

On Common Ground

Strengthening Teaching through School-University Partnership

YALE-NEW HAVEN TEACHERS INSTITUTE

NUMBER 2, SUMMER 1994



WINSLOW HOMER, *SNAP THE WHIP*, 1872

The Collaborative Spirit in Historical Perspective

By Vito Perrone

On *Common Ground* begins with the premise that colleges, universities and schools should be in collaboration. And, in fact, there are many good examples of collaboration which I will comment upon. Nonetheless, even with the large public policy and popular media rhetoric about the need for a seamless web, higher levels of reciprocity between colleges, universities and schools, significant collaborative exchange is not yet common enough.

I am often asked, in this regard, Why aren't more high school students doing more of their academic work in the colleges and universities? Why isn't there a more formal connection between the ways writing is taught in the high schools and in the colleges and universities? Why do the purposes

for historical, scientific and literary studies differ so greatly across levels? Why is there so little conversation between high school and college/university teachers of history, literature, mathematics and science about curriculum and pedagogy? The disconnect—between schools and colleges—the isolation, lack of mutuality, different expectations and discourse—is too common. And it is enormously wasteful.

Fortunately, the climate for moving beyond where we are now is improving. Fresh possibilities for closer relationships and greater flexibility seem possible on a larger scale. Before considering the possibilities and potential difficulties, however, I believe it would be useful to gain some historical perspective—to examine some of the larger landscape. Our contemporary disconnect-

edness, as you will note, has not always defined the relationship.

In 19th Century America, for example, there was a blurring of the lines between secondary schools and colleges and universities—in large measure because of the formative nature of these institutions. The University of Michigan's 19th Century history is particularly interesting in relation to school-university connectedness. The original conception of the University of Michigan, rooted in Judge Augustus Woodward's System of Universal Science, called for the University to be a complete territory-wide system of education to include "colleges, academies, schools, libraries, museums, atheneaeums, botanical gardens, laboratories,

(continued on page six)

Breaching Walls of Academia

One of the serious obstacles to good teaching is the way new teachers are inducted into their workplace: they are dropped into the classroom, straight out of their largely theoretical academic preparation, with little more than some so-called practice teaching that gives them vir-

About Partnership

by Fred M. Hechinger

tually no experience in the real task of teaching. Worse, they are expected to take on a full load of classes from Day One, usually with little help from experienced colleagues and no time for reflection. It is as if medical students were sent into practice without internship and residency.

There they are frightened, exhausted, with little more at their disposal than a lot of theories, often outmoded and rarely attuned to current efforts at school reform.

The answer to this time-worn practice could readily be borrowed from the preparation of physicians or even from the European concept of apprenticeship: learning on the job under the guidance of experienced practitioners.

Fortunately, a number of colleges and universities have begun to work with local schools to create a more professional way for the transition from academic teacher preparation to the classroom. "Horace," the publication of The Coalition of Essential Schools, in its September 1993 issue, reports on a growing trend toward university-school partnerships aimed at helping new teachers to find a firm footing in their new profession.

For example, the University of New Hampshire has created internships in a local high school that pay candidates for masters in education degrees \$3,000 for a year's internship service in the classroom. As an added benefit, the particular school happens to be part of the coalition's network of schools committed to the latest educational

reforms. This saves the new teachers from the more usual fate of being pressed into the mold of outmoded ways to which too many schools still subscribe.

"We want to do teacher education *only* in schools that are in the process of restructuring," said Lynne Miller, a professