently perceiving educational outcomes. Developing banks of synonyms and related words and phrases for each level of the map helps groups remain alert for indicators of the levels of thinking (Zimmerman 1997). For example, see Table 1 above.

Monitoring the allocation of resources means being alert to where money and time is being invested. By paying attention to the level of outcomes and intentions of published materials, computer programs, curriculum guides, descriptions of staff development opportunities, etc., leaders can select those which will raise and broaden the level of thinking by staff and community.

Mediating

To mediate is to interpose oneself between a set of learners and the environment and, through nonjudgmental questioning, paraphrasing, and clarifying, drawing attention to data, the consideration of which engages and transforms thinking and meaning (Feuerstein, Feuerstein, and Schur 1997). From such transformed meaning comes a re-examination of practices and their congruence with values.

This arrangement of systems and subsystems of maturing outcomes provides a map around which leaders can strategically design linguistic interventions intended to mediate others' progressively more psychologically encompassing and impactful levels of abstraction than the level currently being addressed. Being alert to opportunities in face-to-face interactions and in group meetings, leaders can employ this mental map of questioning with the intention of engaging and transforming others' thinking toward increasingly broader levels of outcomes.

Beyond Current Thinking

In our journey we've described five transdendent levels of maturing outcomes from activity to content and processes through dispositions and states of mind. We hold each level not only as outcomes in and of themselves but as vehicles and enablers of

Table 2
Questions Intended to Raise Consciousness About Levels of Outcomes

When you hear the level of the lesson to be	And you want to raise it to	Leaders mediate by asking such questions as
Activity	Content	How will students benefit from engaging in this activity? What concepts (big ideas, principles) do you want students to learn as a result of these activities?
Content	Processes	How will students demonstrate their understanding of these concepts? How will students apply these concepts in future lessons? In what cognitive processes will students engage during these learnings?
Processes	Dispositions	What habits do you want students to form as a result of engaging in these processes? What enduring learnings will students gain from engaging in these processes?
Dispositions	Mindstates	What do you want students to carry forth to future life situations? How will students feel more resourceful (empowered) as a result of these learnings?
Mindstates	Ideals	What personal values are students forming as a result of these learnings? How will this help your students become better human beings?

more transcendent virtues as well. As the instructional focus is enlarged, the outcomes for students and the work culture of the school become congruent and synonymous; the staff employs these same mindstates as decisions are made, meetings conducted, parent conferences held, and instruction planned. Staff members monitor their own mindstates as they gather feedback about their achievements, their effects on others, and set continually higher standards for themselves.

We believe there are additional levels beyond. Biographies of remarkable and virtuous people from the sciences, the arts, politics and social services, whose personal development seemed to move beyond the mindstates, further enlarges our vision. They display a personal set of virtues — a spiritual quality. We call this sixth level "ideals" — encompassing not only the mastery of processes, dispositions, and mindstates, but transcending these in pursuit of universal goals. The real challenge to the maturing organization, is to be faithful not only to the external goals but to measure up to the interior goals: To reach for what is beautiful, what is good, what is true; what unites and does not divide. We believe the ideals for which humans at the highest stages of development strive, is the integration of external outcomes and those outcomes within ourselves: trying to make ourselves better, purer, more beautiful, and more loving persons; concerned with uniting and not dividing (*Gifts from the Fire* 1991).

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Seeing is Believing

Ecological Consequences of the Scientific View of Mind

Graham Dey

Science, by presenting the mind as an individual phenomenon separate from its wider ecological setting, offers a perspective that is inherently problematic and one that reinforces ecologically destructive cultural patterns.

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The declaring of the 1990s as the Decade of the Brain by former President Bush underlines the seriousness of efforts on the part of scientists today to interpret the complex functioning of the brain and to redefine our understanding of mind. Legitimized by the dramatically increasing body of information gathered by researchers through the use of new imaging technologies, we are currently being led to believe that an understanding of the complex relationships of brain and mind are being unraveled, and that scientists are nearer to comprehending phenomena such as consciousness and intelligence than at any time prior in human experience. As a result, it is increasingly common for classroom teachers, educational theorists, and the general public to accept and incorporate views concerning the nature of mind put forth by the scientific community, as well as the new definitions of intelligence that accompany these views. It is therefore critical that professional educators pay careful attention to questions concerning the ramifications of basing educational practices on these new models, and to recognize and understand the assumptions inherent in these beliefs.

The popularizing article, "Glimpses of the Mind," that appeared in *Time,* posited the following question: "What, precisely, is the mind, the elusive entity where intelligence, decision making, perception, awareness and sense of self reside?" (Lemonick 1995, 45). The answer, if we are to believe the author, is based largely on the currently held notions of scientists and the "discoveries" they have made within the last few decades. Underlying these efforts is the belief that science can illuminate and interpret the "mysteries" of human consciousness, a pursuit which has long captivated Western thinkers since the

times of Plato and Aristotle. According to this historical-scientific view, the human brain is seen as a system composed of complex chemical structures that are capable of producing minute electrical fields. Information is transmitted by these electrical impulses through neurons, 10 billion of which are connected to one another in a geography of energy that is responsible for the control of all mental functions. The brain is thus a control center for movement, sleep, hunger, thirst, and all other activities that are vital to the survival of the individual. Further, all human emotions are controlled by the brain which acts as a processing center for emotional perceptions and memories. It also receives and interprets the countless signals that are sent to it from other parts of the body and from the external environment, the latter being seen as separate from the individual.

Intelligence, the capacity to learn or understand, is also thought by scientists to reside within the brain and to be largely a function of neurons. The number and type of functioning neurons and how they are structurally connected with one another determines just how smart one is. Patterns among neurons are also thought to be responsible for learning and memory, both being processes through which individuals aquire and store information. Additionally, the patterns formed by neurons are also believed to connect in ways that form mental switching stations called "convergence zones." These zones provide access to information and relate it to other pieces of data which enable individuals to process language and coordinate disparate bodies of information contained within the neurological framework (perception, memory, emotion, etc.). Scientist's believe that these convergence zones, acting in concert, may provide the individual with a sense of being present "here and now," or in other words of being conscious.

"Consciousness," says neuroscientist Antonio Damasio, "is a concept of your own self, something that you reconstruct moment by moment on the basis of the image of your own body, your own autobiography and a sense of your intended future" (quoted in Lemonick 1995, 52). This quote embodies a linear scientific view that the mind is individually centered. Within the context of other scientific ideas regarding cognition, this suggests that the individual operates in a manner that is free of the constraints of an environmental context, that information is the basis of thinking, and that the individual can be considered as a fundamental social unit. For a mode of inquiry that is purportedly free of cultural bias, this sounds somewhat suspect and leads us to wonder what is missing from the scientific approach to explaining the nature of mind?

In addressing this question it is useful to first examine the method scientists employ in arriving at such a theory. This is an effective critique in that it illuminates the pathways that lead scientists to propound the idea that aspects of mind are only the result of an electrochemical stew, and reveals the problematic nature of such discoveries — *scientific experiments being largely cultural experiments.* Additionally, by briefly examining the assumptions upon which science bases the enterprise of discovery, we can better grasp how the distinctions science has made with regards to mind reflect a selective recognition of the information being communicated to scientists, and why these rationalized conceptual maps are inadequate for this task.

The paradigm Western science has chosen for perceiving the world is the visual, and the act of seeing is mainly considered a physical rather than cultural act. The eyes of scientists are understood as being simply data recorders providing information for their minds to interpret the world by. Michel Foucault, in tracing the archaeology of natural history, states that sight was given an exclusive privilege amongst the senses, it being the sense by which scientists were able to perceive and establish proof acceptable to everyone — seeing is believing. By preferring the visual, images became central to the conceptual framework with which scientists began to map, classify, and convey the world to the Western mind. Commenting on this visual orientation, Foucault (1973, 133) writes: "To observe, then, is to be content with seeing — with seeing a few things systematically. With seeing, what, in the rather confused wealth of representation, can be analyzed, recognized by all, and thus given a name that everyone will be able to understand." Thus, like a photographic image, the natural world is taken, limited, filtered, and reduced to those elements of form whose visual representations will provide science

with what it needs most: a distinct, proper object divorced from it's contextual setting. This reduction of the world to purely instrumental terms reflects the rationalistic orientation of modern science, a view whose genesis is to be found in the *Meditations* of Rene Descartes.

The philosopher and social theorist Martin Heidegger believed that the responsibility for the instrumentality of modern science rested with the way in which Descartes had radically altered the meaning of how the subject was understood. In the essay, "The Age of the World Picture," Heidegger (1977, 128) argues that prior to Descartes the subject had been thought of as a foundational aspect of beings — one that had "no special relationship to man and none at all to the I." However, with Descartes a sudden shift in subjectivity occurs that shatters this notion, for Descartes turns ourselves into the "primary and only real *subjectum.*" As a consequence, humanity "becomes the relational center of that which is as such" (Heidegger 1977, 128). Simultaneously, "that which is" is turned into objects, to be perceived from this human center. By drawing this distinction, Heidegger argues that Descartes has withdrawn us from the primacy of experience and instead instituted a mind-body dualism that accepts the existence of two separate spheres, the objective world of physical reality, and the subjective inner world of our thoughts and feelings. In such a view the world is reduced to a passive stage on which the human drama is played out. The Cartesian consciousness comes to grasp the world as a picture, images becoming a form of appropriation that enables us to fix a place in which we feel secure, and as a result of this we diminish the world to terms of calculability. Another way of thinking of this is that the modern mind projects a conceptual map or grid onto the world, and is aware of only those elements that will fit neatly into this framework. In Heidegger's view this is the underlying essence of the rationalist orientation, the reductionism of which science is so often accused and which is reflected in the famous remark by the physicist Max Plank, whom Heidegger (1977, 169) cites: "That is real which can be measured."

Pioneering scientists in the field of neurophysiology must have felt akin to the early fifteenth century Portuguese mariners faced by the unknown "Green Sea of Darkness." Early brain research was and still is largely centered about the attempt of making the unknown known. Classification and description provide the conceptual framework scientists use in this endeavor, and the determining factor in what is noticed are those elements of the mind that can be reduced to numeric representation. Scientific theory of the mind is therefore determined by the reduction of the brain to differences in electric potential or charge. In this way the mind becomes a system, and the system little more than a mechanism, and the mechanism is understood by looking at the short causal pathways involved in a given thought process. By believing that this method of inquiry can serve as a basis for understanding the phenomena of mind, the rationalist tradition generates a blindness that limits the efforts of scientists to understand human thought, language, and action. For at an essential level no aspect of mind (or any natural system) may be understood by considering only those elements that may be assessed empirically. This notion was understood by Gregory Bateson (1972, 144), who wrote that "the content of consciousness is, at best, a small part of truth about the self. But if this part be selected in any systematic manner, it is certain that the partial truths of consciousness will be, in aggregate, a distortion of the truth of some larger whole."

It should be noted that in embracing the elaborate construction of objective science we discarded, as E. F. Schumacher (1973) stated, the two great teachers of humanity: "the marvelous system of living nature" and "the traditional wisdom of mankind" by which we know about it. The latter contains a view of the mind very different from that which science provides us, and the work of Gregory Bateson expresses, in our own cultural terms, an explanation of mind that is ecologically centered. Such a view places cognition within the participatory relationship between the elements of any system, and it is this foregrounding that keeps the moral nature of these relationships clearly in sight. This fundamentally reframes Western notions of mind that are centered within the human individual.

The following example reveals how Bateson's view of information flowing through a system is

characterized by relationships developed in a domain of interactions, and not individualistic:

> Consider a man felling a tree with an axe. Each stroke of the axe is modified or corrected, according to the shape of the cut face of the tree left by the previous stroke. This self-corrective (i.e., mental) process is brought about by a total system, tree-eyes-brain-muscles-axe-stroke-tree; and it is this total system that has the characteristics of immanent mind. More correctly, we should spell the matter out as: (differences in tree)-(differences in retina)-(differences in brain)-(differences in muscles)-(differences in movement of axe)-(differences in tree), etc. What is transmitted around the circuit is transforms of differences. And as noted above, a difference which makes a difference is an idea or unit of information. (1972, 317)

Differences, which represent fundamental units of information, are the parts of which ongoing dialogues between the systems components are constituted. This associative process emphasizes that exchanges of information are expressions of interacting systems (man-tree-axe), and demonstrates that the mind is not bounded by the skin, but must include the external vectors through which information can pass. As Bateson (1972, 316) writes: "... in no system which shows mental characteristics can any part have unilateral control over the whole. In other words, *the mental characteristics of the system are immanent, not in some part but in the system as a whole.*" In acknowledging this view it is readily apparent that we can no longer consider cognition in the light of the narrow definition that Western science has provided us, one that holds that the mind is individually-centered and largely a characteristic of human mental activity. Instead, Bateson has presented us with a view of mind that necessitates an awareness of the many ways in which systems are dependent upon the exchange of information and how humans are a part of these interactive systems.

To consider humans as interactive participants in a wider ecological context runs against the convictions of Cartesian thought and may seem an unwarranted claim. But the same way of understanding cognitive aspects as immanent in the entire system is to be found in the work of the Chilean biologist, Humberto Maturana, who writes of language:

> The basic function of language as a system of orienting behavior is not the transmission of information or the description of an independent universe about which we can talk, but the creation of a consensual domain of behavior between linguistically interacting systems through the development of a cooperative domain of interactions. (1978, 50)

Like Bateson, Maturana perceives that in the unwinding of language we are not conveying information about an external reality, but are creating a set of distinctions that relates ourselves to a domain shared by others. This suggests that cognition must not be viewed as some inner mental realm, but as a pattern of behavior that is relevant to the functioning of living beings in an ecological context.

Bateson's essential premise, that we are interrelated and dependent upon our wider ecological context, seems to be so common-sensical that it is difficult to understand how one could think otherwise. But if we examine the condition of living systems today we recognize that such premises are not the coin of the realm. Instead, we see the results of a culture that has approached the land with inappropriate visions based upon notions of an individually centered understanding of mind. Scientific paradigms that are based upon this view have played a great part in wreaking havoc among living systems on a global scale, in part because these paradigms render invisible the phenomena that are vital to the functioning of these systems. Scientists, examining what they have chosen to make visible, deny the integration of natural systems, which in turn leads to loop after loop being removed from ecological contexts. In this way it is possible to lose sight of the distinctions which are vital, and this often results in ecological catastrophe. If the entire ecosystem is to survive, as Bateson points out, the Cartesian view of the physical world as mindless must change.

The writer Mary Austin once wrote of the Californian Shoshones: "The manner of the country makes the usage of life there, and the land will not be lived in except in its own fashion. The Shoshones live like their trees, with great spaces between" (Stegner 1987, 24). This comment evokes a sense of what may be considered an ecological frame of mind and suggests how other cultures have viewed themselves as a part of living systems. Within such a circuitry the funda-

mental unit of survival is not the individual, but the entire ecological context. Bateson's discussion illuminates this fact and the ethical ramifications carried with it. This is to say that when the fundamental unit of culture is me and others like me (or one among many) then the environment is ours to do with as we please. Bateson (1972, 462) writes: "If this is your estimate of your relation to nature *and you have an advanced technology* your likelihood of survival will be that of a snowball in hell."

Keith Basso's work with the Western Apache, which appears in the book *Wisdom Sits in Places*, provides us with an analog of what Bateson would perhaps refer to as "correct thought," those patterns of thought that lead to long-term survival. The Apache, exhibiting an ecologically based concept of the mind, are a culture whose fundamental unit of survival includes their ecological context. Basso relates to us how the symbolic representations of the land, which reflect an experience of place that is cultural (not physical as in our own perception), provides the means to adhere to ethical strictures that ensure this survival. The Apache, by incorporating a sense of place into an endless spiritual cycle that is reproduced through tradition and which includes the actions of their ancestors, effectively mediate a relationship to their environment that has moral reciprocity as a core consideration. Basso, reflecting upon this sense of place, writes:

> Incorporating places and their meanings into a compact model of mental and social development, the theory of "igoya i" proposes that the most estimable qualities of human minds — keen and unhurried reasoning, resistance to fear and anxiety, and suppression of emotions born of hostility and pride — come into being through extended reflection on symbolic dimensions of the physical environment.... Like their ancestors before them, they display by word and deed that beyond the visible reality of place lies a moral reality which they themselves have come to embody. And whether or not they finally succeed in becoming fully wise, it is this interior landscape — this landscape of the moral imagination — that most deeply influences their vital sense of place, and also, I believe, their unshakable sense of self. (1996, 146)

The Western Apache, for whom the landscape resonates with symbolic meaning, are intimately aware of the relationships between themselves and the land they dwell within. It is this intertwining of place and self, combined with the authority of tradition, that creates for the Apache a complete awareness of the interdependencies that sustain them. Wisdom (a sense and recognition of this circuitry) therefore consists of a mental capacity that facilitates the avoidance of harmful events by perceiving alterations that are threatening. This sensitivity to differences, central to the Apache conception of the mind, is thus first and foremost an instrument of survival. An example that illustrates this way of thinking is to be found in the Apache practice of assigning place names and stories to aspects of the desert landscape. Terms like Tsee Bika Tu Yaahiline (Water Flows Down On A Succession Of Flat Rocks), T'iis BitI' ah Tu Oline (Water Flows Inward Under A Cottonwood Tree), or Tsee Ligai Dah Sidile (White Rocks Lie Above In A Compact Cluster), are intended to evoke mental pictures of places where significant moral dramas unfolded in the past. By so doing, the Apache incorporate their physical geography into a community of living memory, one in which reference to a particular place reminds one of the moral obligations that must be observed. It is this foregrounding of moral relationships that shapes the actions of individuals in their daily lives, an acknowledgment of limits that confers the practical advantage of sustaining life over the long term. As the Apache Dudley Patterson remarked in a conversation with Basso, "You can't live long without water and you can't live a long time without wisdom. You need to drink both" (Basso 1996, 134).

It is apparent that the Apache conception of mind differs markedly from the view contained in Western ideologies, the ability to discern those changes that are vital from those that are ultimately destructive being a hallmark of the former. The analytical error of our own perception lies in the fact that we have not understood in cultural terms the meaning of that which has been presented to us by the empirical revelations of sensory perception. In short, by rationally describing the world we have misunderstood it, and in so doing have replaced the experience of place with explanations of place. Basso writes:

> Requiring neither extended analysis nor rational justification, sense of place rests its case on the

> unexamined premise that being from *somewhere* is always preferable to being from *nowhere*. All of us, it asserts, are generally better off with a place to call our own. Places, it reminds us, are really very good. (1996, 148)

Today, when educators are pressed to an ever greater extent to rely upon the high-status views of scientific research for understanding how the mind functions, it is unfortunate that we do not consider what other people have made of this question. In light of the destruction wrought upon living systems globally by industrial activity and the threat of ecological catastrophe that has resulted, it is critical to understand that our cultural patterns of belief have led us to this point, because at the most fundamental level *the ecological crisis is a cultural crisis*. The scientific model of the mind being presented to educators and the general public is inherently problematic and reinforces cultural patterns that are ecologically destructive. Science, by interpreting the mind as an individual phenomena perpetuates the belief that we are separate from our wider ecological setting. In subscribing to such a view it becomes that much more difficult for our communities to fashion workable adaptations to the living systems of which we are a part. If we remain unaware of how we constitute our landscapes and fail to understand our connections to them, we will continue to degrade the environment and remain victim to the rootlessness that is so much a part of our experience.

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Achieving Vision of the Social Construction of Self

Gerald Pillsbury

The author explores the interaction between the social and individual selves in a kindergarten classroom and discusses his observations in terms of three metaphors: shared journeys, shared worlds, and the expansion of self.

An earlier version of this paper was presented at the March 1997 American Education Research Conference in Chicago. The paper profited from the comments of Madhu Suri Prakash, Robin Good, and Jeffrey Kane at that conference and from the insightful suggestions of Paul Farber.

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Certainly one of the most serious contributing factors to social injustice in our society is the erosion of what Robert Putnam (1995) has called "social capital." We seem to be losing the characteristic Tocqueville saw as distinctively American: the desire to associate meaningfully with one another, the ability to shape and be shaped by each other's hopes, fears, and values. Certainly such affiliations and interactions are essential to the ability to put oneself in another's place and thereby recognize injustice when it appears.

For over a decade now — at least since Robert Bellah (1985) and his associates published *Habits of the Heart* — social scientists have been documenting the decline of Americans' ability and desire to interact with each other in noninstrumental ways, through the rich, multifaceted, respectful, and substantial practices which are essential to a society that is more than nominally democratic. Educational researchers (Goodlad 1996; Kerr 1996) have begun to uncover the role schools and teachers have played in this loss and might play in its recovery. Frequently we have pointed to a need for more caring relationships between teachers and their students and a need for institutions to establish more just practices in their dealings with teachers, students, and parents. Over and over again we have urged teachers and administrators to realize more fully the importance of community, empowerment, and respect for individuality.

But these are large sweeping ideas, ideas that capable, well-meaning teachers often cannot readily define or recognize within their everyday practices. The gap between such grand ideas and what happens in the classroom is critical. Tyack and Cuban (1996) show that the success of all efforts at improving education depend upon the ways in which such

reforms are adapted and implemented in the classroom. This article addresses one part of this gap, that created between talk of community and the actual classroom ethos.

The problem is one of vision. How does one see community within a classroom and how might we detect what qualities this community has? Our limited vision in the classroom comes from the constrictions of our view of ourselves more generally. We tend to overlook the essentially social nature of our lives and focus on the self-interest of individuals as the fundamental building blocks of human motivation and behavior.[1] Clifford Geertz (1973:5) has written that "man is an animal suspended in webs of significance that he himself has spun." My aim here is to present some heuristics for seeing this web of social connections more clearly than we commonly do. The exploration which follows exemplifies a new perspective for researchers and teachers to use to view everyday experience in schools, a perspective that recognizes and appreciates the social connections that make up students' everyday lives.

Thus, the task I set out is to uncover in our everyday reality what our cultural preoccupation with individuals and individuality hides. At heart, this project continues the Romantic agenda to uncover the wondrous and uncommon in the ordinary and routine. Parallel to Wordsworth's quest to uncover the beauty in the meanest flower, I am endeavoring to see the social dimensions of ostensibly individually-structured classrooms. Seeing these social dimensions clearly promises to make us more alert to — stretching the material metaphor of the web a bit further — the rips and tears in the social fabric that interfere with, even eventually prevent, learning and growth in our students and ourselves as teachers.

The Sediment of Everyday Experience

One of my fundamental assumptions is that intentions, deceptions, meanings, beliefs, patterns of thought, and understandings settle into everyday life as habits, routines, and familiarized, accepted experience.[2] Very soon they become unnoticed, taken for granted, from which they assume universal and natural status. In many cases, it appears likely that our oversight of this settling effect results from our endless ability to deceive ourselves, to layer one intention upon another that for self-protection (from a psychoanalytic view) needs burying. In others the assumption of naturalness and the reluctance to examine everyday life seem to flow from less deceptive motives, as a result of the limitations of the human mind perhaps: we are not able to hold everything in the air; we cannot examine all assumptions.

In *The Moral Life of Schools*, Philip Jackson, David Hansen, and Robert Boostrom (1993) suggest that unremarkable repeated practices in schools may have a kind of sedimentary effect. That is, although the influence on us of a single instance of a teacher's everyday common practice may seem to be negligible, repeated over time such practices may change our thinking, behavior, or character. Such practices leave virtually imperceptible traces that build up so gradually that one never realizes the change much as silt slowly accumulates in a river or wind erodes a rock. The frightening quality of such change, of course, is that by being rendered unremarkable, one may not see when or how to stop or direct such changes.

Our commonality surely extends to the level of habitual dispositions, and as a result, whenever we participate with others, we may share more than we may realize or intend to. The same is true for children. The sedimentation effect may be particularly significant in those heightened participation experiences in which one uses "we" to refer to more than just a collection of individuals but rather a solidarity. The child may come to share in a variety of cognitive frameworks of which she is not aware, frameworks which tell her among other understandings what "real" participation is, what "we" means, and how communities work. Such frameworks endure and influence her without our intending that they do so. Like the many other frameworks we employ, when the appropriate occasion presents itself the student likely uses them habitually, that is, without awareness. They seem natural, not learned, in fact the only way to perceive or understand such experiences. Because such participatory moments extend to such nonconscious levels of our human existence, they have the potential to exert tremendous influence on children, as well as adults.

In what follows I focus on a kindergarten because early elementary schooling provides a rich site for

learning to see this web of social connections. It represents a preliminary and formative location along the stream of experiences before much of the silt accumulates into[3] everyday school experience. School likely provides many children with a first, or at least a first intense, experience with multiple memberships. Prior to school entrance, children find themselves primarily part of the family group. Upon entering kindergarten, children enter into an expanding range of groups, some of which they purposefully join, or belong to with considerable awareness. With others they find membership thrust upon them or even show little awareness of the group's existence. Such groups stem from classes, grade cohorts, reading groups, lunch periods, bus routes, athletic teams, performance groups, social cliques, scouting and church groups, and of course, racial, religious, and ethnic backgrounds and even the fleeting grouping established with one's hall buddy in delivering the attendance to the office. If learning to negotiate these multiple memberships proceeds like many other learnings, students manage them more awkwardly at first and stumble more obviously over problematic situations than they will after such membership experiences become unremarkable, "just the way things are."

During the 1995-96 school year, I observed a kindergarten class for about three hours each week. Typically, I sat in one of the student's chairs at one of their tables or off to the side of the room but close enough to listen in on students' conversations with each other, and took notes. I attended regular activities and special events that took them to other classrooms in the building, such as to the art room and to the cafeteria for graduation, and went on several field trips.

Rather than begin with a hypothesis or a clear idea of what to look for, I tried to allow the environment to guide my observations (Boostrom 1994; Glaser and Strauss 1967; Lincoln and Guba 1985). My initial problem in developing a profitable "way of looking" (Jackson, et al. 1993, 44) was countering my own familiarity with classroom practices. In an effort to do so, I often asked myself a pair of questions, "When are people connected with each other and why do I see them as connected?" I shifted focus from practice to event to attitude to context to other as circumstances seemed to warrant, trying to record expressions and behaviors that caught my attention. I recorded comments to each other, their teacher or myself, facial expressions, demeanors, seating preferences, who they touched and how, what they wrote and drew, and shared gestures and postures. Only later did I evaluate and sort these observations so as to identify those that seemed to uncover the meaning of membership.

The Dynamic Self

A key understanding upon which settles a great deal of meaning-generating sediment is our notion of self. One view which has dominated discussion in the literatures of philosophy, psychology, anthropology, and the social sciences more generally as well as everyday discourse in contemporary Western societies sees the self as autonomous, distinctly separated from other selves, and rigidly bounded.[4] Though dominant, that view does not represent the whole story. Another view of self has persisted alongside the other not only in the academic literature (see Murray 1993) but also as a second readily available, though frequently unacknowledged, discourse (see Hewitt 1989; Holland and Kipnis 1994). In many ways this second view is diametrically opposed to the first for it sees humans as social beings, fundamentally interconnected and essentially interdependent.

Working from a notion of a contextual relational self, Lave and Weneger (1991, 47) target the internalization conception of knowledge. Among its faults, they say, are a conception that knowledge is largely cerebral and learning is the "unproblematic process of absorbing the given, as a matter of transmission and assimilation." Instead, they argue that we should set the goal of schooling as participation in ever-wider circles of activity and interest. The ability to participate in the activities and interests of others would define the purpose and success of educational activities.

The self they depict consists of multiple circles of essential others, expanding into ever-larger concentric and oblique circles of self. Their vision here is quite similar to Dewey's when he writes,

> Life activities flourish and fail only in connection with changes of the environment. They are liter-

Being ethical involves more than individual ethical behavior, tolerance, and coordinated joint action. It involves contributing to a common social construction, that construction which comes to constitute the realm that not only results from our shared actions, expectations, beliefs, and desires but directs, molds, constitutes them.

> ally bound up with these changes; our desires, emotions, and affections are but various ways in which our doings are tied up with the doing of things and persons about us. Instead of marking a purely personal or subjective realm, separated from the objective and impersonal, they indicate the non-existence of such a separate world. They afford convincing evidence that changes in things are not alien to the activities of a self, and that the career and welfare of the self are bound up with the movement of persons and things. Interest, concern, mean that self and world are engaged with each other in a developing situation. (1916, 125-126)

The world Dewey speaks of is, of course, an inherently social world, one fashioned by the emotions and concerns of others. Intelligence is learning to read this world and expanding one's movements, desires, and interests into it effectively.

The aspect of the self depicted by Dewey, Lave, and Weneger that I want to highlight is its mutability. A spatial metaphor, for all its limitations (see Shotter 1985), comes irresistibly to mind. This self expands and contracts. One can envision it reaching into others or alternatively, growing by expanding its boundaries so as to include others as itself. This is the self designated by "we." Certainly it also at times contracts. The boundaries can harden and constrict, widening the gulf between self and all others, withdrawing attention to a narrow range of personal concerns. One becomes as we might say of another "preoccupied with himself." Or we might say of ourselves, "Excuse me. I was somewhere else." This is the self of existential alienation.

For a perspective from which we might see this expansion of self, I turn to an intriguing essay by Nancy Sherman (1995), a philosopher. There we find the tools with which we can build a lens that can show us what to look for in the classroom and what counts as evidence of such expansion. Sherman (1995) was not concerned directly with education, much less kindergarten *per se*. Her principal concern in this essay was moral philosophy as she argued against an overly individualistic conception of morality. She calls attention to the virtues most prized in Aristotle's and Kant's moral philosophies in an attempt to show that they were not primarily concerned with what we owe self and others, but were as well concerned with the value of common pursuits, of "doing things together, for its own sake" (p. 278).

In the course of her argument, Sherman articulates three metaphors to help us appreciate the value of joint involvement. These are shared journeys, shared worlds, and the expansion of self. They articulate a view of self which is inherently social and challenges the predominant view of selves as separate and autonomous. The plan for this article is to present Sherman's first two metaphors and then pick two ordinary slices of ordinary classroom life to show how these metaphors inform our ability to see the everyday web of social connections. Then I present the final metaphor and reflect on its ability to uncover further meanings within both observation slices.

Shared Journeys

The first of Sherman's metaphors is that of a shared journey. She writes:

> One can be in a community and strongly identify with its ends without there being a *sense* of community. In such a case, what seems to be lacking is the pleasure of mutual interaction. A common end may be prized, facilitated by cooperation and collective endeavor, but the goods of mutuality and responsiveness, the sense of a shared journey, may simply be lacking. And yet

> it is this sense that seems to come closest to the value of community *per se*. [italics in original] (1995, 290)

The image produced here is, of course, that of movement, but the psychological relationship evoked is that of community. Those who embark on a common journey become a community, at least a temporary and perhaps even, an uneasy one. The metaphor suggests that communities are not created by potential members idly reflecting upon their bondedness, stopping to smell the flowers as we sometimes say. They are forged by a sense of motion or progress. To elaborate Sherman's metaphor, the crew of a ship forms the bonds of community when they are out to sea and must meet the trials of sailing.

But the fact that communities often arise during journeys suggests a bit of misdirection. The crew does not set out to form a community; their goal is to reach a destination. The forging of community is an incidental occurrence, a realization that happens without anyone intending it to occur. The achievement of desirable goals while aiming at other goals is not as unusual or strange as might at first seem. At least some of the goals we seek to impart or foster within our students may be best approached as by-products or side effects of activities that seek other ends.

For example, consider the teaching of mathematics. The University of Chicago School Mathematics series has become one of the most influential and pervasively used set of textbooks in the 1990s because mathematics is not studied for its own sake but for its ability to help students understand and participate in the social world that surrounds them. To note one specific example, the series replaced the computation and manipulation of logarithms with reading the logarithmic scales used to measure earthquakes and loud noises. Perhaps a perception of a shared journey is a similar goal. One should not aim at it directly. Rather we must subordinate that goal to some other common, perhaps more prosaic goal, such as everyone learning to read a certain book aloud or putting on a class play.

Why we might need to divert our attention is not obvious. Perhaps it is the nature of such changes to occur when not intended, somewhat like the myth that you can only see a fairy out of the corner of your eye, never by looking directly at her. It may be that in some cases certain individuals can accept certain aims only when they see such aims as necessary to reaching more visible, concrete goals. Whatever the reason, a common experience bolsters the claim that a sense of movement is necessary for community. All of us have felt the intimate bonding together of a group in order to get through a crisis and then, when the crisis passes, disappointment upon our return to looser, sometimes even apathetic or antagonistic relations. Perhaps, though, it is not so much the crisis that brings us together as the sense of movement. At the peak of the crisis, we are not simply surviving — we are together getting through it.

Shared Worlds

Sherman's second metaphor is that of creating a shared world. She writes,

> Treating self and others with decency, and justice understood broadly, might seem to exhaust the moral sphere.
>
> I want to question this picture. In addition to caring about self and others, we care about the fact that we do things together. That is, we care about the fact of community.... Apart from the particular activities and products that may define a species of community, we value doing things with others. We value creating a *shared world*, and the mutuality that is defined by our interactions. [my emphasis] (1995, 278)

She employs the metaphor of a shared world to indicate a defect with common ethical visions. Being ethical involves more than individual ethical behavior, tolerance, and coordinated joint action. It involves contributing to a common social construction, that construction which comes to constitute the realm that not only results from our shared actions, expectations, beliefs, and desires but directs, molds, constitutes them.[5]

This metaphor directs us to Berger and Luckmann's (1966) argument that the reality we live in and which shapes our lives, is not given to us by nature but is one shaped by human desires, expectations, fears, understandings, and language. By virtue of our socialization into the worlds of our parents, our peers, our colleagues, our culture, we learn what is usual, what passes unnoticed as everyday reality, how the world just is.

Part of our everyday reality is that the whole which constitutes a life consists of a variety of smaller worlds, each of which shapes its own slightly different reality through a distinctive set of norms. A post office is not a classroom which is not the gym. When we enter each of these, we expect certain specific things to happen and we act accordingly. You can buy stamps at the post office, but you do sit-ups in the gym. Each smaller world creates its own community with its own set of norms. The same applies to third grade versus kindergarten as these realities are constructed by teachers, parents, and peers. The expectations, habits, even the players are different. Shared worlds direct participants' attention, perception, values, intentions, and hopes in specific ways and towards specific ends. Without calling attention to the fact, shared worlds shape participants' sense of what is and is not real.

Berger and Luckmann (1966) direct us to consider seriously the shared quality of our constructed worlds. The worlds we live in are always jointly constructed. Personal efforts to change how I see a particular world, what I expect of it, how I behave in it, what I aspire to are always contingent upon the intentions of others, those near at hand as well as distant, impersonal others. If I go to the post office and see people doing jumping jacks and push-ups, I become confused. What I take as normal, as just the way things are, depends upon you doing the same. Breakdowns in such sharing constitute the material of comedies and tragedies. Such reflections lead us to appreciate the force the community of the classroom exerts on children whether we want it to or not.

A Counting Activity

Now I pick two slices of the everyday classroom life of the kindergarten to show how the metaphors of a common journey and jointly constructed world can illuminate the meanings embedded there. The first slice presents a counting exercise. The children counted the days they had been in school. Every day Margaret[6], the teacher, added the next number in sequence to the string of numbered post-its spread out just over the door and winding around over the sink, her desk, and eventually the bulletin boards. The class's usual practice was for the leader of the day, sometimes with a helper, to lead the class in counting by tapping each number with a pointer. Together they were to count aloud, clapping each time they reached a multiple of ten. Certainly participation was not uniform. From my observations it appeared that the most wide-spread participation occurred when articulating the first and last numbers.

When evaluating this activity, we are likely to focus on the individual child. What does each child learn from this exercise, we might ask. What does she gain by joining in? To answer we might point to reinforcement of her ability to count, some recognition of multiples of ten, perhaps even some awareness of the cyclical pattern of the one's place. Each of these benefits are gains from the internalization view of learning.

Informing our vision with the metaphor of a shared journey, however, leads us to see quite different gains, those much more in line with Lave and Weneger's (1991) notion of peripheral participation. As the list of numbers grew longer and began wrapping around the room, the common journey image became more and more apt. It seemed to indicate where we had been and where we were going. Generally, the students participated in conjoint simultaneous activity, all saying the same words and doing the same action at the same moment. Even when they did not, they shared a disposition towards participation if not actual behaviors; they developed a disposition to act in similar ways and to react to similar conditions. They learned to modulate their actions and speech to that of others. What was in common was not only the sound produced, but also the impulse to speak the next number, the knowledge of what that number was, the timing of when to speak, the convergence of attentions, even the upright standing alert posture. Moreover, they may have shared an awareness that everyone else was doing the same activity and that others, perhaps everyone in the group, were likewise aware of this mutuality.

Near graduation — day number 169 — the lengthy list made me pause to reflect the experiences that had led to where we were and what we had shared along the way. But of course, I was predisposed to engage in such summative reflection. The adults who volunteered in the room may well have

also reflected back periodically on the changes that occurred in their sons or daughters since August, but what the children experienced is less discernible.

To what extent, if at all, did the children without specific guidance in doing so experience a shared journey? The sedimenting metaphor we are using suggests that we must consider levels of experience they did not, or perhaps could not, express in words. Consider what evidence we can find through specific observations. On February 19th, I wrote:

> Counting: Marvan, Larry, Henry and Ben (beginning at 50) clapping on zeroes. They count up to 102 today.
>
> Margaret has Sara tell me what her dad did last week: got dressed up and came in as Zero the Hero.
>
> Margaret tells me from across the room that on 100th day of school, they counted backwards from 100.
>
> Otis says let's go from 30. Today they just count backwards from 20. [They] count up by 5s.

There are special events in the counting ritual. One of these, alluded to earlier, was graduation; another was the 100th day of school. The special character of these days comes from and reinforces the connection between the numbers on the wall and the days they have spent in school. This emphasis seems likely to diminish whatever sense of arbitrariness the numbers may have acquired by grounding them in the students' experience.

Counting backwards suggests step by step movement in memory back to the first day of school. Did the children feel any sense of that? It is not apparent from these notes. To review the year in any detail requires perhaps more adeptness with memory than most of the children possessed. Or perhaps, more prompting and guiding than the teacher, her aide, or I did.

Margaret's note of Sara's father's contribution is worth examining because it encapsulates the kind of interplay between individual and group, between differentiation and affiliation, we are trying to uncover. With this comment she distinguishes, however momentarily, Sara as an individual. And yet, it's not quite so straightforward as simple individuation. Sara's contribution as an individual is to bring another individual in, her father, to contribute to the group. In some sense, his involvement may tie Sara to the group even more closely as one of the people in her private life has now developed connections to the group. Her life outside school and inside class have begun, albeit very slightly, to mix. Members of the class now know her father, and at home her father can make better sense of Sara's comments about school and her schoolmates.

Directing Sara to tell me what he did brings me into this individuating-bonding interplay. The way Margaret directs her to tell me does not so much allow her classmates to overhear as shape them into an audience for her remarks. In this way, they participate in her remarks. One way we might assess the significance of Margaret's direction to her might focus on the possibly hurt feelings of her classmates, classmates whose parents could not perform that day and as a result were not individuated. But that is again to locate individuality at the center of the children's concerns. It is also possible that her classmates felt a similar pride in sharing an event they jointly experienced. Could they have felt a sense of unanimity with Sara acting as their spokesperson? Could they have granted Sara the privilege of speaking on their behalf? It seems at least plausible. For Carr (1986, 156), granting such an "on behalf of" relationship forms the basis of any sense of community and "we"ness.

Otis's attempt at differentiation is less recognized. He attempts to become a leader of sorts by changing the usual activity. He apparently wants to test and display his (or their) competency. Should we see his request as an effort towards differentiation or affiliation? It is hard to imagine what might count as evidence for one option over the other, or at the exclusion of the other. In either case, he is not heard or his suggestion is not accepted (my notes are not clear on this point).

Otis's comment, though, is important to consider for another reason — it reminds us that for children often the most salient aspect of a journey is play. A journey may be simply pretend or the adoption of a playful attitude. Play itself is a kind of journey — the leaving behind of a "serious" take on experience. Joint play, even as seemingly short-lived as counting backwards from 30 instead of 20, can bind people together in a kind of shared voyage.[7] Kenneth Ger-

gen (1991) uses James Carse's (1986) concept of infinite and finite games to show that the play such as Otis proposes is of the type that "can unite all persons in the continuation of the human venture."

For George Herbert Mead (1934), the seemingly trivial reflexivity noted above — i.e., a student's sense that while she counted she perceived another perceiving her — is the basis of our understanding other people. Through such reflexivity one learns to see oneself through another's eyes. With sophistication, Mead argues, the child goes beyond adopting the various individual viewpoints of other members of the class to generalize a common viewpoint for the class. For our concerns, we might note that this joint appropriation of specific others' viewpoints creates a shared world. The "we" of the child's joint interactions becomes real, comes to inhabit her world, and begins to influence her actions and thoughts.

Only by understanding the balancing acts between individualism and community we all must negotiate daily can they help us build a society which is truly productive, nurturing, and just for all.

A Reading Exercise

To further explore the usefulness of these metaphors for appreciating the meanings embedded in classroom life, consider another set of notes, this time concerning a reading exercise. The observations that follow are specific to a particular class session in October and may feel jarring for they jump somewhat disjointedly from observation to observation. They present a compressed slice of classroom life as they relate a series of routine happenings. These occurred over perhaps a five-minute span as the class sat on the carpet at the side of the room where the student intern engaged them in a reading/alphabet lesson. The first notes registered a student question and the intern's reply,

> John calls out, "Why don't we listen to Mr. N's record?"
>
> "We will John as soon as we.... Please wait," said [student intern] sternly.

The record John referred to consisted of songs in which each letter of the alphabet became a person and sang about him or herself. I next recorded the intern's directions to the students for continuing the alphabet/reading lesson.

> "Is this a word or a letter?" Several are calling out that it's "R" "A" "T."
>
> "Girls say it, boys say it, say it altogether, say it slowly, say it fast."
>
> Changes "R" to "S," then to "P."

Finally, I noted where the children sat.

> Sara with mouth almost on Brad's back. Perhaps 6 inches between. Now with knees on his back.
>
> Numerous others sit crowded and touching. Tim and Stacy sit at back of carpet.
>
> Black students all close to [student intern]. Charmaine closes in. White students in back semicircles.

Like the counting activity described previously, this reading exercise was an everyday activity whose consequences may seem predominantly academic. Once socialized into the workings of their particular classroom, I suspect the children rarely gave such behaviors much thought. Notwithstanding the pedagogical import of this practice, it also likely impacted a child's sense of mutuality and "we"ness.

Most characteristic of a shared world, perhaps, were the physical boundaries of the carpet. They seem to accentuate the boundedness of this shared world and separate the carpeted area from the rest of the room. Indeed, children could not stay at their desks, some of which were only a few inches away, to listen to the stories read on the carpet or to participate in the activities done there. And in fact, those who misbehaved were often sent back to their seats where they were not to participate.

On the carpet, the children were crowded together, some touching each other, twenty-five little bodies that day and two adults on a piece of carpet perhaps six by ten feet in area. Moreover, any student's focused attention further reinforced a sense of a separate world. In the letters on the flashcards they

shared a common object of attention. Certainly not all focused on each letter and at any one time, some paid greater attention than others. Nevertheless, they agreed in general what they were expected to learn and the value of learning that.

Nevertheless, the mutuality engendered by this activity had a distinctive quality that set it apart from the mutuality engendered by the counting exercise. While the counting activity encouraged multiple webs of awareness between students and various groupings of students as well as between teacher and student, the reading activity established a much more focused and rigid pattern of awareness. Each student was expected to focus his or her attention solely on the flashcard and ideally, give no attention to the neighbor sitting just inches away. The teacher and the intern spent considerable time trying to establish this pattern of attention, frequently using directions such as "All eyes up here!" and "Active listening!" or admonitions such as, "John, this is a warning. What does Ellen have in her hand that's so important you're not paying attention?"

A pair of metaphors express the difference in awareness patterns usefully. The counting activity allowed a pattern of awareness resembling a web to arise which potentially at least connected every person in the room to every other. In contrast, the reading activity established what I have come to think of as a broom-bristle pattern with all lines of attention separate and one-dimensional, each connecting the student to only the teacher.

Thus, the world which was shared during this activity was structured differently and exuded very different qualities from the world of the counting exercise. It was less a world of interconnections than one of parallel connections. The rules of this world were more coercive: teachers thwarted students' attempts to redirect attention and as movement created interference, virtually all movement was prohibited. The world was shared in so far as the students were subject to similar conditions, but not jointly created to the degree the counting world was.

A word of caution. I suspect that many researchers and educators, particularly those advocating holistic forms of education, gravitate towards the web, almost as a rejection of the broom-bristle image. I too find myself favoring the apparent freedom, support, and messiness of the former metaphor over the seeming rigidity and sterility of the latter. Why descriptors such as I have used, freedom, sterility, rigidity, should come so easily may be more revealing of the dispositions of those of us ready to apply them than informative about the worth of the patterns themselves. I will not attempt further exploration along these lines here.[8] We ought to note, though, that both patterns of attention have their distinctive advantages and disadvantages, and thus, there are appropriate uses for both.

The Expansion of Self

While the broom bristles narrow the self to a focused anchor, the web pulls the self outward in expansion. Together the two descriptions suggest a mutability of self, a kind of waxing and waning and lead quite naturally to consideration of Sherman's last metaphor: the expansion of the self. Although Sherman merely mentions the idea and does not elaborate, I want to explore it further for this notion of expansion is critical.

Of course, it follows from what we said above that our notion of a "self" is just as constructed as the rest of our reality. We tend to think of the self as individual in two senses: one as a singular possession, that is, a personal treasure located within the body, and two as a private source of motivation that directs us, experiences life, creates an identity, thinks, learns, acts and reacts, etc.[9] Such conceptions manifest in claims that I have a self and that due to this self I live the particular kind of life I do with specific desires, virtues, and vices.

The idea of expansion contests the conception of self as individual in both of these senses. Considering them in a reverse order to that noted above, expansion of self calls into question the self as the sole locus of motivation. Clearly, we do not create ourselves independently of all others. Who we are and what we do at any moment is subject to the influences of countless others: parents, siblings, teachers, aunts, uncles, clergy, community members, peers, friends and enemies, even fictional and historical characters in novels, television and movies take part (cf. McAdams 1993). Galatzer-Levy and Cohler (1993) call these people "essential others"

because they are indispensable to the creation of self and the direction our behavior takes.

But in contesting the other sense in which the self is individual, the idea of expansion becomes even more radical. The idea of expansion suggests growth, a taking-in to encompass more of what was previously outside. It implies that our selves incorporate others. This is the logical extension of the decentralized self that numerous researchers have delineated (see Hermans & Kempen [1993] for a review). What we often think of as personal and private is actually communal. In an important way we bring the people of our lives into what is most sacred, most reserved, most formative about ourselves.

Such a notion is not so strange as it might at first seem. Consider the various contexts in which we use the pronoun "we." Many times we simply use it to refer to a collection of autonomous individuals. It acts as a kind of shorthand for "he" + "she" + "he" + "she" + "I".... But we also use "we" when our "I"s feel some sense of solidarity with others, a feeling of oneness, as if she, he, it and they felt the same sensations, experienced the same emotions, thought the same thoughts, as I do. An example might be upon a family's return from a vacation, when the mother says to a neighbor, "We had a wonderful time." In such moments, one resists the attempt to break down the "we" into the discrete individuals who make it up. It seems to be more than that. The petulant daughter might use such reluctance to hurt, even devastate, her mother by saying, "Speak for yourself." What the mother had assumed and the daughter rejected was this notion of a plural self. The daughter disputes the presence of a particular plural self, though not the possibility of it which at that moment seems to both of them more than just plausible. The plural self feels threatening because the boundaries which separate selves are momentarily lost. One is swept away in the multitude or loses oneself in others, with all the wonders and dangers inherent in these tropes.

How well does the metaphor of the expansion of self fit the counting activity? Upon examination, we can, in fact, detect signs that might well indicate the beginnings of such an expansion. Students sustained this activity through their common activity. Once a child's sound left her mouth it mixed with others. To a great extent, it lost its individuality, often becoming difficult to distinguish from the chorus. Indeed, sometimes Margaret put her ear very close to a student's mouth to hear whether she was articulating the numbers. Certainly the intended dramatic effect of her gesture was to encourage participation, but such deliberate effort was also frequently needed to discern the individual's voice. When most successful, the children's voices combined to produce a single chorus and when the noise became too discordant, Margaret started them over again to recover their common voice.

Certainly, as we noted earlier, what we as teachers construct as participation experiences never ensure that our students will experience a sense of mutuality or lose themselves in "we"ness. Some of Margaret's students grew distracted or lost interest as the list grew longer and they stopped participating. Further, it seems that even while participating in this joint practice, various class members found it possible to assert their individualities by drawing attention to themselves or separating themselves from others. One or two at a time, never very many at once, would speak louder or faster or with some kind of flourish as they counted.

But what happened in the more frequent case, in those instances in which the child said every number, spoke neither purposefully louder, softer, faster, slower, or differently than the rest, in which he might afterwards say, "We counted"? Does his self expand in this case? Do others become part of him or enter into him in some important way? Before we consider these questions, let us consider the degree to which the reading activity may have affected an expansion (or contraction) of the self.

We noted previously that the reading exercise engendered a form of mutuality that was greatly attenuated. At best, it was the mutuality that might arise from awareness of being one of many elements in an array of parallel connections. Is this kind of collectivity sufficient to produce the generality of awareness necessary for furthering Mead's (1934) generalized other, the perception that you perceive me while I perceive you, that leads to growth of self? Is it sufficient for an expansion of self? It seems doubtful, but how would we find out? What would count as evidence? I want to keep these questions out

front as we continue to explore the meaning of this activity.

While the evidence for a sense of mutuality among the group as a whole is scant, the evidence for mutuality among smaller groups within the whole is somewhat stronger. Recall that through their momentary exchange in the first lines of the observation John and the intern create a perspective of unity by using the plural pronoun. John said, "Why don't we listen to Mr. N's record?" The "we" here seems clearly to designate the class and reflect feeling connected to his classmates. The intern replied, "We will John as soon as we...," her use of first-person plural reinforcing his and perhaps reinforcing this perspective throughout the class.

Further acknowledgment of factions in the notes comes when the intern separates the girls from the boys and again when it is noted that Sara and Brad seem to share a certain bonding. Indeed outside of class these two were close friends who often walked to school together and played at each other's homes. Whether Tim and Stacy view themselves as a separate group, or have even recognized each other, is not clear from these notes. Each separately may have isolated him and herself from the group.

Such groupings raise the possibility that expansion of self may occur in a much wider variety than simply expanding to encompass the whole. The self may expand to embrace couplings and small factions within the whole. Carr (1986) reminds us that we are always members of multiple and overlapping groupings to which we feel various degrees of allegiance, some of which may conflict with one another. Perhaps such expansion occurs in as many forms and degrees as instances in which one can use the pronoun "we." Not only do the questions raised earlier about how can we know about such expansions and how can we be sure remain, but the consideration of multiple groupings raises more questions. How can we detect significant multiple allegiances and solidarities and the meaning of their overlaps and conflicts? How do they relate to one another? What are the conditions under which one becomes more meaningful or most significant?

Of the various factions noted above, though, what may be most disconcerting to many readers are the last two described, the distinction of the black students from the white students. Certainly part of our reaction to racial groupings comes from the answers we give to just those questions asked above. We often see such memberships, even though not voluntary, as highly significant, formative, and enduring. Recall I noted, "Black students all close to [student intern]. Charmaine closes in. White students in back semicircles." The black students all sat close to the intern who was also black. My notes indicate that the intern had assigned students places to sit when they first came to the carpet. As both she and Margaret appeared to exercise great care to achieve racial and gender balance in virtually every activity, I am doubtful that the intern had created such a racial distinction. As a considerable amount of time had passed from when they had sat down to the time of these notes, though I have no record of it, it seems likely that certain students had subtly rearranged themselves. That was often common practice.

Does this seating pattern indicate that these children, as young as they are, at some level of awareness recognized and responded to racial group affiliations even in this context? That seems to be the case with Charmaine, a black girl, who without being directed as to where to sit, specifically looked for a spot close in with the other black children. Further evidence of racial awareness (or preference) came earlier in the year when a substitute teacher engaged the children in the game Duck-Duck-Goose. A white boy started the game off and the next two children chosen were white. The fourth selection was a black boy, but remarkably he declined to play, and even though one-third of the class that day was black, only one of the next nine children picked was black. Are these bits of evidence of collective racial selves?

Alice Brown-Collins and Deborah Sussewell (1986), two psychologists, would likely say yes. Working from life histories they identified three identities of crucial importance to adult black women, one of which is the "we" of the black race. Notice that such an idea is consistent with what we have previously said follows from the metaphors of a shared journey and shared world, metaphors certainly appropriate for describing much of the experience of blacks in America.

Such observations lead us to speculate about the significance of our various "we"s and how they

might relate to one another. As the children sat in their two groups, did their selves expand to include all or many of the others in their group? Were they aware of participating in a racially defined group? Under what conditions would they have said "we" to mean their racial group? As I look through my notes, I do not find a single instance in which a black child used the pronoun with me or another adult to indicate a racially defined group. Did the black children not feel safe, perhaps, to use this "we" with the teacher, myself, or even the intern?[10] Would they speak so to a peer or their parents? Do the white children not recognize such a "we" or, perhaps, do they fear to speak it?

If the racial group to which one feels one belongs forms a "we," it seems likely to be an enduring "we," one that teachers and students must deal with in the long term if they want to supplement it with additional affiliations to the class, the school, the community, the nation. I suspect that many Anglo-Americans both do not experience a racial "we" with a similar intensity and are somewhat leery of those who do.[11] Perhaps the worry concerns how exclusive or combative this "we" might be. But not all "we"s are alike and one must take into account the quality of each particular "we" to evaluate it. Perhaps, if a black "we" did motivate these children, we should see it as providing an advantage over those who do not experience such affiliation. When such a "we" is not rigid and oppositional — and I found no evidence that it was in the case of the black children in this class — it may provide the student an important building block on which to construct a sense of community, a starting point we may have to find elsewhere for other students.

Conclusion

The perspective I have illustrated in this article offers distinctive advantages to researchers, teachers, and students. For researchers, the heuristics of a common journey, shared worlds, and expanding self provide a different and productive focus away from the stilting and constricting perspective created by seeing all educational events in terms of individual gains or losses. For teachers, I propose that such a perspective can broaden and deepen an appreciation for the play of meanings inherent in all educational endeavors, an appreciation that much like Jackson, et al., (1993) suggest, may forestall or prevent "burnout" by enriching the quality of their experience. Perhaps, though, the ones who have the most to gain are our students. Becoming attuned to the changes in self they can and do already experience will enable them to do so more strongly and wisely. Only by understanding the balancing acts between individualism and community we all must negotiate daily can they help us build a society which is truly productive, nurturing, and just for all.

Notes

1. For an excellent discussion of the dominance of views postualating "self-interest" as the prime or sole motivator of human beings and the emergence of recent efforts to move away from it see the articles in Mansbridge (1990).

2. Cf. Bourdieu's notion of "habitas" (1977, 72).

3. The choice of pronouns here is deliberate. I first used the preposition "on" but changed it to guard against being misunderstood. I do not mean to suggest that there is some initial "real" membership experience which accumulated experience distorts. The meaning of membership experience is dynamic and always emerges out of the total of this accumulated experience.

4. Lyons (1978), MacIntyre (1984), Taylor (1988), and Toulmin (1990) present informative histories of how the current Western conception of self has developed.

5. Again, she points us to Bourdieu's (1977) structuring structures.

6. I have changed the names of the teacher and all students.

7. Goffman (1974) demonstrates that play also fits well in the next section because through its framing abilities, it certainly creates shared worlds.

8. The distinction fosted in this discussion has affinities to Jackson's distinction between the transformative and mimetic. See Jackson (1986, Ch. 6).

9. Shotter (1985) agues that there is not a thing called "a self" that might be investigated and further the pervasive notion that an inner self directs us comes from the morally coercive conditions placed on the way we must account for our behavior.

10. An incident the following year when these children were in first grade emphasized this worry. One black student produced considerable consternation and discomfort by claiming that a lunch helper, who was one of his classmate's mothers, favored white students over black.

11. Cf. Helms (1992).

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Help Me! I Can't Stop Shoveling Facts!

Stephen L. Talbott

The rational, analytic mode of thinking is so pervasive that it determines the fundamental beliefs of most disciplines — including education. By exclusively focusing on "facts," we can easily ignore the "meaning" that gives shape to those facts and makes sense of the world.

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There's an invisible plaque hanging on the wall of most classrooms across America. It displays what we might call the Educationist's Motto, which runs like this:

> If you take care of the flow of information,
> the education will take care of itself.

Not that many educators would consciously buy into this formula. After all, managing the flow of bits of information into a database looks uncomfortably like a fact-shoveling style of education, and *everyone* seems to agree that we must abhor thinking of the student as a passive receptacle for facts. And yet, surely there is a reason why the computer and its databases now provide our culture's dominant metaphor for the acquisition of knowledge.

What *is* the information now being universally celebrated, if not a collection of facts — things that can be captured and recorded? It is the very nature of the fact to be finished, wholly defined, given in its entirety. A fact leaves no room for the knower's participation. Our "capacities," except as receptacles, are irrelevant. Time and again I've heard the same teachers who supposedly deplore fact shoveling grow positively rhapsodic about the information their students can gather from CD-ROMs or the Net — this despite the fact that the availability of information has not been the bottleneck in education for decades, if ever. The real question is how we can bring alive for the student the infinitesimal fraction of the available information we actually use in the classroom.

But the reality is that, when it comes to fact shoveling, we just can't help ourselves. What I want to do now is to characterize our helplessness, on the assumption that recognizing ourselves is the first step toward change.

The Polar Nature of Thinking

There are two fundamental gestures of thinking, one of which is analytic, and the other synthetic. The tool for analysis is rationality, which gives us logical precision, quantitative accuracy, facts narrowed down to their most bedrock, unassailable dimensions. Analysis distinguishes and divides wherever possible, eliminates vagueness and ambiguity, and finally produces the "hard fact." As we are well aware from the history of that hardest of hard sciences, physics, hard facts pursued far enough tend paradoxically to dissolve into mental abstractions — equations, probability distributions, and the like. We speak, not only of the hard facts, but also of the hard numbers.

The tool for synthesis is imagination, which does not divide and distinguish but rather discerns unities. It recognizes the previously unapprehended relations of things.[1] Imagination gives us metaphor, by which *this* becomes the occasion for our seeing *that*, which somehow shines through or becomes apparent in *this*. There is a previously unrecognized kinship between the two things. In grasping it, our understanding gains expressive depth and revelatory insight. Operating at the level of our perception, imagination gives us the things of the world, enabling us to see a "pine tree" instead of an unrelated assemblage of twigs, needles, sections of bark, pine cones, and the other products of analysis. That is, the imagination gives us the whole, bound together as it is by an immaterial unity — a unity that is not itself simply another sense impression.

Now, there are several things we should notice about these contrary tendencies of thinking. The first is that *without both rational analysis and imaginative synthesis, there is no genuine thinking*. As Owen Barfield has pointed out,[2] the two gestures are not mere opposites, but polar contraries: each exists not only in tension with the other, but also *by virtue of* the other. Analysis has nothing to analyze and break down unless it is first given coherent, recognizable *things* by the imagination; and the imagination cannot discover new unities unless it is first given the broken-down products of analysis as raw materials.

In the second place, since the renaissance and scientific revolution *we have increasingly and one-sidedly committed ourselves to rational analysis* in all those disciplines we consider to be cognitively solid. This will, I hope, emerge more clearly in the course of this paper. But our one-sidedness is already evident in our tendency to misconceive imaginative synthesis as the external rearrangement of parts upon a kind of analytical framework of logic. Truly imaginative synthesis, on the other hand, operates *within* the most fundamental parts, bringing about a metamorphosis of them. Or, to speak in terms of language, it operates, not upon the proposition, but upon the individual term. As Barfield puts it:

> Logical judgments [as tools of analysis] ... can only "render more explicit" some part of a truth *already implicit in their terms*. But the poet [through imaginative synthesis] makes the terms themselves. He does not make judgments, therefore; he only makes them possible — and only he makes them possible.[3]

(Barfield speaks here, not only of poets in the narrow sense, but also, for example, of the scientist who imaginatively engages the terms of his discipline, as when Einstein reconceived time and space.)

Third, *it is analysis that produces the informational bits we can so easily pass from one database to another*. The more analytically reduced a language is, the more precise it is and the more readily its propositions can be communicated, or shoveled, from one place to another. The paradox, however, is that you can get perfect precision, and the perfect ability to communicate facts accurately, only by watching the facts themselves evaporate. That is, the most obvious endpoints of analysis are pure mathematics and logic, and in mathematics and logic you have pure form without empirical fact or content.

This, then, is already to introduce a fourth point: *Analysis alone cannot give us the world*. As Bertrand Russell once remarked, "Mathematics may be defined as the subject in which we never know what we are talking about."[4] Or, as Einstein put it: "Insofar as the propositions of mathematics give an account of reality they are not certain; and insofar as they are certain they do not describe reality."[5]

So, if what we really want in the classroom is information — fact by immutable fact, bit by measurable bit, readily transmissible from one database or brain to another — then what we want is not much at all. For to the degree a fact is absolutely true,

without room for ambiguity or alternative views, it is vacuous. It has no content. We purchase absolute and universal truth by jettisoning content, so that our truth is not *about* anything. The *true fact* is always verging upon the empty forms of mathematics or logic, which are the end results of rational analysis.

Mottos of Formalism

Perhaps all this seems extreme to you. Let me briefly suggest how thoroughly the vacuity resulting from a one-sided rational analysis has hollowed out the major cognitive enterprises of our culture. You will find, I'm afraid, that your own discipline, and perhaps even your own habits of thought, have not altogether escaped the prevailing erosion.

There is, first of all, what has been called the Formalist's Motto by artificial intelligence (AI) theorists:

> If you take care of the syntax,
> the meaning will take care of itself.

Stated simply, the idea runs something like this: if you put the computer through the motions of human behavior, you can assume that it means and intends what *we* would mean and intend by such behavior. So the AI programmer should concentrate on abstracting the formal structure of our tasks in the world without worrying about the inner qualities of consciousness, feeling, and will with which we invest those tasks. After all, our subjective illusions notwithstanding, nothing is really *there* in either man or machine beside formal structure, or syntax. The meaningful, qualitative, inner content of our lives is a kind of syntactic epiphenomenon, the mystery of which need not concern us.

In other words, those who would construct artificial intelligences are determined to do so on the strength of rational analysis alone. The Formalist's Motto expresses the blind faith that, by piling up the logical building blocks that are the empty end-products of analysis, we — or our machines — can somehow regain the world of actual experience.

Then there is the Physicist's Motto:

> If you take care of the equations,
> their meaningful relation to the world
> will take care of itself.

One might wonder about the truth of this at a time when the equations have become almost mystically esoteric and remote from the world of our experience. The wondering is justified, but we also need to realize that the equations succeed remarkably well as shorthand prescriptions for the effective manipulation of the world (and especially of experimental apparatus). The problem lies in how easily and dangerously we forget that manipulating things is not the same as understanding them or knowing what they are.

Nor should we forget the Economist's Motto, arising from an unshakable faith in the power of the Invisible Hand to smooth over our own neglect of what really matters:

> If you take care of the economic numbers
> the value for society will take care of itself.

Or, as Adam Smith originally put it in his *Wealth of Nations* (1776), "By pursuing his own interest [the individual] frequently promotes that of the society more effectually than when he really intends to promote it." And, "It is not from the benevolence of the butcher, the brewer, or the baker, that we expect our dinner, but from their regard to their own interest. We address ourselves, not to their humanity, but to their self-love." So a quantitative concern for the bottom line results automatically in a wider social good, regardless of one's base intentions. In this case, not only does the syntax of the formal (market) mechanism take care of the meaning, it adroitly negates any unsavory meanings that mere humans try to inject!

One could go on. Probably the most relevant version of formalism for our purposes is that of communications theory, as it has seeped into the popular consciousness:

> If you take care of the transmission of bits,
> the meaning of the text will take care of itself.

And this, finally, produces as a variant the formula with which we began: *If you take care of the flow of information, the education will take care of itself.*

Each of these mottos directs us toward an abstract mathematical or logical calculus that can easily be read from, or impressed upon, a mechanism. Meaningful content, the theorist has concluded, can simply be ignored. Somehow it will take care of itself. In the case of the Educationist's Motto, the child's mind is viewed as part of the mechanism, and it is inevitable that we should feel driven to hook this mechanism up with the efficient, information-transmitting

and processing machine we call a computer.

Truth versus Meaning

Our exquisite ability to reduce content to usable abstraction is one of our rightly prized achievements. But I remind you that we cannot abstract from the content of a thing unless we are given the thing in the first place — given it, that is, in all its qualitative and meaningful presence. Otherwise, there is simply nothing there. You cannot arrive at the concrete object from its dimensions alone, you cannot arrive at a worthwhile product from a set of cost specifications alone, and you cannot arrive at the substance of an argument from its logical structure alone.

So this has been the negative part of my thesis: As educators we find ourselves in the fact-shoveling business because we can hardly help ourselves. The progress of our culture has been achieved with a kind of mental limp whereby one of the two essential gestures of thought has gradually atrophied. Falsely convinced that our choice is always the formal one between truth and falsehood, we are driven toward the empty, if "hard," fact. But in reality our choice is between balance and imbalance in our pursuit of effective truth and expressive meaning.

Here I need to make a crucial distinction that is largely lost on our culture. If truth (in the narrow sense of logical validity) is the criterion we bring to rational analysis, depth of meaning is what we look for in the imagination's working. As Barfield has pointed out,[6] there is a peculiar relation between truth and meaning — in fact, the same relation of polar contraries that we previously saw between rational analysis and imaginative synthesis. Meaning is always fashioned from a kind of untruth or fiction, as when, in metaphor, we say "This is that" — "There is a garden in your face," or, "The physical world's behavior is an obedience to law." But by looking through the fiction, using it as an aid, we grasp a meaningful unity we have not seen before. As Barfield has demonstrated so effectively, all of our humdrum, literal truths (such as the one about physical law) began life as metaphorical insight.[7]

So meaning is not true or false in the sense that a mathematical or logical theorem is true or false. But that does not imply that meaning is merely the vague meandering of our subjectivity. Meaning is what gives us something for those mathematical and logical theorems to be *about*. It gives us a world. Meaning can be more or less revelatory; it can be profound or shallow; it can be deeply embedded in the world, or the isolated flight of my individual fancy.

Postmodernism and the Fixation upon Contentless Truth

Parenthetically, this is what postmodernists generally fail to recognize. Upon realizing that absolute rational truth never delivers the goods — except in purely formal contexts drained of their real-world content — the postmodernists decided that the game was lost and we are shut up in our various individual and collective subjectivities.

But we *do*, after all, succeed in grasping one another's meanings to some extent, with no inviolable limit upon that extent. And "extent" here does not betoken a summing of truths and errors; it points rather to a question of depth in our understanding. A relatively shallow understanding is not necessarily false in relation to a deeper understanding. It is more like the view "through a glass, darkly." It is a crucial step along the way.

The postmodernists are bound to those they criticize by a shared neglect of the necessarily twofold nature of every act of human consciousness — toward truth, yes, but also toward meaning, for which empty truth must be overcome — even transgressed — in order that it might receive substance. They have said, "We must have truth or nothing at all — so it must be nothing," without realizing that it is the one-sided focus upon truth that has brought us to the nothing. They should have said, "Let us have the actual world, by transcending the logician's empty truth."

Teaching with Imagination

Meaning is as available and as huge as the world itself. But that is the problem. We've been taught to ignore the world. It has from the beginning been an axiom of modern science that the qualities of things — which is to say, virtually all of the world as actually experienced — must strictly be ignored. It is contaminated. By what? By meaning, upon which the preferred scientific instrument of rational analysis could get no handle. The positive role of imagina-

tion in this regard, without which science would have no things to analyze, was lost from sight.

In a one-sided society it is crucial to redress the reigning imbalance by correcting it at least in the education of the child. But how can we correct an imbalance from which we ourselves suffer? I have no good answer, apart from the bland advice that we must struggle toward the light as best we can. But I do wish to offer the briefest of hints about a meaningful and more imagination-centered education of the child. In doing so, I will draw upon some of the practices of Waldorf education.

The key thought in each of the three suggestions I will make is that the unities discovered by the imagination are always unities of self and world. The qualities of the world are at the same time qualities of our consciousness — not because they are "merely subjective" as conventional science would have it, but rather because our inside is at the same time the inside of the world. So an imagination-centered education is one in which the inner qualities of the teacher necessarily play a central role in leading the child to an understanding of the world.

First, then, the Waldorf teacher, so far as possible, remains with the same class throughout the eight primary grades. This allows extremely close bonds to form between students and teacher, and enables the teacher to reckon over the long term with the individual nature of each student. But, perhaps most important for the current discussion, it puts tremendous demands upon the teacher for personal *growth.* Teaching eighth graders is a very different thing from teaching first graders, so that the teacher must continually alter his methods — his entire style of relating to the students — in fundamental ways.

That, actually, is part of the rationale for the system. The conviction here is that students are much more deeply affected by the teacher's inner resilience and capacity for growth than by any brute information he happens to pass along. That is, the information needs to be colored and deepened by the qualities, the living meanings, at work in the teacher. This, of course, is consonant with the traditional advice to parents: it's not what you *say* that counts, but what you *do* and what you *are.* And the information-laden computer, don't forget, has no capacity for inner growth.

This is closely related to a second feature of Waldorf education: minimal use is made of textbooks. The teacher is expected to master the material — which he himself selects — and to present it in a living way, wrestling with it in the current moment, right there in front of the students. Again, the students' experience of this inner *activity* on the part of the teacher is more important than the passage of objective bits of information from one cranium to another. On their part, the students create a notebook for each subject, which in effect becomes their textbook.

In the third place — and this final point of my paper will require a brief bit of explaining — if we are ever to transcend a fact-shoveling style of education, we will have to use as our model the reading of a text rather than the transmission of information. When we read a text — whether it is printed words on a page or the *logos*-word displayed in nature — we are concerned not just with facts, but with meanings. The question is not only, "Have we correctly translated this word or this sentence?" but, "How deeply do we understand it?" The richness of our reading is directly correlated with the conceptual richness of our consciousness — much more so than with the number of facts we hold.

Any given word will have a distinctive resonance for each hearer or reader, and by entering fully into this resonance we make our own contribution, we discover our own particular depths of meaning in the word and therefore also in the phenomena of the world to which that word applies. The different colorings we are all capable of seeing add up to the full spectrum of reality.

Perhaps you have read about the extraordinary education and achievements of Tom Brown, Jr., or Monty Roberts. Brown was trained from a young age in the arts of animal tracking and wilderness survival. His skills reached a fine, almost preternatural pitch, and he has employed them in tracking down criminals for law enforcement agencies as well as in teaching.

When you look at the so-called "coyote method" by which Tom Brown was himself taught, you find that it was not based primarily upon the transmission of information. In fact, it was almost based upon the absolute refusal to transmit information. His old

Indian teacher served as a motivator and an example, not a reservoir of facts. What Brown learned was how to shape himself to nature and the animals he tracked, so that he could resonate with or *read* the signs he observed in their meaningful contexts. He learned, as he put it, to "track the spirit" of the individual animal more than the external marks. Or, rather, he learned to read the marks as external gestures bearing a meaning.

Much the same could be said about Monty Roberts, "The Man Who Listens to Horses." His accomplishments seem scarcely believable to those of us who can approach horses only with the conventional learner's mindset. He can take a wild horse that normally requires weeks or months to be broken and trained, and — not breaking it at all — make himself its friend and rider in as little as a half hour. He learned to "speak horse," which required him to shape his own cognitive interior to that of the horse.

This is the true task of the educator: not to transmit dead and finished bits of information, but to help the student gain the imaginative flexibility and muscularity with which he can shape and reshape himself to the eternal surprise of the world's phenomena. The student of nature must learn to "speak clouds, air, and wind." The student of American history must learn to "speak antebellum culture." Without an imaginative feel for the meaning of things, there is no hope of attaining this goal.

As long as we are content to place an abstract, analytical grid over the face of the world and then look for the sure but empty facts that squeeze through the grid, we will continue shoveling those facts into our students. We will continue, that is, until we strengthen our imaginations to the point where they can hold the balance against our well-honed analytical capacities.[8]

Notes

1. The phrase is Owen Barfield's. In my discussion of analysis and synthesis I am deeply indebted to Barfield's work, and especially to *Poetic Diction* (Middletown, Conn.: Wesleyan University Press, 1973).

2. *Speaker's Meaning.* (Middletown, Conn.: Wesleyan University Press, 1967).

3. *Poetic Diction*, op. cit., p. 113.

4. *Mysticism and Logic* (Totowa, N.J.: Barnes and Noble, 1981; originally published in 1929), p. 60.

5. Quoted in Morris Kline, *Mathematics: The Loss of Certainty* (Oxford: Oxford University Press, 1980), p. 97.

6. The Nature of Meaning. *Seven* 2: 32-43.

7. By "metaphorical" I include what Barfield calls "figurative" in *Poetic Diction*. See also "The Meaning of 'Literal'" in Barfield, *The Rediscovery of Meaning, and Other Essays* (Middletown, Conn.: Wesleyan University Press).

8. Meaning, imagination, and the polar relation between rational analysis and imaginative synthesis are treated much more fully in Chapter 23 of the author's book, *The Future Does Not Compute: Transcending the Machines in Our Midst* (Sebastopol, Calif.: O'Reilly & Associates, 1995). That chapter, entitled "Can We Transcend Computation?" is available online at http://www.ora.com/people/staff/stevet/fdnc/ch23.html.

Sustained Success

The Wheatley School SWS

Nicole Krauss, Jodi Kreitzman, Sharone Ostrow,
and Mary Anne Raywid

Three characteristics have made the Wheatley school-within-a-school a continuing success over the years: strong academics, a focus on human relations, and a vibrant student-led government.

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Jodi Kreitzman graduated Magna Cum Laude from Amherst College in 1996 with a double major in English and Fine Arts. She is currently an editorial assistant in Random House's children's division.

Sharone Ostrow graduated from Brown University with honors, after which she completed the Radcliffe Publishing Program at Harvard. She is working with Hearst Publications.

Mary Anne Raywid is Professor Emerita of Education at Hofstra University. She has written widely about innovative schools and has specialized in alternative education.

If asked to name the best schools I've been lucky enough to see in my 47 years in education, Wheatley's school-within-a-school would surely be high on the list. It takes very seriously education's ultimate aims and avoids the more typical miring in the proximate ones. The result is that its students grow visibly in judgment and wisdom, as well as in responsibility, sensitivity, tolerance, and empathy. This happens because school time goes to activities that will make youngsters better citizens and co-workers and friends and spouses and parents — as well as more successful in the public sector to which most high schools restrict their efforts. Through a focus or theme that entwines democracy and human relationships, students are helped to grow personally and socially. Through a strong emphasis on rigorous effort at what they find meaningful, they grow as learners and scholars.

The Setting

The school-within-a-school at Wheatley School on New York's Long Island is quite unusual. It challenges much of what we think we know about teenagers and schools — and even about educational innovations and what makes them work. As tenth to twelfth graders, these young people are the devisers and implementors of educational policy. Once in the program, they tend to take education pretty seriously and to work harder at it than they have done previously. And their enthusiasm about "SWS," and dedication to it, is rare.

I have taught a seminar on Alternative Education at Hofstra University for almost 20 years. A group of students and teachers from Wheatley's SWS have been regular visitors and participants. Usually they are the first of three such groups, representing three

different alternative schools, who visit the class during the semester. Only after their visit do I feel the seminar — which seeks to give graduate students an idea of the range of possibility in education — is ready to begin. The SWS students are bright and articulate and enthusiastic, and although accompanied by a teacher or two, it is the students who do the presenting and carry the discussion. The level at which they are able to do so is always something of a shock to the class observing them. Clearly they are participants in their education, not mere recipients of it. What is more, they are informed, thoughtful, and very active participants in directing it.

The Wheatley School is a school of 525 students, grades eight through twelve. It is located in an affluent, education-oriented New York City suburb, and 95% of its graduates go on to college. The school is the only high school within a small district composed of sections of several different Long Island towns. All but one of the towns included consists primarily of high income families. Religiously as well as economically, the district is atypical, with approximately 80% of the population being divided equally between Catholic and Jewish families.

In fact, it was the religious differences which initially gave rise to SWS. The Wheatley School had been opened in 1956, and its students included youngsters from two elementary schools — one consisting primarily of Jewish students and the other largely of children from Christian families — who were finding it hard to get along together. The response of the high school was to establish T-Groups, as recommended by the national interest in group dynamics that had burgeoned a decade earlier. Several of the school's teachers had attended the National Training Laboratory for Group Development, the center of the group dynamics movement, and were well grounded in its principles. It was the T-Groups formed in response to this cross-cultural conflict which led eventually to an experimental class focusing on human relations. And it was this class that in 1972 became Wheatley's school-within-a-school.

SWS has identified itself from the start as an "alternative" school — and it has recurringly been subject to the criticisms that beset alternative schools: that it is a haven for hippies, frisbee-land, a permissive enclave where the touchy-feely prevails. But despite such charges from critics, it has also fairly consistently been a popular choice among Wheatley's students, almost always with a waiting list and frequently attracting a number of the parent school's leaders and most successful students.

SWS enrolls 75 students, but only for a part of each school day, its last three periods. During the morning, students are in regular Wheatley classes, moving into SWS only at 12:30, with the beginning of the seventh period. SWS teachers, like their students, spend two-thirds of the school day on assignments outside the program. Ordinarily, programs structured so as to provide such limited affiliation are minimally successful: There is minimal programmatic differentiation, a minimally discernible identity for the program, and a correspondingly minimal sense of affiliation with it. The lived experience of students and teachers simply differs little from what they have elsewhere become accustomed to. SWS departs radically from this scenario: The program is unique and for most, it is compelling; the sense of ownership and affiliation it builds is extraordinary; and the role expectations of both students and teachers make SWS a novel experience for both groups.

A prominent part of the success lies, I suspect, in the emphasis on building community among those within the program. This leads to activities that establish close bonds between students and students, as well as between students and teachers. It leads to the acquisition of interactional skills that students recognize as personal growth within themselves. It also results in a considerable amount of self-consciousness about the community that is being built and the ties formed. This focus on human connection tends to offset the relatively limited time spent together in the school-within-a-school — making SWS a clearly discernible entity, when units constrained by this sort of time frame usually are not.

Another reason for SWS's success is its unusual academic program, which is limited to electives in Social Studies and English. The way in which time is used within the program makes it possible for students to take as many as 24 such electives a year: The year is divided into four or five modules, each about six weeks long. There are three periods per day, and most classes meet twice weekly. This means a stu-

dent can take up to six courses per module. Courses are usually rather targeted — to cover a single topic or issue or person or time period. Recent courses, for instance have included such titles as "Literary Dogs" (featuring 11 short stories about dogs), "Constitutional Quarrels," "Should Saddam Hussein Get the Bomb?," "Stand-Up Comedy," "Kurt Vonnegut," "The History of Rock," and "Anita Hill vs. Clarence Thomas."

But if the titles are catchy, the expectations are anything but frivolous. For instance, those who enrolled in the "Stand-Up Comedy" course were required to study "the aspects of language and the power of words which create humor," and to "explore various styles of comedy, from Plato to the present," along with "society's changing attitudes toward comedy." Course requirements included the writing and performing of three five-minute comedy routines as well as the preparation of several reaction papers. Requirements here and in other classes are often substantial, and a tally a couple of years ago disclosed that during the year's final module, the 75 students enrolled in SWS wrote and rewrote a grand total of more than 700 papers!

SWS students take a much more active role within classes than is typical in high schools, and there are marked contrasts in the proportion of class time devoted to teacher talk. Often students assume an even further responsibility by teaching a course. Those who wish to do so are encouraged and given help in a special course on "Teaching in SWS." They complete the class with a full design for their course, including a curriculum plan for each lesson they will teach, and a repertoire of teaching techniques. Courses are also taught by parents, and Wheatley School principals also sometimes teach in SWS — a former principal (who is now district superintendent) having offered a class on multiple interpretations of the Cinderella myth, and the current principal having offered a class on the book *No Heroes, No Villains.*

A different sort of factor that undoubtedly figures in SWS success is continuity. Although the program is almost a quarter of a century old, its current director has been involved with it since its earliest days. There is little turnover among the teaching staff, and there have only been four different leadership teams in the program's history. The result is that staff orientation has remained unusually constant. There are also other, more personal continuities — such as the fact that the brother of one of the program's current teachers was in the first SWS graduating class! On the other hand, there has been little recent continuity in the principalship of Wheatley, with five principals in the last five years. The turnover was evidently not traumatic for SWS, however, whose security seems fairly well assured. There is sufficient community awareness and support for the program that an administration unfriendly to it might find itself in real trouble..

Yet another strength has been the program's flexibility and adaptability. Students exert considerable control within SWS, and each year brings a fresh examination and assessment of everything from classes to the program's constitution — virtually assuring the self-renewal now held so central to school success. Change is constant — change of content, change of structure, change of activities — yet through it all, SWS's purpose and orientation have remained surprisingly untouched: Human relations and community building within the program are still focal, and democratic self-governance has consistently remained a second dominant theme. The emphasis on knowledge has perhaps evolved most over the years, with a steady strengthening of the program's intellectual component. This is often managed, however, without eroding the commitment to human relations and democracy. For instance, the annual Fall retreat in 1996 was not scheduled for the usual camping experience with trust walks and ropes that Sharone describes later in this article. Instead, it took the form of a trip to Washington, D.C. The culminating activity was designed as spending time in the Holocaust Museum — and sharing with one another the emotion which that experience evokes.

Several years ago, I asked the then-director of SWS if there was a student who would be interested in writing a description of SWS for publication. Three people responded, so each chose a major dimension of the program to discuss: Nicole Krauss chose to write about the academic dimension of SWS and what it is to be a student there; Sharone Ostrow offered an account of the way the human relations

theme is sustained within the program throughout the school year; and Jodi Kreitzman examined the SWS structure, and the way the program is governed. In the several years that have intervened since these three graduated, changes have taken place and the details may differ. With respect to the essentials, however, SWS remains today very much as they portray it here.

Academics
(Nicole Krauss)

"Do you have a lot of work to do for SWS tonight?" Cara asks me as we hurry down the green hallway to our Madame Bovary class.

"Work!" I scream back. "I have an essay and two reactions, plus I haven't even finished Bovary. I'm beginning to hate Emma. She never learns from her mistakes, and that's frustrating," I tell her, waving my wrinkled copy of Flaubert's masterpiece in the air.

"Yeah, but I dislike Charles even more," she says of Emma's husband, "he is so flat and gray. I empathize with Emma sometimes!" We slip into room 207, and into our desks, and spread our reading journals before us. Cara laughs at my marble notebook, with scribbles that only I can decipher. The class grows quiet, and an intense discussion begins. I wave my hand impatiently in the air, and then, when it's finally my turn I say to the students around me in circle, "I was just talking with Cara, and I think ... "

Madame Bovary is one of my favorite classes this module — but then again, I can't think of one class out of the six that's not. From my 1920s class, to Writer's Notebook, the Middle East, Word Weaving, and Three Novels of Redemption, I am learning exactly what I choose, exactly what I desire to learn, and for that reason, I love every minute of my SWS classes. Others selected from a list which also included such classes as World Leaders, The Soviet Empire Unravels, Argentina, and Women in Greek Drama. SWS only consists of English and Social Sciences, and therefore, it only meets for three out of the nine periods each day. In the morning, as I sit through pre-calculus and AP Biology, I wait in anticipation for 7th period to roll around when SWS begins. There are two sets of classes, the Monday/Thursday set and the Tuesday/Friday set. So, I can take three different classes in each of those sets. This can get slightly confusing and once in awhile one may overhear a confused SWS student wonder, "Wait, do I have Great Debates today or Freedom of Speech?" After a dazed moment or two, he'll recall staying up past midnight the night before finishing his Freedom of Speech assignment and turn towards class. Most of us, however, after the first week of the session, called a module, get right into the groove. There are four of these sessions, or modules, per year. That means that four times a year, each student in the program has to make the difficult decision of which classes to take.

Today, as the 3rd module is approaching, we all gathered together in the worn, comfortable SWS room, some of us sprawled on the donated couches, others reclining on the gray carpeted floor. New modules, and the chance to begin fresh courses, always generates a lot of excitement. Everyone anxiously awaits a copy of the Module Book, a packet that contains a description of all of the classes that will be offered that module. I stumbled sleepily into the room, a tall stack of the packets in my arms, I had stayed up all night carefully designing the innovative cover for the Module Book. I drew every single person in the community holding hands. After everyone had found themselves on the cover, and giggled over the funny images of their friends, we settled down to listen to each teacher present his or her class or classes.

Many different people offer classes each module. Besides the proposals of our four "core" teachers, two for each subject, students offer classes as well. Student-taught classes are an incredible experience where we each have the opportunity to share knowledge that we have already gained with others. We can teach two classes, twelve classes, or none at all. Every module a number of students always offer classes. Parents often teach as well, usually offering their classes at their homes in the evening. Even the principal of our school taught a class this module on Cinderella — yes, the fairytale! Course Description lasted about two periods, with the teachers describing their classes one after another. Each of us sat with pen in hand, circling classes that appealed to us, and by the time description is over, we had before us a module packet covered with stars, question marks,

and circles that we leave until the evening to pore over with our parents and over the telephone with friends.

Every class offered must first be approved in the Course Approval Meeting. Any person interested in teaching a class (core teachers, parents, and students included), must attend this meeting. The prospective teacher presents his or her class to the committee, the work that has been done in preparation, what the class will be about, possible assignments, etc. The committee members, made up of anyone who wants to attend, ask the teachers questions. If the class and preparation prove to be satisfactory, the committee will approve the class. If however, the committee feels that a class may not be successful, or that the person lacks sufficient knowledge of the subject, or is not prepared thoroughly, then it is not approved and the person will not offer the class.

After students had signed up for their classes, the module got underway, along with lots of work. Reaction papers, poems, literary essays, reading, the list goes on. Though I stay up into the morning hours slaving away behind my computer, I don't mind the work so much. I'm learning about what interests me: The Middle East Crisis, creative writing, King Lear, the 1920s — I love learning about all these things and I put time and effort into each assignment. This module I also chose to take an Independent Study, where one selects a topic, any topic, and learns about it on one's own. I chose to do personal writing, where I would write about my own experiences in a creative way. I chose an adviser who read my pieces of mail, and would anxiously await his comments written in green pen and covering the typed pages of my stories. The wonderful thing about the Independent Study program is that anything in the world can become our curriculum. Students have done studies on everything from J.D. Salinger, to the Holocaust, to Renaissance art.

As each module draws to a close, students must think about what kind of grades they deserve for each of the classes taken. Each student fills out an Assessment Sheet evaluating his or her performance in the class, and assigning a grade. The teacher of the class then reads the assessment, considers how he or she feels the student performed and then assigns a final grade in the class. The equation that students often use to determine their grades is Quality + Quantity + Effort = Grade.

At the half-year mark, and at the end of the year, we receive a final grade in English and Social Sciences. Each student has to compile all of his or her work in a collection called a transcript. The night before transcripts are due, I sit on my floor, my work spread around me in piles for each class. Each essay, each reaction paper, each story that I wrote lies before me. I put the work, separated by dividers, into a folder, along with the assessment and the final grades received in each of the classes. I then sit before my computer and write a sort of letter that discusses how I think I performed over the two modules. I discuss each class I took, what I got out of each one, and finally I give myself a final grade in both English and Social Sciences.

The next morning, the SWS room is full of students putting the finishing touches on their transcripts, filing last minute papers in order, and placing the entire folder, his or her pride and joy, sweat and blood, into a box. Questions like "What did you ask for? What did you write in your evaluation? How long was it?" can be heard throughout the room. Some students look guiltily down at their thin transcripts, after seeing another student's thick folder overflowing with papers.

Two evaluating committees, one for each subject, assess each student's transcript, deciding whether the student truly deserves what he or she asked for. The committees are made up of the two core teachers of that subject and two elected student evaluators. After school and even during some periods in the day, the evaluators slave over the folders, reading evaluations and looking over the quality and amount of work that each student did.

When they have finally finished, a list goes up in the SWS room of those students in whose cases there are conflicts between student-assigned and evaluation committee grades. Such students must meet with the evaluators to discuss their grade. Clusters of students gather around the list, praying their names are not on it. If the evaluators and the student cannot come to a settlement, the student can bring the evaluators to court to sue for a higher (or in few cases lower) grade.

The Academic portion of SWS is a rewarding and wonderful experience. It offers each student a world of knowledge, the privilege of learning what is interesting to oneself, the opportunity to teach a class, as well as the opportunity to get involved in the design and operation of the Academic module. Whatever class one takes, or whatever one chooses to do in Academics, each one of us gets out tenfold what we put in.

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As Nicole's account testifies, SWS manages to engage students in multiple ways in designing their own educations. As she suggests, the sense of ownership is strong and the students are proud of how difficult and demanding their work is.

But "Academics" are only one part of the SWS program. Sharone describes a second component receiving equal emphasis.

The Human Relations component of SWS is the heart and soul of the program. The emphasis here is on honest communication and genuine caring. The learning that ensues is considered every bit as important as the learning that goes on in academics. In the beginning of the year, the students in the program struggle to become a community, learning to trust, to open up, to share themselves, and students come to realize that this is not a "me" world, but one that includes all of us. Several kinds of arrangements and activities facilitate bonding and caring. These include family groups, community building days, sharing, field trips, and weekend retreats. Through these experiences the members of SWS become the community of SWS.

The following account is typical of what happens in the Human Relations part of the program throughout the year.

Human Relations
(Sharone Ostrow)

It's a warm, yet breezy summer evening and our stomachs churn with excitement as we anticipate the year to come, another year; the cycle continues as seniors step into the collegiate world and sophomores fill our SWS circle. We prepare for the first SWS weekend as we pack our bags and join other community members on the bus to Camp Oquago. We look forward to a weekend of creating new relationships and strengthening old ones.

The bus hums with laughter and music and buzzing conversations, and we climb our way through the Northeastern countryside; we're almost there. Sixty SWS students and teachers listen to the PA as another member announces bunk and dining assignments; friends are separated in the interests of bringing mere acquaintances together. Tenth, eleventh, and twelfth graders share the Oquago experience and the magic of the countryside seems to melt the age barrier away.

Beds are made and bags unpacked and students are brought together on an open field where an older member of our Human Relations Committee prepares us for an activity. What now? An obstacle course, five teams, timed races, strangers working together, strangers becoming friends. This is what Human Relations is all about. We file into the dining room with smiles on our faces and new friends by our sides, indeed we are off to a wonderful beginning. We're seated with strangers, yet we laugh and joke as if we are the best of friends; we poke fun at the sticky mashed potatoes and we talk with a nervous excitement that invades our voices.

And now the sun sets casting a yellow shadow across the camp and we, the SWS community, gather in a circle and begin with two minutes of silence; a silence noisy with thoughts that race through our minds. It's the first Meeting for Sharing, a forum for joke and story telling, a forum for tears, and a forum for mere observation. We each can speak, but we cannot respond to other speakers. A member stands in the core of our circle shedding light in the darkness of this club as she tells of a humorous experience. Her smile is radiant and it dances across all of our faces; she shares and we listen. And now she sits, we are silent, and another classmate rises to describe a sorrow. We ride an emotional roller coaster as we laugh and cry with our peers. This is what Human Relations is all about.

Singing around a campfire, canoe races in the lake, and competing in a talent show. The weekend ends and we return along the Northeastern skyline to the beginning of an exciting and promising year in SWS. We have begun to spin a web of trust and friendship and we step off of the bus and into the classrooms

anticipating the growth and continuous development of new relationships.

And with the summer heat still dripping down our foreheads we experience the first "in-school" Community Building week; a week devoted to strengthening and improving the social networks of the program. We attack this project in a more systematic way as we divide the community into several groups of about eight members each. The groups, each of which include one teacher, become a member's "family" for the year as it provides support and the foundation upon which trust is built. A Family Group, as we call it, creates an outlet for bottled emotions and frustrations; it creates a cushion of confidentiality upon which we can depend. And a trained facilitator, another member of the group, helps construct a secure environment as he/she breaks the barriers of intimidation and conflict and builds a circle of smiles and honesty. A Family Group is a year-long commitment as it plants the seeds for new friendships that often prove longlasting. These friendships are cherished as we grow closer together, constantly concerned about improving our program.

As the summer heat becomes an autumn chill, we find ourselves working towards the development of the larger SWS community beyond individual and Family Group ties and we participate in what we call Community Building activities. Let us draw the setting: We are gathered in a circle, a wide and round circle and the sound of voices fade as an activity is presented to us. We are to take off one of our shoes and place it in the middle of the circle. Sneakers — Nikes, Addidas — shoes, loafers, dress shoes, and boots are thrown in the middle of our circle. And the activity begins as one person, blindfolded walks toward the pile of shoes and reaches for one, any one. And as he holds a sneaker in his hand, he opens his eyes, looks at the shoe, stares at his peers that surround him and searches for the person, the foot that matches the sneaker. He feels like the duke in a Cinderella fairy tale, matching the slipper to the perfect fit. Ah ha! He has found the right size foot, the matching person and now he must say something, anything that he knows or wants to know about this peer. He shares a funny story with the community and we laugh and the activity continues in the same manner as the next person enters the circle, picks a loafer, finds a matching foot, etc. The activity better acquaints us with our friends and creates a comfortable atmosphere in which we can giggle and sometimes even cry.

Community Building activities provide relaxation in between difficult and sometimes frustrating modules. A week separates each module from the next, and most of this time is devoted to Human Relations activities designed by the student Human Relations Committee. They are geared toward taking our minds off of academic pressure and refocusing our energy on enjoying the company of others.

The oranges and blacks of Halloween decorate our room with ghosts and goblins as we celebrate together on this dry autumn day. Frightening moans and screams invade the speakers of the radio as we eat hero sandwiches and take part in yet another Human Relations activity. We are divided into four groups and each receives a paper bag in which there is a straw, an empty box of Junior Mints, an empty soda can, masking tape, a paper plate, and other materials of the sort. We are instructed to create an appliance together and to give it a name and a purpose. The starting bell rings and we're off taping and connecting the different parts of our piece of work, we joke and yell. Our laughter creates the melodies of this Halloween afternoon. We are having a wonderful time together again.

The cycle continues as autumn becomes winter and the bells of Christmas and the celebration of Hanukkah resonates throughout the SWS room. We experience one of the most exciting and mysterious of activities as the Human Relations Committee announces the commencement of "Angel-Mortal Week," a time of giving and receiving, hiding and pretending, writing and reading, and most importantly, sharing. I am secretly assigned a "Mortal," another member of the community to whom I may anonymously send letters, write poems, or give candy; she does not know who I am and the mystery continues as I receive gifts and letters from my "Angel," the person who gives to me. Angel-Mortal Week creates a cycle of giving, taking, and thanking; and again it provides a means of cultivating friendships as at the end of the week we reveal our true identity to our Mortals. The activity, if you haven't noticed, is quite difficult to explain, it is the experi-

ence, the fluttering sense of joy and belonging that becomes the ultimate pleasure of Angel-Mortal Week. Together as a community, we celebrate the holidays, together as a community we step into the New Year.

The pollen of springtime permeates the air, and coughs, colds, and sneezes sing throughout the hallways. The green leaves and dewy grass open a new door for the Human Relations dimension of SWS as we step out of the white-walled building and into a forest of fresh air. We prepare to "share the wealth" and broaden our community, we bring the wonders of SWS to prospective ninth graders as we invite them to join us on a picnic. The sun shines and we run to the bus with frisbees in our hands and sunglasses on our faces; we're going to Eisenhower Park for a day of activities. Names are called, attendance is taken, and again we are off.

A barbecue blazes and we sit in a circle and share our most embarrassing moments. "Well, I didn't mean to step on Mrs. Stern's skirt and who would have thought that it would have fallen right down to her knees." The stories evoke roaring laughs from the group and the mystique of a sunny day seems to make it all even brighter. A frisbee catch begins on the field to the left, a soccer game on right, and sunbathing in the middle. We are all relaxed and free as we learn to welcome others into our program and prepare to bid some farewell.

As the seasons revolve, so does our community; yet, we "close" (for I hate to use the word "end" or "finish," they're so finite) with a banquet celebrating the success of the past year. For the banquet everyone must cook a meal, a dessert, or even bring a beverage and we sit and eat and write letters to ourselves. The letters are journals, some review the highlights of the year while others preview the year to come. They are written and sealed and given to the Chairperson of the Human Relations Committee to be kept until the following year's banquet at which point they are returned to the proper author. We are nostalgic and reminisce about Camp Oquago, its funny stories and incredibly intense moments. And with the food settling in our bellies, we congregate once again, one last time, in a circle for our last Meeting and Sharing. Seniors bid farewell and often cry as they must break away from the place that they love most. And other members talk and share and laugh and cry and our circle opens and the cycle continues.

SWS becomes a part of every member and every member becomes a part of SWS. We share and experience and we sow the seeds of a wholesome and fruitful tree to which we are attached forever. Human Relations in SWS brings color into a sometimes gray world, it creates love and friendship — two factors that often fill our voids and inspire happiness. This is what Human Relations is all about: nurturing, creating, and developing.

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Thus the Human Relations component of SWS has a great deal to do with the extraordinary loyalty students show. And it is far from a matter of leaving unscheduled leisure to share — hangin' out time. Rather it is a deliberate, carefully planned set of structures and activities. It is managed almost completely by students. This is also the case with the program's final component, its governance arrangements. Jodi describes their organization, making SWS both a participatory and a representative democracy.

Government
(Jodi Kreitzman)

SWS is a democratic community governed by its student members. Stressing the idea of student leadership, the program runs in accordance with the SWS Constitution, a document created by students. As the Constitution declares, SWS is committed to:

> promoting a nonauthoritarian and egalitarian education and community by promoting responsibility for one's own personal and academic growth, maximizing the opportunities for citizens to learn from one another, developing leadership, providing a unified and close-knit community environment, and maintaining a learning environment in which each student strives towards mastery of academic skills, English, Social Studies, and Humanities.

To uphold these goals, the Constitution organizes SWS into executive, representative, and judicial branches. Every year, the Constitution is altered, revised, and updated. Through a class taught about this document, so important to life in SWS, students involved are able to study each aspect of the docu-

ment, and to discover ways to improve the program. The Constitution fundamentally defines SWS. It shapes the essential roles and functions within the program.

The SWS Constitution assigns administrative powers to an elected student chairperson, or moderator, who is our executive. The moderator's main objective is to "coordinate the SWS program as a whole, and help it run smoothly." Encouraging the idea of student leadership, the moderator is always a student within the program. He or she does not function as a president or a dictator. Rather, the role is to facilitate discussions and ensure the success of the program by making sure all provisions of the Constitution are upheld. The moderator must also serve as an effective liaison between faculty and students. Generating social control is the moderator's job, for this is not her program or his program. SWS is our program, belonging to every teacher and student associated with it. The moderator's job focuses on making the community run effectively by encouraging the involvement of each and every student and teacher in the well-being of the program.

Teachers are not the primary leaders of SWS. They are considered the equals of the students. Teachers in SWS are called by their first names, symbolizing their equality with students. More importantly though, the functions described in the Constitution assign students the main leadership responsibilities with SWS.

In addition to the moderator, a recorder, and a treasurer also hold important positions within the community. The recorder's job is to assist the moderator in helping to make general meetings run smoothly by maintaining a speaker's list, "compiling records of all general meetings and advisory board meetings," and keeping attendance records. Last, the treasurer functions as the holder of all financial responsibilities within the program. It is the treasurer's obligation to collect dues from all SWS members, and "advise the community of its financial standing at the midyear and at the year's end." Although these specific functions are outlined under the executive branch, student leadership does not end here, for its most important responsibility is to ensure the participation of all community members.

The SWS constitution provides both for representative and direct, or participatory, democracy. It is representative in that each student is a member of one of four committees — Academics, Human Relations, Social Actions, or Publications — which act for the entire SWS population in overseeing the main aspects of the program. Committees meet every Wednesday for one period of the SWS day. Following the committee meetings, there is also a general meeting each week, which reflects the participatory democracy in SWS.

General meetings are led by the SWS moderator. Each meeting offers students the opportunity to express their ideas and opinions. The meetings provide an opportunity for students or teachers to bring proposals to the community. From the small request to paint the meeting room, to the complex proposals on whether or not to have a five-module academic year, whether grades in SWS should be pass/fail, or whether parts of the human relations aspect of the program, like family groups, should be abolished, students within SWS are given the opportunity to bring up proposals to improve the community in any way they see fit. After the proposal is described, a speaker's list is created, allowing all members of the community who have an opinion about the proposal the chance to express their views. Throughout the meeting different motions can be made, including motions for immediate votes, closing the speaker's list, adjourning the meeting, suspending the rules, tabling the proposal, or setting time limits for speakers. When there is significant objection to a motion, the moderator can deny it. Students also have the opportunity to intervene during the meeting with points of personal privilege, information, inquiry, or parliamentary procedure. At the end of the meeting, each student and teacher votes on the proposal eith by roll-call a show of hands. SWS members can either vote yes or no on a proposal or practice two other voting options. They can abstain from the vote, meaning they are part of the quorum and will be tallied a "no" in a vote on a constitutional proposal, or they can vote "vegetable," meaning they are uncertain of their views on this proposal, and wish not to be considered in the quorum. Constitutional amendments need a two-thirds majority to pass. A regular proposal needs a simple majority.

Through motions, speaker's list, role-call votes, and amendments that may be offered to the proposal, the opinion of each SWS member has a direct effect upon the program. No one's opinion is considered insignificant within SWS. Everyone is respected for the opinion they choose to express, whether all community members are in agreement with that opinion or not.

Once a month, the moderator presides over the meeting of an Advisory Board consisting of all committee chairpersons, the recorder, treasurer, chief justice of the SWS Supreme Court, a representative from each family group, and a representative of the SWS professional teaching staff. In addition, the Advisory Board is open to any other members of the community who wish to attend. All present have equal voting privileges. Advisory Board meetings are run as informal discussions on "subjects relating to the governing" and maintenance of the high standards of the human relations and academic aspects of the program. Within these meetings all committees give an updated report of their goals and projects throughout the year, and community members are asked for their suggestions for solving problems within the community. For example, the Advisory Board can discuss ways to improve student involvement or honesty, and can initiate plans for the orientation of freshmen into the program. Essentially, the Advisory Board is one more avenue to ensure complete student involvement in the effort to maintain the quality of the program. Students who attend are dedicated to maintaining the well-being of the program and are willing to volunteer their time and eager to participate in a program that means so much to them.

In accordance with the SWS principles of taking control of our own actions, and of student leadership and participation, SWS government also has a judiciary branch, our Supreme Court. The court consists entirely of students — two elected from each grade and one member at large from the junior or senior class. SWS has an honor code and all students within the program are expected to uphold the principles of honesty, morality, and student responsibility, by taking fellow members to court for eating in the SWS room, cheating, illegal absences, or breaking any other moral expectations of the community. Grade conflicts students may have with the Academic Evaluation Committee may be settled by the court, as well. As a jury of seven students, including one chief justice, the Supreme Court listens to both sides of a situation before making an impartial decision. All affairs within the Supreme Court are confidential, although students are given access to information about the precedents the court has set in deciding similar cases in the past. Names, however, are withheld from these records. Essentially, the court emphasizes the student's responsibility not only to him or herself, but to the other members of the program as well.

After debating the pros and cons, I came into the community at the start of my sophomore year, like many others, unsure of what it would mean to me. After experiencing the wonderful aspects of the program, however, I am now a committed member of SWS. Quite simply, I love it. I love the opportunities for academic and social growth it offers. I love that I can stand up during a general meeting and have a direct effect on the well-being of our program. I love that through human relations and community building activities, I have become friends with sophomores, juniors, and seniors. I love that every Monday, Tuesday, Thursday, and Friday I can challenge my brain through discussions on topics I never dreamed of. And, I love the opportunities for student leadership and responsibility SWS offers in every aspect of the program. So I decided at the start of tenth grade to make SWS become something very special to me, and to take advantage of the opportunities to become involved in a program that survives on each and every member's involvement. And now I reflect upon my years in the program and realize just how much SWS has changed me. I matured from a shy, quiet, intellectual student, to an outspoken, involved, friendly member of the program, with a passion for SWS.

SWS is not a program led by one individual student, or a program controlled by its faculty. Through the different governmental aspects of the program, as outlined in the SWS Constitution, members are given the opportunity to become involved in every aspect of the program. General meetings, Advisory Board, and Supreme Court all provide an opportunity for every member of the program to express

their opinions and directly affect the program. SWS students learn that the program is as good as the students involved make it. As a result, it is important that each and every member of the community give a part of ourselves to the program through time, effort, cooperation, participation, and knowledge.

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As Jodi suggests, the self-governance arrangement at SWS provides one more avenue for student involvement and responsibility, hence growth and development. A far cry from the typical "Student Council," this structure puts youngsters in collective charge of the whole enterprise. At the same time, it expands the options open to individuals, thus empowering students singly as well as collectively. The unusual authority they exercise, plus the human relations they live, makes this a highly self-conscious community with extraordinary student commitment — both to the community and to learning.

And students' extraordinary ties to the program and to their classmates — in Jodi's terms, their "passion for SWS" — in turn amplifies the influence the school exerts. The result is that for more than two decades, Wheatley's SWS has proved a highly successful effort to make learning meaningful for its students, and of sufficient breadth to address the kinds of human beings and citizens they are becoming, as well as the scholarship they daily display.

Book Reviews

The Common Vision: Parenting and Educating for Wholeness

by David Marshak

Published by Peter Lang (1997) 246 pp.

Reviewed by Jack Miller

David Marshak's book is an important and timely contribution to holistic education. The vision outlined by Marshak is a comprehensive, holistic one that runs counter to the narrow dogma that we hear from politicians and many educators who only want to prepare students to compete in a global economy. Marshak describes the work of three individuals: Sri Aurobindo Ghose, Hazrat Inayat Khan, and Rudolf Steiner, and argues that these three individuals present a common vision of human development from birth to age twenty-one. This vision can provide guidance to parents and teachers who want their children to become whole human beings rather than just being part of the present economic machinery.

Rudolf Steiner, the founder of Waldorf education, was influenced by Germanic Christianity and also Theosophy, which has its roots in Hinduism. Aurobindo was born in India but spent many years in the West. His thinking was a synthesis of Hinduism and Western scientific thinking. Inayat Kahn was also born in India and was influenced by "his family religions of Islam, his knowledge of Hinduism, his spiritual training in Sufism, and his years of experience as a spiritual teacher in the United States and Europe" (p.5-6). Marshak argues that each of these men integrated Eastern and Western thought in their life and work. This integration is important because the vision is one that may have global implications. One interesting recent development is how Waldorf education is spreading around the world. I believe this is because Steiner's approach has elements (e.g., Theosophy) that allow Waldorf education to transcend its Western roots.

The common vision described in the book includes three elements: a vision of human nature, human development, and education. The vision of human nature is a multilayered one where human beings have four subsystems and each subsystem is connected to a different plane of energy. The first subsystem is the physical being on the material plane; the second is a life force being which exists on a plane of vital energies; the third is a mental being which exists on the plane of mind; and the fourth is a spiritual being that exists on a higher plane of divine energy.

Steiner, Aurobindo, and Inayat Kahn also see human development occurring in three broad stages from birth to age 21. The three stages include:

- Birth through age 6 where the child learns primarily through physical experience and imitating adults.
- Ages 6 through 12 to 14 where the child learns through "her senses, feelings, and imagination" and "needs to experience stories and pictures that convey aesthetic and moral values, that she can visualize and take within herself for guidance and enduring meaning" (p. 14).
- Ages 14 to 21 where the adolescent begins to fully develop his or her intellectual abilities. Ideas now become important as young people often can commit themselves to ideas with energy and passion.

Finally, the common vision includes some basic principles with regard to child raising and education. These principles include:

- The parents and teacher need to see the wholeness of the child and be aware of the various subsystems (e.g., physical, life force, mental, and spiritual).
- Each child has an *inner teacher* that is the innate wisdom within each person. It is important that the parents and teacher respect this inner wisdom and nurture its development.
- The parents and teacher should work on their own unfoldment since it is the qualities of the adult that have the most impact on the child. In brief, the love and wisdom of the parents and teacher are more important than the skills and knowledge that they possess.
- The task of the parents and teacher is not to "shape or mold the child but to help, guide and nurture her" (p. 20).

This vision has its roots in the work of other educators such as Rosseau, Pestalozzi, Froebel, and Tolstoy (Miller, 1996). All of these educators believed in the innate goodness of the child and that a teacher's role was to nurture this goodness so that it would unfold naturally.

Marshak is also careful to describe the differences among these thinkers, and devotes an entire chapter (Chapter 9) to explain the divergences. For example, one of the differences described by Marshak focuses on

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the life force energy, or vital being, and its location with respect to desires and energies. Steiner describes desires and emotions as faculties of the soul, while Inayat Khan describes emotions as the energy of the heart. Aurobindo includes emotions as simply within what he calls vital being. Despite these and other differences Marshak argues that a common vision holds, particularly around the idea that within each person is a spiritual core, the true self.

Marshak discusses how the ideas of these thinkers have been put into practice. For example, Marshak describes his visit to a second-grade classroom in a Waldorf school. He describes each event as it unfolds in the classroom and then summarizes the main principles that underlie what he saw. Some of these principles include:

- The child learns from her senses, feelings, and imagination, not from abstractions.
- Joyous, aesthetic activity is the core of the second-grade day and is expressed through song, movement, and clapping games.
- All intellectual work is connected to aesthetic activity. Counting numbers is done through clapping hands, while French is learned through games and songs.
- Stories, myths, and legends are used to engage the moral and aesthetic sensibilities of the child, and in grade two this is done, in part, through Celtic tales.

The examples described help ground the ideas explained earlier in the book. The only disappointing part of the book for me was the example of Inayat Kahn, which comes from a discussion with a teacher rather than direct observation of a school or center.

In sum, the type of synthesis that Marshak develops is important since he makes a strong connection between theory and practice in this book. The common vision is first explained in theoretical terms and then the application of the vision is illustrated by describing an example of educational practice. This connection, I believe, is important if we are to move beyond the narrow vision of education currently being promoted by government officials, which is one of developing people so that they can compete in the global economy. One of the problems in education today is a lack of vision.

We have "mission statements" that focus on more accountability and testing. We read constantly about how students from one country compare with students in another country in math and science, without ever asking what knowledge is worth learning. Lost in all of this is a basic question: What kind of human beings do we want our children to become? Do we want to produce individuals whose sole purpose in life is to produce, compete, and consume, or do we want people who can make sound judgments and feel compassion for other beings? Marshak has provided an important contribution to how we can actually educate complete human beings.

Reference

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Teaching for Diversity and Social Justice: A Sourcebook

Edited by Maurianne Adams, Lee Anne Bell, Pat Griffin

Published by Routledge (New York & London), 1997, 374 pp.

Reviewed by Julie Andrzejewski

I walked into the discussion section to hear a young man reading: "You and your same sex partner have decided to become parents. How will you do it — alternative insemination, intercourse, adoption? How will you tell your families? Which partner will give birth (if you are women)? How will you decide? If you choose adoption, how will you deal with the agencies' failure to recognize gay/lesbian couples? How will you work out custody arrangements in the event of separation, death, challenge by one partner's family? When will you talk to the child about having lesbian, gay, and bisexual parents?" (p. 154).

The student paused, then started answering the questions. "If I were a lesbian, I would definitely want artificial insemination. As a gay man, I would probably adopt, but I realize my partner and I might have difficulty. We would definitely make all the decisions together and tell our families together. We would want the families involved and supportive of the child. I would want to be very open with the child about our relationship. I think that would be the best way to prepare the child for any problems."

I was impressed by the new openness in this seminar group where a number of students had previously expressed discomfort about discussing oppression based on sexual orientation. The graduate facilitator had drawn these questions from the book, *Teaching for Diversity and Social Justice*, to give students the opportunity to consider the seriousness of the oppression of lesbians, gay men, and bisexuals. Each small group had

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a different set of issues to address, as follows:

- You and your same sex partner have decided to have a celebration of commitment.
- Your same sex partner has been in a serious automobile accident and is in the intensive care unit of the hospital.
- You have been victimized by anti-gay violence.
- You are a (gay) teacher or coach in a high school (pp. 153- 154).

The reports continued around the room until everyone had spoken. Some students still indicated discomfort with issues of sexuality but declared that they certainly did not condone violence or the firing of a teacher or the refusal to share information about an injured partner. The exercise had moved students to a new level of understanding. Thinking about the actual barriers that gay, lesbian, bisexual, and transgender people face, they became less defensive. Later, the graduate facilitator told me how *Teaching for Diversity and Social Justice* had helped him establish a classroom climate where the students could examine new perspectives. Indeed, he was carefully following the advice of Adams, Bell, and Griffin, to "construct an environment that is supportive and trustworthy, one in which uncomfortable and challenging issues may be raised and explored, where students can express discomfort, confusion, anger, and fear and know they will be treated with dignity and respect" (p. 49).

Establishing such an environment was especially important. This was the first time a new educational initiative for first quarter, first year students, to prevent harassment and hate crimes on campus, was being offered. Four graduate interns were working intensively with me to facilitate small groups of thirteen students who met regularly throughout the course to discuss readings, speakers, panels, videos, and large group exercises. The graduate interns were eager to learn constructive methods of encouraging first year students to reflect upon issues of safety and justice on campus. *Teaching for Diversity and Social Justice: A Sourcebook* proved to be a key resource.

If I had to choose one book to capture the essence of teaching and learning about oppression and justice in the United States, it would be Adams, Bell, and Griffin's book. In just 374 pages, they have condensed, in the most accessible language, the results of twenty years of collective pedagogical wisdom garnered from teaching issues of social justice to undergraduate and graduate students. When I was looking for a text for my graduate course on teaching social responsibility, this book stood out among those I considered. I am writing this review directly from my experience using it to help graduate students develop curriculum for a variety of settings. After completing my graduate course, four graduate interns volunteered to teach with the project to prevent harassment and hate crimes. *Teaching for Diversity and Social Justice* lived up to its name as a sourcebook throughout this experience. Each chapter is packed with accessible theories, understandable stages of development, grounded pedagogical approaches, clear explanations, usable curriculum plans, and hands-on exercises.

Theory and practice are thoroughly integrated throughout the text in a very user-friendly manner. Clear and bold headings outline the content for easy identification and referral. Definitions, necessary but often boring to undergraduates, are presented in a conversational tone, with examples drawn from many different issues. The authors describe a variety of methodologies focused on "active and experiential" teaching (p.xv ii). While the chapters are individually authored, it is clear that this book is the result of the excellent collaboration of many minds.

Adams, Bell, and Griffin broadly define diversity including the issues of racism, sexism, heterosexism, anti-Semitism, ableism, and classism. Ageism is recognized as a form of oppression but not included because a fully developed curriculum was not available at the time of publication. They reject analysis along simple categories with the contention that individuals are members of more than one social group (race, ethnicity, gender, age, class, sexual orientation, religion, ability, or disability, etc.) and, therefore, may be a target of oppression in some areas and an agent in others. The authors also note that "no one form of oppression is the base for all others, and no simple definition includes them all, but all are connected within a system..." (p. 6).

Stages of social identity development are described, and they help a prospective (or even experienced) teacher visualize the movement of students as they journey through the tremendous growth from naivete through resistance and redefinition to eventual internalization. As a reader, I found myself revisiting my own journey through these stages and identifying areas where I still have a distance to travel. Indeed, *Teaching for Diversity and Social Justice* educates teachers about issues with which they may not yet be familiar. It is not uncommon that a teacher may be very knowledgeable about one or two issues but substantially less informed about others. This book provides an impetus for teachers to expand their knowledge of diversity into new arenas. In addition, identification with the curricula is enhanced by drawing from many different pedagogical frameworks (Adams, Ch. 3) to reconnect readers with their own knowledge base and challenge them to see interrelationships with other educational paradigms.

With the theoretical and pedagogical foundations established, Bell and Griffin describe how to design and plan social justice education courses in Chapter 4. Keeping in mind social identity formation, they stress the importance of considering the characteristics of the students, matching the environment to student learning process, structuring content, sequencing, and accommodating various learning styles. Practical ideas abound. For instance, Bell and Griffin suggest sequencing from low risk to higher risk, from concrete to abstract, from personal to institutional, from diversity to justice, from what students already know to expanding levels of analysis, and from analysis to experimentation with new behaviors.

The next seven chapters present detailed curriculum designs beginning with an introductory module and moving to racism, sexism, heterosexism, anti-Semitism, ableism, and classism. An eighth chapter addresses instructional goals, learning outcomes, and teaching strategies that emerge throughout a multiple issue course. The introductory module (Chapter 5) lays the foundation for the single issue courses by outlining the dynamics of oppression, basic vocabulary, key concepts, and overall theoretical perspectives (p. 61). The underlying assumptions, consistent with the theoretical framework, are introduced to help the instructor and students begin with the same understandings. They are:

- It is not useful to argue about a hierarchy of oppressions.
- All forms of oppression are interconnected.
- Confronting oppression will benefit everyone.
- Fixing blame helps no one, taking responsibility helps everyone.
- Confronting social injustice is painful AND joyful (pp. 65- 66).

It is likely that some students may not necessarily agree with all of these assumptions. For instance, agents gain resource "benefits" from the oppression of targets. One can argue, and I do, that bringing about social justice may bring moral integrity, better relationships, and a multitude of other sources of personal fulfillment, but it usually must be acknowledged that some groups will have to give up some social power and resources for justice.

This same chapter (5) argues that, "while acknowledging that international events affect the experiences of social groups in the United States and that addressing oppression in other parts of the world is important, it has been our experience that most students in our courses can best begin to explore social justice issues through their own experiences in the United States" (p. 65). However, class stratification, patriarchy, and white supremacy in the United States are increasingly related to global policies (such as NAFTA and GATT) promulgated by transnational corporations. Such policies now supersede the laws and governments of nation-states and are having disastrous effects on populations in every corner of the world including the United States. It has been my experience that students can readily understand the oppression based on race, class, and gender created when transnational corporations sell clothing in the United States made by impoverished children in other countries. They can further explore the consequences to workers in the United States (especially workers of color and women workers) when corporations move textile industries to other countries to cut labor costs. Similarly, environmental issues are integrally connected with social justice issues as well. Nationally and internationally, environmental destruction and hazardous waste accompanies oppression based on race, gender, class, and other identities (Shiva, 1997). Thus, a global context could enhance rather than detract from understanding oppression in the United States.

It is important to recognize that the modules presented in *Teaching for Diversity and Social Justice* are planned for an introductory course. Each curriculum is designed for adaptability to traditional or alternative educational settings. Beginning with Chapter 5, the curriculum is presented with detailed explanations of every step. Appendices are attached to the chapters for handy availability of materials for teachers. The appendices include such items as "Key Events in the Struggle for Racial Equality in the United States"; "Status of Women Quiz"; "Lesbian, Gay, Bisexual Oppression History Timeline"; "Historical Themes in anti-Semitism"; "Disability Rights Movement Lecture Outline"; and "Classism Quiz."

The single issue curriculum designs (racism, sexism, heterosexism, etc.) are written by different authors, and present 14-hour modules on each social justice issue. The authors do not avoid complex and controversial issues such as biracial or multiracial identities; conflict among targeted racial groups, men's movements; conflict within the lesbian, gay, bisexual, transgender communities; Palestinian rights, and criticism of Israel, Black-Jewish Relations. While this book cannot address such topics thoroughly, the key issues are outlined and references to other sources identified. These brief synopses are extremely beneficial in preparing a new instructor for the types of questions or concerns that may arise during class. Each chapter is replete with specific concepts, assumptions, exercises, facilitation suggestions, experiential activities, debriefing plans, sug-

gested videos with helpful definitions, lecture outlines, quizzes, inventories, charts, worksheets, and background materials.

I especially appreciated the third part of the book, "Issues for Teachers and Trainers." However, I would suggest reading Chapter 15 on "Knowing Our Students" first so that it could be utilized in planning curriculum. The chapter on "Facilitating Social Justice Education Courses" provided an outstanding discussion of common student reactions, difficult classroom situations, and pedagogical techniques for sensitively addressing issues. Various forms of resistance, anger, immobilization, distancing, and conversion are likely reactions. Each are discussed with practical student-centered methods to facilitate learning. Some interesting examples are:

- Protection of agent group members by target group members.
- Agents focus on an identity in which they are members of the targeted group.
- Invalidation of the teacher or the class.
- Anecdote raised to the status of generalized fact.
- The need to see only the most extreme bigots as agents of oppression.
- Willing to focus on the oppression of targets, but not on the privilege of agents.
- Romanticizing target groups or demonizing agent groups (Chapter 15).

The chapter, "Knowing Ourselves As Instructors," very thoughtfully provides personal support for the instructor on issues ranging from confronting our own biases, to doubts and ambivalence about one's own competency, to institutional risks and dangers. While this chapter does not claim to present all of the answers, the act of naming these struggles allows the reader to know she/he is not alone and provides a forum to encourage further exploration of them. Overall, *Teaching for Diversity and Social Justice* is the most practical, comprehensive text I have seen to help new and experienced instructors understand the interrelationships of oppression and justice, create their own curriculum, and deal with the many possible scenarios which could develop in their classes.

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Open Minds to Equality: A Sourcebook of Learning Activities to Affirm Diversity and Promote Equity

by Nancy Schniedewind and Ellen Davidson

2nd ed. published by Allyn and Bacon, 1998

Reviewed by Steven A. Schapiro

The long-awaited second edition to the best-selling *Open Minds to Equality* is an updated and expanded sourcebook of activities designed to help students to understand and work to change inequalities based on race, gender, class, age, language, sexual orientation, physical/mental ability, and religion. It rests on an approach to teaching and learning that promotes respect for diversity and interpersonal equality among students through the development of a classroom climate that is participatory, cooperative, and democratic. Designed primarily for upper elementary and middle school students, the teacher and student-tested activities described can be adapted for use with high school and college students as well.

This hopeful and inspiring book opens with these words in the authors' statement of purpose:

> We have a dream. We envision classrooms and schools that are communities where students and teachers feel secure and cared about and where all forms of diversity are respected and appreciated. Here people don't feel afraid or threatened by those different from themselves, rather they feel stimulated by new discoveries about diversity that they regularly make. These are democratic classrooms and schools where all students are treated fairly and have equitable access to resources and opportunities. We envision a similar society and believe that as students and teachers we have the potential to contribute to the creation of that society. (p. 29)

While recognizing that it is far from easy, Schniedewind and Davidson show us, in concrete and explicit terms, how we can use the activities in this book to help put more and more of that vision into practice.

When the first edition of *Open Minds to Equality* was published in 1983, it stood alone as one of the few comprehensive resources available to teachers interested in learning how to affirm diversity and promote equity in their classrooms. Since then, many very useful books have been published on the theory and practice of multicultural education (See, for example, Sleeter 1991, 1997; Sleeter and Grant 1992; Banks 1988; and Nieto 1992). Yet, as Schniedewind and Davidson point out, the movement for multicultural education has been met with a backlash that has made the current climate in our schools and our society much less hospi-

table to most forms of diversity and equity education.

> Today bigotry is more socially condoned. Popular talk show hosts encourage divisiveness and the language of hate. Powerful interests have organized to push back the gains that women, people of color, and other oppressed groups had made in the 1960s and 1970s. More fearful and less hopeful, many people concerned with their own survival don't see the connections between themselves and people different from them who may be similarly oppressed. (p. 29)

A significant part of this dynamic is the increasing economic inequality that pits one group against another and the ideology of competitive individualism that leads people to define their lack of success as an individual failure rather than a social problem.

The new edition of this book responds to this new context by incorporating perspectives and activities dealing with differences in regard to religion, physical and mental abilities, sexual orientation, and language. Recognizing our increased awareness of these other forms of oppression, more complex and sophisticated lessons are included. The lessons are aimed at helping students understand the connections, similarities, and uniqueness among and between these various forms of oppressions, and the complex dynamics of internalized and horizontal oppression. There is also an updated and extensive annotated resource section, including suggested background reading for teachers, curriculum materials, media resources, periodicals, organizations, and both fiction and nonfiction reading for children of all ages. This resource section alone makes the book well worth its price.

The current backlash against multiculturalism calls for approaches to diversity and equity education that can be incorporated into the regular curriculum, that can support the achievement of standards and performance goals in traditional subject matter, and that can, in nonthreatening ways, help teachers and students alike to recognize that we all have a stake in creating a more just and more equitable society. This book provides justt such an approach.

In their book, *Making Choices for Multicultural Education,* Christine Sleeter and Carl Grant outline five such approaches, all of which have their limitations as well as their strengths. The human relations approach, for instance, helps students to understand, accept, and communicate with one another on a personal level without helping them to understand the broader societal and institutional dynamics of oppression, leaving students with the impression that good human relations is all that's needed to solve the problem.

The multicultural education approach encourages cultural pluralism and social structural equality, without necessarily building respectful feelings and cooperative interpersonal skills among students. This leaves open the possibility of this approach becoming another form of cultural transmission or a source of competition among groups for cultural recognition that does not help students to identify their own stake in the change process or what they have in common with others. The multicultural social transformation approach prepares students to work actively toward social equality. Still, without the addition of the human relations approach and a student-centered teaching process it also runs the risk of becoming another form of political and social indoctrination. *Open Minds to Equality* integrates aspects of all three of these approaches, building on their strengths and mitigating their potential limitations as it brings these components together as necessary elements for a form of education that can affirm diversity, promote equality, and empower students.

In the book's first two chapters, the authors describe the theoretical and conceptual underpinnings of their approach, providing teachers with the basic background knowledge they need to carry it out. For them, equality implies that "all people are truly valued and treated fairly; people from diverse groups are respected; social structures — from our classrooms to our communities to the broader society — are democratic and provide all people equitable opportunities" (p. 5). Building on that definition they explain the fundamental ways in which the roadblocks to equality (the various "isms") are played out in our classrooms, schools, and communities and what we can do to begin to counteract them. The "isms" discussed include racism, sexism, classism, ageism, heterosexism, linguicism, anti-Semitism and other religious oppression, ableism, and competitive individualism. Interspersed into the text are very helpful quotations from other sources and suggestions for further reading.

The book's second chapter explains the pedagogical model used to help students and teachers learn how to dismantle these roadblocks, a model that recognizes the importance of both personal and social change.

> People working for a better society will be more successful with self-knowledge and interpersonal skills. Similarly, the more knowledge they have of both systems that maintain inequality and strategies for collective action, the more effectively they can change discriminatory institutions. (p.24)

This "humanistic, social justice approach for teaching about equality" draws from the theory and practice of humanistic education the personally reflective perspectives and experiential skills needed to help students strengthen their personal power and build a supportive classroom community. In so doing, they recognize that "a trusting classroom community is the basis for both opening minds to equality and for strong aca-

demic learning" (p. 24), and that students learn as much from the process of classroom interaction as they do from the content. From social justice education, the approach draws on the socially conscious perspectives and skills for critical analysis required for the development of critical awareness and the capacity to take action for social change that challenges inequality.

Integrating these approaches, the rest of the book consists of descriptions of various learning activities and suggestions for how they can be used to take students through a sequential process for creating inclusive classrooms and schools, "a process through which people gain greater understanding about personal and institutional inequality and develop the skills and commitment to foster change" (p. 2). Recognizing that dealing with diversity integrates both cognitive and affective learning, this sequence is vitally important since it "engages people in a nonthreatening way rather than alienating them" (p. 2).

This sequential process is worth summarizing here because of its general applicability. It begins with the creation of an "inclusive, trusting community where students appreciate diversity in the classroom" (p. 36). Activities designed for that purpose are described in chapters on "Building Trust and Communication" (chapter 3) and "Developing Skills for Creative Cooperation" (chapter 4). The sort of trusting learning environment that such activities can help to create provides a strong foundation for any kind of learning, and if this book were to stop right there, it would already be making an important contribution. However, the creation of that learning environment and the development of these skills is but an initial move toward the next step which is to "enable students to empathize with others' life experiences and explore why and how inequality based on difference exists" (p. 78). Beginning with activities designed to help them see the world through a variety of perspectives and to share their own, students move to activities which help them understand the concepts of prejudice, discrimination, and stereotyping. They learn how the dynamics of both individual and institutionalized oppression affect members of various social groups, and to recognize the relationship between privilege for some and oppression for others.

With that awareness and conceptual framework developed, the next step is to help "students examine discrimination in the institutions in their lives and see how it has affected them" (p. 214). The authors describe a variety of activities designed to help students use their own family, school, and community as laboratories in which to learn how inequality is institutionalized and how prejudice affects them in their own lives.

Building on this knowledge and the motivation for action that it engenders, the next step is to "empower students to envision and create changes to foster greater equality" (p. 268). A chapter called "Things Can Be Different" includes a variety of activities to help students learn inspiring stories of what people (including young people) in the past and the present have done and are doing to work toward greater equality and social justice. The final chapter helps students to plan and carry out action projects in their own schools and communities through which they can do something about the inequities they have discovered.

The learning activities do not leave students with the despair and guilt that often accompanies a new awareness of injustice, rather it leaves students with the knowledge, skills, and support to do something about it. This book shows us how to move through the pain of that awareness to new levels of responsibility and empowerment. The curriculum as a whole engages students in both "denouncing oppressive structures and announcing humanizing ones" (Freire 1974, 220). In Freire's pedagogy, and in the one described in this book, it is from a combination of process and content that this announcing can come, both through the affirming, dialogic educational experience itself and through the actions students and teachers take together to make society more like the community they have experienced in their classroom. This wonderful book shows what can be done and gives teachers the tools with which to do it. For teachers interested in affirming diversity and promoting equity in their classrooms and in the community beyond, I can not think of a better place to start. This book deserves a place on every teachers' bookshelf, and in the reading list of every teacher education program.

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Special Book Supplement

The Design Solution

Systems Thinking

Edward T. Clark, Jr.

If educational reform is fundamentally a design problem, the solution is to be found in systems thinking.

> The great ... issues of our times have to do in one way or another with our failure to see things in their entirety. That failure occurs when minds are taught to think in boxes and not taught to transcend those boxes or to question overly much how they fit with other boxes. (David Orr)

Schools that teach children to take life sitting down simply are not preparing them for life in the 21st century. If students are to acquire the insights, knowledge, and skills needed for personal success and social survival, we will have to completely redesign education. Toward this end, we must not only examine the assumptions that shape current educational policy and practice, but also identify and explore new assumptions that are both appropriate to the desired outcomes and, at the same time, realistic, reasonable, and practical. These assumptions must have a solid foundation — ideally a combination of research, experience, intuition, and insight. Fortunately, there are a number of such assumptions about human nature and human potential, the nature of knowledge, intelligence, thinking and learning, and, at a more fundamental level, the nature of the universe and our relationship to it, which have emerged from research in many fields, including physics, anthropology, psychology, and semantics. Ironically, many of these have been the "espoused theories" of leading educators for more than a decade. But most have a much more ancient lineage, having shaped human thinking and behavior in indigenous cultures for thousands of years. Indeed, they are often implicit in the language we use. For example, the Latin root word *educare* from which our word education is derived, means literally *to draw forth*. The obvious assumption is that there is an unrealized potential within each of us that can be drawn forth. This was, of course, the assumption upon which the Socratic dialogue — often considered the epitome of good educational practice —

This article is the second chapter in Clark's *Designing and Implementing an Integrated Curriculum: A Student-Centered Approach*, published in 1997 by Holistic Education Press. Chapter 1 ("Educational Reform: A Design Problem") was printed in the Winter 1997 issue of the *Holistic Education Review*. The remaining chapters will be published in future issues of *Encounter*. Readers interested in purchasing the bound edition at $18.95 per copy are invited to place their orders by phone at 1-800-639-4122.

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was based. Even though these assumptions have not been manifest in mainstream education, most of us intuitively accept their validity.

Assumptions About Human Nature

Seventy-five years ago Alfred North Whitehead (1957) stated what should be obvious.

> Students are alive, and the purpose of education is to stimulate and guide their self-development. It follows as a corollary from this premise that the teachers also should be alive with living thoughts.

More recently, early childhood educator Katharine Kersey (1983) suggested a powerful metaphor that carries with it a set of assumptions about education that have the potential for literally transforming educational practice.

> Children are given to us — on loan — for a very short period of time. They come to us like packets of flower seeds, with no pictures on the cover and no guarantees. We do not know what they will look like, be like, act like, or have the potential to become.
>
> Our job, like the gardener's, is to meet their needs as best we can: to give proper nourishment, love, attention, and caring, and to hope for the best. The gardener learns to be "tuned into" the plant.

Implicit in this perspective is the assumption of an innate human potential far beyond the bounds of traditional thinking. Just as every acorn has the potential to become a mighty oak, all children have a unmeasurable potential to be fully human. In short, with the obvious exception of brain damage, every child is born with a wide range of potentials that we have only just begun to understand.

For example, Michael Murphy, in his recent book *The Future of the Body* (1992), focuses on what Jean Houston calls "the possible human." Studying the oral and written histories of many cultures, Murphy sought evidence of extraordinary physical, mental, and spiritual capacities in areas such as metanormal perception, cognition, movement, vitality, and spiritual development. Recognizing the necessity to "reject scientific, religious, and other prejudices against certain time-tested data from (non-conventional) traditions," he explores such unorthodox sources as the contemplative traditions, anthropological studies of shamanism, and psychical research. Murphy also explores the extensive literature that has emerged from the physical, biological, and human sciences, and new fields such as psychoneuroimmunology. He concludes:

> Taken in its entirety, the material presented in this book suggests that human nature harbors extraordinary attributes that may appear in sickness, healing, or programs for growth, either spontaneously or through formal discipline. While such attributes require long-term cultivation for their fullest development, they frequently appear to be freely given, sometimes when we do not seek or expect them.

If Murphy accurately assesses human possibilities, we can no longer afford to limit our understanding of human potential to the assumptions that presently shape our educational system. As every parent intuitively knows, while current assumptions may contain partial truths, they are not adequate to explain the incalculable mystery, beauty, and elegance of a newborn infant. In spite of traditional science's claim of a mechanistic universe, we all know that children simply cannot be reduced to materialistic dimensions. Caring parents intuitively recognize that their children represent a potential that can only be anticipated — call it life, spirit, consciousness, or as the ancient Hebrews termed it, breath. Refer to it as will, thought, or mind. However we define this potential, we must acknowledge that it exists and that it reflects the mysterious, unknowable elements of existence that cannot be reduced to quantifiable physical matter.

Thus, before we can design a new structure for education, it is necessary to identify those alternative assumptions that can guide and shape educational transformation. As I have indicated, most of them are self-evident to parents and teachers. Because these are things we know but don't know we know, it is necessary to *educate* ourselves by *calling them forth* out of our own intuitive wisdom.

Assumptions About the Nature of the Universe

As noted in Chapter 1 (See Winter 1997 *Holistic Education Review*), our assumptions about human nature reflect even more fundamental assumptions — first principles — about the nature of the universe. In the first chapter I identified an *"assumption of separateness"* as the first principle that gave shape to the technological worldview and all of our Western institutions including education. This perspective is fragmented, impersonal, random, and mechanistic. In contrast, the assumptions discussed above reflect a radically different worldview based on an *"assumption of wholeness."* This assumption holds that at some fundamental level of reality, *everything is connected to everything else.* Supported by the Theory of Relativity, quantum physics, chaos theory, and ecology, this worldview — which I

call the *"ecological worldview"* — has only recently emerged into public consciousness, having received pragmatic validity and renewed vitality from the photographs of Earth taken from space. However, its roots are deep in the intuitive wisdom of humankind and are evident in all of the world's religions and indigenous cultures. Even as the earliest human experiences recognized a fundamental dualism implicit in the nature of things — yin/yang, you/me, right/left, light/dark — it was also recognized that these dualisms were grounded in a primal wholeness. This perspective is explicit in what is often referred to as "The Perennial Wisdom" of humankind. This was not a philosophical position that our primal ancestors arrived at intellectually. Rather it emerged from their experiential and intuitive knowledge of a profound relationship of connectedness to the Earth and all living things. It was not until the scientific revolution that duality emerged as the defining characteristic of the universe. In short, this unitive worldview is not new. The relevance of this holistic perspective to education was made explicit in a report of the Carnegie Foundation for the Advancement of Teaching (Boyer and Levine n.d.) almost 20 years ago. The report stated the case succinctly: "The goal of common learning is to understand the 'connectedness of things.' " To achieve this goal, however, educators must embrace a radically different understanding not only of human nature, but of the nature of knowledge, intelligence, thinking and learning as well.

It should be no surprise to find that the scientific method with its powerful array of analytical tools soon reduced the entire world into a virtually infinite assortment of discrete facts, each with its carefully crafted, precise definition. In education, concepts like knowledge, intelligence, thinking, and learning were defined in quantifiable terms designed to satisfy the empirical requirements of a culture firmly committed to the technological worldview. Knowledge was reduced to the accumulation of facts; intelligence was defined as a fixed, mathematically measurable capacity for linear, sequential verbal, and mathematical abilities; thinking was considered to be the function of an identifiable set of discrete cognitive tools, e.g., Bloom's Taxonomy; and learning was universally thought of in terms of memory and recall. While educational policy and practice based on these theoretical constructs fostered the kind of knowledge and skills that were valued by a rapidly expanding industrial society, as is evident from the current failures of our educational system and by the crises which face Western culture, this kind of education is no longer relevant to the real world. However, before we can comprehend the magnitude of the shift in thinking that must take place, it is important to understand both the current perspective, shaped as it was by the theories of eighteenth and nineteenth century science, and the emerging perspective that is being shaped by new theories in both the natural and behavioral sciences.

Because of its analytical, reductionist methodology, Willis Harman (1988) has called Newtonian/Cartesian science a "science of the parts." Without discounting its value, Harman argues convincingly that, as a result of relativity theory, quantum mechanics, and ecology, what is rapidly emerging today is a "science of whole systems" — a science that is complementary to rather than competitive with a science of the parts. With its focus on the big picture, systems science provides an important and necessary context for understanding and applying traditional science's analytical expertise. Obviously, the two methodologies are based on different assumptions and models about the nature of the world. With the machine as its guiding metaphor, Newtonian science is based on certain theoretical assumptions that are materialistic and mechanistic in character. While there are many natural laws that have quantifiable, machinelike qualities, e.g., laws of motion, the mechanistic metaphor is no longer sufficient to represent our expanding knowledge of the universe. It should come as no surprise to find that the guiding metaphor for systems science is the organism. The theoretical foundation for this science of whole systems is known as the Theory of Living Systems. Just as analytical thinking is the primary cognitive strategy for understanding the parts, so systems thinking is the primary cognitive strategy for understanding systems as unified wholes.

The Assumptions of the Scientific Method

It is important to see analytical thinking and systems thinking as complementary rather than contradictory or oppositional ways of thinking. Each of them has several defining characteristics that can help us understand their power, their relevance, and their limitations. Because analytical thinking is fundamental to the scientific method, we will explore some of the implications implicit in the methodology.

The methodology of science assumes a mechanical universe. Descartes' greatest legacy was surely the mechanistic philosophy. From this philosophical base, it was a logical step to the notion that the universe, consisting of matter and motion, was a vast machine — Newton's clock — wound up by God to tick forever. All nonmaterial phenomena ultimately have a material basis and thus can be explained empirically. It didn't take long for men — and it was a male-dominated era — to design an economic system that ran like clockwork with humans perceived and treated as interchangeable cogs

in a great industrial machine. As science learned more about the human body, it, too, came to be understood and treated as a machine composed of pumps, bellows, levers, and valves. The obvious consequence was, in time, a radical transformation of every facet of human culture — a transformation based on the assumption that we inhabit an inert, dead planet in an inert, random universe.

Four methodological characteristics are implicit in the scientific method: (a) It is reductionist and atomistic; (b) it is rational, pragmatic, and empirical; (c) it assumes objectivity; and (d) it assumes an either/or logic.

The methodology of science is reductionist and atomistic. As has already been noted, the scientific method is analytical in nature. Because things, problems, and knowledge itself are complex by nature, in order to understand them, they must be broken down into their simplest discrete component parts. Once these parts have been comprehended, then, using logical, sequential steps, they can then be incrementally reassembled into the whole. Facts, then, are considered to be building blocks of knowledge — the basic "stuff" out of which ideas, concepts, and knowledge can be incrementally created. Implicit in this methodology are the assumptions that *meaning is inherent in the self-evident parts* and that *the whole is equal to a sum of its parts.* Larger meanings can be discovered only by first understanding the parts and then reconstructing the whole.

The methodology of science is rational, pragmatic, and empirical. Rationalism is the belief that human reason, based on observation and common sense, is the primary source of our knowledge of the world. This obviously highly practical approach gave birth to a philosophical position called positivism. Positivism provided the major theme of the scientific revolution, namely that "Our goal is how, not why." Science historian Morris Berman (1984) summarized Newton's conclusion. "That I cannot explain gravity is irrelevant. I can measure it, observe it, make predictions based on it, and this is all the scientist has to do."

The methodology assumes objectivity. Because reality is fixed and absolute, it is possible to completely separate the observer from that which is being observed and measured. Objective research is based on the assumption that two people observing or measuring the same phenomenon will agree on details concerning the object of their investigation. Thus, the only way to eliminate bias and other value-laden, subjective qualities from research is by the appropriate application of the scientific method.

The methodology assumes an "either/or" logic based on the Aristotelian principle of noncontradiction. Aristotle argued that a "thing cannot both be and not be at the same time." This led to the creation of distinctions such as living/nonliving. While these distinctions appropriately established the differences between things *by definition*, in time these same definitions came to be accepted as reality itself.

Power, Relevance, and Limitations of the Scientific Method

The power and value of the scientific method is obvious. It has provided us with all of the technological advantages of modernity and made it possible for us to gain significant insights into the way things work. By recognizing that both the smallest and the largest objects in the universe obey identical laws, we have learned with a fairly high level of accuracy to predict, and thus anticipate events such as earthquakes, volcanoes, and hurricanes.

Equally obvious, however, is that this methodology has its limitations. There are times when even its staunchest protagonists must wonder whether some of the results of science and technology are not consequences of some "Faustian bargain." As a consequence of its "assumed to be value-neutral" methodology, our home planet has become just another object to be manipulated and shaped to human size. This has resulted in what Morris Berman (1984) calls a profound "disenchantment of the world." In his words, because of its "rigid distinction between observer and observed, scientific consciousness is alienated consciousness.... I am an alienated 'thing' in a world of other, equally meaningless things."

A third limitation is that the methodology encourages an inflexible, literalistic interpretation of the universe. The tendency of the scientific method to define reality in precise, concrete terms that carry the aura of absolute certainty has led to the conclusion — to use Korsybski's term, that "the map *is* the territory" — that the universe is the way science has described it. For example, most educated people today seem to forget that the Big Bang Theory is still only a theory. There is not, nor ever can be, empirical, observable data that will prove or disprove the theory. In short, although this theoretical construct is internally consistent with the scientific description of the universe, it is not necessarily true in any ontological sense. This emphasis on words and their meaning based on "concrete knowledge of facts" is called *nominalism* — a philosophical perspective that defines the nature of reality in its own terms. This philosophical view has had a particularly powerful and pernicious influence in the social sciences in which empiricism is not as self-evident as in the physical sciences. One can measure and quantify elec-

tricity, but before one can measure a concept like intelligence, it is first necessary to define the concept, to reduce it to terms that are quantifiable. While such strategies have been useful in the past, they are becoming increasingly limiting and counterproductive.

Finally, and this may be its predominant limitation, in the analytical process the big picture of the whole gets lost: "You can't see the forest because of the trees." While there is nothing wrong with studying only trees, it is impossible to really understand the nature of trees without some insight as to the nature of the forest.

It goes without saying that in spite of its inherent limitations and outdated assumptions about the nature of the universe, this technological worldview continues to dominates educational practice. It should be equally clear, as Einstein observed more than half a century ago, "The world we have made as a result of the level of thinking we have done thus far creates problems we cannot solve at the same level of thinking. With the splitting of the atom, everything has changed but man's thinking."

The Systems View

There is another way of thinking that, because it is comprehensive, incorporates rather than replaces the analytical mode. It is generally called systems thinking and has, during the last decade, given rise to a different kind of science — a science of whole systems known as systems science. Systems science is based on the Theory of Living Systems and provides scientists with a wide variety of increasingly rigorous methodologies with which to study and more accurately predict the behavior of complex systems, e.g., the weather or a forest ecosystem. Because their focus is on the forest as an integrated *system* of relationships, rather than on the trees as separate entities, these methodologies lack the precision of analytical tools. On the other hand, they provide us with a more comprehensive understanding about the trees and the relationships that exist among them. To suggest that one perspective is truer or better than the other is like arguing that the perspective of the microscope is more true or better than the perspective of the telescope. Each provides important and necessary information about the nature of reality without which any insight, understanding, or knowledge is incomplete, biased, and fundamentally inaccurate. With the emergence of a vigorous systems science, the important thing is to know how these two complementary perspectives can be used for maximum insight, knowledge, and effectiveness.

This perspective reinforces the intuitive insight that *no single, discrete entity can be fully understood apart from the complex whole of which it is an integral part.* The whole provides the context without which our knowledge of the part is necessarily limited. For example, although a tree can be described with detailed precision, our understanding of the tree is severely limited unless we can study it in the context of its habitat — the forest or meadow ecosystem to which it belongs. This same contextual principle applies to our understanding of concepts like intelligence. Although we may define and describe intelligence in explicit terms, there is no way one can understand intelligence in isolation from a thinking and learning human organism. In short, systems thinking is contextual thinking because it recognizes that without a context, meaning is truncated and incomplete.

There are several characteristics of systems thinking that help distinguish it from analytical thinking: (a) It incorporates a both/and logic; (b) it assumes a living universe; (c) it values ecological thinking; (d) it recognizes that we live in a participatory universe; (e) it is at the same time both local and global; and (f) it honors the long-range view.

Systems thinking incorporates a both/and rather than an either/or logic. Analytical thinking is by its very nature an either/or process. By including one thing, its logic excludes another. Because systems thinking provides the big, comprehensive perspective, its logic is inclusive and integrative based on both/and thinking. In short, systems thinking unites opposites, honors diversity, and acknowledges differences, e.g., it respects the value of analytical detail. Because it is comprehensive, this way of thinking is generative and suggests new perspectives, new insights, and new ways of organizing information to achieve optimal outcomes. For example, while the systemic perspective recognizes the value of the scientific method and the benefits that have been derived from its technological accomplishments, it simultaneously honors the age-old wisdom and values that shaped human communities from the beginning. By combining these perspectives, we can design technologies that support human values and benefit, rather than destroy, the social bonds that maintain communities and stabilize cultures. Just as cross-country travelers need both local street maps and larger state maps to successfully arrive at their destinations, so we will need all of our cognitive resources — analysis and systemic — to address the multiple dilemmas that confront human societies at the planetary level.

Systems thinking assumes a living universe. In contrast to the lifeless machine, the metaphor that best represents the systems view of the world is the organism. This is most adequately embodied in the Gaia Hypothesis, which "considers earth as a living organism and humanity as its unfolding network of conscious-

ness" (Schaer 1988). This organic metaphor and the Theory of Living Systems upon which it is based, suggests that all of the planet's subsystems, both ecological and cultural, e.g., social, economic, and political systems, are also self-regulating, self-organizing living systems. At a macro-level, this metaphor also suggests that the universe itself may be a living system. While this is no more provable than the Big Bang Theory, it does reflect the internal consistency of the theory.

Systems thinking is ecological thinking. Because the Earth's ecological systems are authentic and practical models of living systems, what we know about how ecological systems function provides us with the best and most comprehensive understanding of how other living systems function. Thus, to understand the principles of ecology is to understand the principles of all living systems. Systems thinking, then, is applying these principles to increase our understanding of how cultural, economic, political, and organizational systems can be designed to function more effectively. This is why the emerging view is often called the ecological worldview.

Systems thinking recognizes that we live in a participatory universe. As we now know from even a cursory knowledge of quantum physics, the observer is always and unavoidably an influential part of every experiment. This, of course, disproves the notion that science is, or can be, objective. We are forced to acknowledge that all human experience, including so-called "objective" knowledge, is at some profoundly elemental level subjective in nature. This means that rather than being *discoverers* of objective knowledge, we are *creators* of knowledge — knowledge that always reflects the subjective perspectives of those who create it.

Systems thinking is both global and, at the same time, local. The essence of systems thinking is captured in the ubiquitous phrase, "think globally, act locally." This is the insight that *whatever influences a part of any system has an impact on the entire system* — the so-called "butterfly effect." Whether one is talking about butterflies and weather, the impact of DDT sprayed locally on global ecological systems, or the impact of political turmoil in a single country on the global economy, decisions made locally will *always* influence the whole, and therefore, must be made within that context. If we are consistent in our interpretation of systems theory, we must also conclude that every action that I take makes a difference on the entire system. In short, to quote ecologist Garrett Hardin, "You can never do just one thing." Mary Catherine Bateson (1994) points out, from a systems perspective, "the spotted owl stands for the preservation of an entire ecosystem." According to the ecological worldview, this kind of insight is ordinary common sense. In short, the entire Earth is our backyard! To think otherwise is like trying to drill a hole in one end of a crowded lifeboat and expecting the other end to remain afloat.

Systems thinking honors the long-range view. The Native American practice of making decisions in the context of "the seventh generation" is a pragmatic example of systems thinking. Because of its long-range perspective, systems thinking makes it easier to anticipate and thus address problems before they arise rather than waiting until they have happened and, one by one, attempt to solve them. Once we acknowledge the need for a long-range perspective, we can design the mechanisms by which a future goal is to be achieved.

Power, Relevance, and Limitations of Systems Thinking

In sum, the power, value, and relevance of systems thinking lies in the fact that systems science provides us with context — the big picture — without which the details, no matter how precise, can easily mislead us in our search for explanations. By making it possible to differentiate between anomalies and perturbations that are symptomatic of more fundamental disorders, and those that are inherent in the system, the big picture enables us to address the inherent disease rather than merely treat the symptoms. As the methodologies of system science become more sophisticated, its predictive power will become more powerful. Problems can be anticipated before they occur, making possible alternatives, e.g., evacuation prior to hurricanes, which were not previously available. Finally, systems thinking is a powerful tool for learning how to learn, that is, knowing how to get what one needs to know when it is needed. By providing the big picture, it enables one to select, organize, and apply only information that is relevant to a particular situation.

Systems thinking also has its limitations, the primary one being that it does not provide the kind of detail that is often required to "fix" something. For example, while systems thinking enables us to predict the potential ecological breakdown of a large body of water, e.g., Lake Erie, without the detailed knowledge of pollutants and their effect provided by a science of the parts, even relatively short-term rehabilitation would be impossible.

It becomes clear that both analytical thinking and systems thinking are complementary capacities. As I have noted, the real skill is learning how they can best be used together to create a sane, healthy world for all living things.

Systems Thinking and Intelligence, Thinking, and Learning

During the last 30 years, research in humanistic psychology, cognitive science, and pedagogy has provided significant new insights into the nature of intelligence, thinking, and learning. What has become clear is that what I have called systems thinking is more than just an alternative mode of thought. It is the natural, holistic way of thinking that is innate in humans. It doesn't need to be taught. Indeed, it can't be. It can only be nurtured. At the present, for many people, it is no more than a potential which, like a seed hidden in a cave, has lain dormant waiting for its time. The challenge facing educators today is to recognize that there is an enormous unrealized potential that is inherent in every child and to redesign educational practice so that schools nurture rather than destroy this potential.

Since education is primarily about knowledge, intelligence, thinking, and learning, any fundamental shift in our understanding of these concepts will by necessity lead to profound and even dramatic changes in the way we educate people in our society.

Once educators begin to think systemically, the process of educational transformation will begin in earnest. It already has started in a number of schools and classrooms — like Thompson Middle School*. Therefore, it is important that we explore in some depth what systems thinking is and does.

Systems thinking is a natural way of thinking that is integrative. Recent research has established that at what I call *the deep structure of thinking and learning*, these "cognitive" processes involve not only the right and left hemispheres of the neocortex but also, and simultaneously, the intuitive/affective processes associated with the limbic brain *and* the sensory processes associated with the reptilian brain (Ellison 1990). Since these sensory processes reflect input from every cell of the body, we can only conclude that *thinking and learning are integrative, whole-brain, whole-body processes that consist of rational, intuitive, affective, sensory, and volitional ways of knowing*. Indeed, studies suggest that thinking and learning, which on the surface appear to be two separate, albeit related, processes, at a structural level are essentially mirror images of each other. From this perspective, it would be accurate to envision *thinking/learning* as a single, integrated, contextual process with two faces. In all cases, for maximum efficiency and effectiveness, this process requires a gestalt, or big picture, as the context for processing incoming data.

Not only does this integrative structure shape all of the so-called thinking skills, e.g., analysis, synthesis, evaluation, problem-solving, decision-making, it patterns all modes of human learning, such as verbal, mathematical, kinesthetic, spatial. When a mode of thought such as analysis is limited to linear, sequential methodologies, as in the scientific method, the resulting information provides only a partial, and therefore inaccurate image of reality. While this information may be useful and necessary, it is not, nor ever can be, complete in and of itself. In short, science's image is a reduced image — as it might appear through a keyhole rather than an open door.

In all fairness it is important to recognize that responsible scientific investigators are *contextual thinkers*. Even as they analyse an object or event, they intuitively if not deliberately assume a *whole* as the context for their work. Unfortunately, because the scientific method does not explicitly acknowledge *context* as relevant to an investigation, the conclusions that are reached generally stand alone in grand isolation from the whole to which they belong. Thus, what may be no more than an interesting *correlation* — say between a gene and a particular form of cancer — can easily be interpreted as *casual*, particularly by a lay person.

We cannot really understand the functions we call thinking and learning apart from their relationship to intelligence. Physicist Peter Russell (1983) provides us with a systemic description of intelligence that highlights these functional qualities.

> Intelligence itself is an organizing principle within human consciousness. In its most generalized sense intelligence can be thought of as the ability to abstract raw sensory data, organizing our perceptions into meaningful wholes, form relationships between them (concepts, expectations, hypotheses, etc.), and thereby organize action in a purposeful way.

From this systemic perspective, it seems plausible to suggest that *intelligence, thinking, and learning are inseparable processes*. To be more accurate, *intelligence/thinking/learning is a single, dynamic, multi-faceted, functional capacity that is inherent in human consciousness. This capacity may be expressed in a variety of modes.*

It is not surprising to find a definition of learning that also reflects this conclusion. Australian whole language specialist Brian Cambourne (1989) writes that "Learning is a process that involves making connections, identifying patterns, and organizing previously unrelated bits of knowledge, behavior and action into new patterned wholes. The learner is the one who must make the connections."

* Thompson Middle School in St. Charles, IL., is mentioned frequently in this book and references to teachers' experiences with the integrated curriculum are drawn from there, unless otherwise noted.

Thompson Special Education teacher Jan Sutfin reflects on what happens when students are encouraged to make their own connections.

> I sincerely doubt that the higher order thinking that took place in that sixth grade, heterogeneously grouped classroom during our year together would have occurred had we still been separating subjects and using the text as our teaching tool. During that year, the students really became the curriculum as their concerns were addressed, their ideas were expressed and as they went home to share "big ideas" with their friends and parents. They also became more open minded and accepting of each other as valuable, responsible human beings. It was quite a year of intellectual growth for all the students which, of course, included my special ones too.

Sharon Young, another Special Education teacher at Thompson, comments on the effectiveness of a learner-centered approach. "More meaning is gained when the student makes his own personal connection. When completing a realistic task, my kids can make connections that I wouldn't have considered possible. They can also explain their reasoning."

Because of our reductionist mode of thought — reflected as it is in our language — our understanding of intelligence, thinking, and learning has been confined to precise definitions. The consequence is that we continue to treat them as three, separate, discrete functions connected in a linear, cause-and-effect relationship (intelligence >>> thinking >>> learning).

Though it is necessary and useful at times to consider these as separate functions, it is a fundamental epistemological error to assume that they are indeed separate. Because the understanding of intelligence, thinking, learning, knowledge, and information that dominate most educational practice continues to reflect the assumptions of scientific rationalism, most textbooks, curriculum, and teaching methods perpetuate this fundamental error.

The recognition that intelligence is a dynamic process has led to an explosion of research. Perhaps the best known is the work of Howard Gardner who has investigated the multidimensional nature of intelligence. He has identified seven diverse modes through which intelligence can be expressed (Gardner 1984). In addition to the commonly accepted verbal and mathematical modes, Gardner identifies musical, spatial, kinesthetic, intrapersonal, and interpersonal intelligences. He concludes that, probably, all children have the potential for genius in at least one of these modalities.

What if every student is potentially a genius? What if teachers began each day with the assumption that they had a classroom full of geniuses? What if schools recognized that each of the seven "intelligences" were equally relevant and valued manifestations of human potential?

Systems Thinking and Knowledge

New insights about the nature of intelligence have led to new assumptions about knowledge in general, and specifically about the relationship between knowledge and meaning. The search for meaning is recognized as being fundamental to human nature, and therefore central to the educational process. Based on her crosscultural studies, anthropologist Mary Catherine Bateson (1994) reinforces this perspective. "Humans construct meaning as spiders make webs.... This is how we survive, our primary evolutionary business."

However, just as a piece of a jigsaw puzzle is meaningless apart from the picture, so any given fact or isolated piece of raw data is meaningless apart from some larger context or whole. Meaningful knowledge — which, of course, is what we want to teach in our schools — is contextual knowledge. The essence of contextual knowledge is knowing how to identify, create, and explore contexts of meaning. Thinking contextually is the essence of systems thinking.

This new understanding of the nature of knowledge makes it clear that facts have no intrinsic meaning. Every fact represents a point of view, created and shaped within a specific cultural context and meaningful only within that context. For example, concepts such as sanity, intelligence, or morality are culturally relative and can have no absolute definition.

To appreciate the relationship between knowledge, context, and meaning, it is useful to understand how knowledge is structured. Hilda Taba (1982) has identified four levels of knowledge:

- Thought Systems
- Concepts
- Basic Ideas
- Facts

Conventional curricula are structured inductively, from bottom to top, treating facts as the building blocks of knowledge. Recognizing the role that context plays in thinking and learning, an integrated, learner-centered curriculum will be organized deductively, from top to bottom. It will begin with thought systems — the "big picture" — as a context from which concepts, basic ideas, and facts can be deduced and understood. When a curriculum is organized in this way, students experience using both deductive and inductive think-

ing/learning processes in an integrated, systemic manner. Because it resonates with the child's natural way of thinking and learning, this way of organizing the curriculum enhances their ability to select, organize, and apply concepts, ideas, and facts in meaningful and creative pursuits.

Thompson eighth grade science teacher Bonnie Pettebone writes of her experience.

> It's the Big Picture. That's what allows kids to really learn. I used to give them one of my great lectures and then turn them loose in the lab to "see" what I had already told them. Now, we start with a couple of weeks of self-paced labs. As the kids go through the labs, the activities do the teaching. It's amazing, they really discover it. They really do understand — so much better than before. Now I'm starting with the entire Periodic Table. This way they get the entire picture and make connections.

The Educational Relevance of Systems Thinking

If the insights noted above are indeed a reflection of the real world, several inescapable conclusions follow.

Systems thinking makes it possible to know more with less information. As the power of science to generate new knowledge about the world increased, the age of the Renaissance Man who presumably "knew it all," came to an end. In his place is the expert — one who "knows more and more about less and less." Unfortunately, when the expert's knowledge is applied without consideration of the context that the Renaissance Man intuitively understood, problems begin to appear, e.g., DDT and ozone depletion.

The expert is the logical product of an educational system that considers facts to be the building blocks of knowledge and organizes teaching and learning so that "the one with the most facts wins!" The highly publicized "world class standards" defended by educators and politicians alike, reflect this outdated perspective. Such an approach is not only destructive to the human potential for creativity and generativity, it has become increasingly impractical in an age in which the growth of information is exponential — in some fields doubling each year. In the same way that the picture of a jugsaw puzzle helps one be selective in searching for pieces, the systems perspective provides a gestalt that enables one to be selective in determining what detailed information is required. In short, we no longer have to "know it all" in order to understand an issue, a problem, or a field of study. We can literally know more with less information — a very powerful ability in an information age.

I have found the following analogy helpful in understanding how this is possible. When we compare the structure of knowledge with the structure of a house, we can make the following associations:

Thought Systems = Blueprints

Concepts = Framing

Basic Ideas = Room Dividers

Facts = Furniture

Thought systems are cognitive blueprints that show how the various concepts, ideas, and facts fit together within a given discipline. Concepts provide the conceptual framework, i.e., mental model, that gives shape and meaning to the thought system. Just as one knows more about a building by understanding its structure than from a pile of lumber, one can know more about a subject by understanding its conceptual structure, that is, the way it is organized. In short, one knows more with less detailed information. It is as simple as the insight that one learns more about a puzzle by spending five minutes studying the picture than by spending hours on sorting and fitting together pieces. In conclusion, *facts are not the building blocks of knowledge.* As Theodore Roszak (1994) observes, "Ideas come first." What he calls "master ideas," like *all men are created equal,* are not derived from some "body of facts" but rather are created by the imagination from experience. These master ideas often become the organizing principles that shape a culture. However, master ideas require living, vital, empirical expression to imbue them with meaning. In the same way, thought systems and conceptual structures need facts as the furniture that provides the detail and specificity, the color and texture, that enhances meaning and makes each thought system unique.

Thinking and learning are systemic processes. Just as facts were assumed to be the building blocks of knowledge, so thinking and learning were assumed to be inductive, linear processes. For example, a poster on the wall of a fifth grade classroom outlined the step-by-step approach that is ubiquitous in so-called "thinking skills" programs. A guide for teaching the thinking skill *synthesis,* the poster read as follows:

1. Delete trivial material.
2. Delete repetitious material.
3. Substitute a general term for a list of specific terms.
4. Combine a list of actions into a broad, single action.
5. Select a topic sentence.
6. Create a topic sentence.

In contrast, a deductive strategy for teaching a student how to synthesize a story might read: *Tell the story in one brief sentence.* The reader can decide which of these strategies is most natural and most effective.

While the inductive method — when used correctly — is appropriate to the empirically based scientific method, it is not an effective strategy for thinking/learning. As we have already seen, *the brain simply does not work that way!* Thinking and learning are systemic processes that *require a frame of reference for understanding and learning the parts.* This is true even with rote memory as evidenced by our propensity in preparation for examinations to create mnemonics as arbitrary frames of reference for organizing and remembering lists or groups of unrelated or uninteresting ideas. This tendency to create an arbitrary context is necessitated by the absence in most teaching of the use of "natural mnemonics," concepts such as Roszak's master ideas.

Humans are constructors of knowledge rather than discoverers of knowledge. Constructivism is a theory about the relationships between knowledge, learning, and meaning that draws on research in many fields, including cognitive psychology, physics, philosophy, and anthropology. "The theory defines knowledge as temporary, developmental, socially and culturally mediated, and thus, non-objective" (Brooks 1993). In short, "knowledge comes neither from the subject nor the object, but from the unity of the two." From this perspective, knowledge has more to do with *meaning and long-term understanding* than with formal descriptions of a "fixed world which the learner must come to know." According to the perspective of constructivism, each person is a constructor of knowledge and meaning.

While referring to the "structure of knowledge" can be misleading, it would be equally deceptive to suggest that knowledge is purely random. There is no meaning without structure. What the constructivist theory suggests is that there is a significant correlation between the functional process I have called intelligence/thinking/learning and the way information and data are organized to create meaning. Educators Jacqueline and Martin Brooks (1993) highlight this correlation. "We learn by constructing new understandings of relationships and phenomena in our world ... not by discovering more, but interpreting through a different scheme or structure."

While constructivism is not a theory about teaching, it does suggest fundamental shifts in traditional classroom practices. If, as Brian Cambourne (1989) suggests, "The learner is the one who must make the connections, identify the patterns, and organize the bits," then it is incumbent upon educators to insure that both curriculum and instruction be organized in ways that enhance rather than discourage this kind of learning. To repeat the obvious, "learning how to learn" requires a radically different kind of education than is currently provided in most schools.

Curriculum must be organized systemically to reflect the natural process of intelligence/thinking/learning, to demonstrate the interrelationships among subjects, and to allow students to construct their own meaning. This book is about designing an integrated curriculum that is organized systemically. There is considerable confusion about what is meant by an integrated curriculum. For example, many educators will use the terms "integrated" and "interdisciplinary" interchangeably. This is unfortunate because these two approaches to curriculum design are as different as the ecological worldview and the technological worldview of Newtonian/Cartesian science. A truly integrated curriculum is organized to show "the connectedness of things," while an interdisciplinary curriculum is organized in ways that reinforce the separate and discrete character of academic disciplines. Recognizing that "the learner is the one who must make the connections, identify the patterns and organize the bits," the integrated curriculum is *preeminently learner-centered.* On the other hand, an interdisciplinary curriculum is content-centered — it begins with a given content that must be "learned." Although this content may be organized in a variety of different ways to demonstrate some of the connections

among the various subjects (see Fogarty 1992; Jacobs 1989), it still reflects the traditional epistemological assumptions of Cartesian thought. While these organizational techniques may be helpful to the teacher who is seeking a how-to-manual, they do nothing to challenge the ruling mechanistic view of the world.

Thompson sixth grade team leader Ruth Ann Dunton reflects on her response to the integrated curriculum. "We began to see that integration is a way of thinking. There is no teachers' edition for it." She continues,

> [T]his freedom to be looking for connections is satisfying and fun. I am thinking about the world differently than I ever have. Maybe that is what was missing when I began my career. I can honestly say that the students are looking at the world differently, too. They are able to personalize their instruction as demonstrated in their written reflections throughout the year. Often their thoughts are a total surprise to me. They are comfortable with what they are doing and excited to share ideas.... I am comfortable with where I am and with the knowledge that I'll probably always be growing, changing, looking for answers, moving along in search of the big picture — just as I hope my students are.

Conclusion

Much of the resistance to an integrated, learner-centered curriculum is based on outdated assumptions about human nature and the innate capacities of children. Although we are reluctant to acknowledge it, for a very large number of children, schooling has been "basically negative, a progressive stripping away of dreams, an undermining of confidence" (Bateson 1994). While they may acquire skills and information, students are apt to learn more about limits to creativity than inherent human possibilities. For example, research (Howard 1980) shows that creativity scores invariably drop by 90% between the ages of five and seven. The downward trend continues so that by the time students reach age 40, most of them will have approximately 2% of the creativity they had as imaginative children.

But we don't need the research. I once watched my two-year-old granddaughter spend ten minutes trying to solve the problem of how to put on her diaper by herself. She laid it on the floor and tried lying on it. Then she tried sitting on it using a variety of postures. Next she carefully placed it in her rocking chair and tried to sit in it. She experimented with several other strategies, and although she never quite succeeded, she was not discouraged and would soon try again. Was she thinking or was she learning? The answer, of course, is YES to both questions!

Ask any parent who has tried to hide the cookie jar from a four-year-old about their problem-solving skills. Yet, by the time they reach third or fourth grade, we have to "teach" them problem-solving and other so-called thinking skills. And when they reach adolescence, we have convinced ourselves that they don't know enough to ask intelligent questions. What has happened to that innate capacity? The obvious reason, which many teachers are quick to acknowledge, is that, upon entering school, the child is programmed for fragmented, linear, sequential thinking that is antagonistic to the integrated, innate capacities for thinking and learning with which they are innately endowed.

I leave it to psychologist Charles Schmid (n.d.) to remind us of that which we intuitively know already.

> We're not really teaching anyone anything — we're unlocking what's already there, helping people get in touch with the enormous potential they already have, enabling them to regain that whole-brain balance they all had as imaginative children.

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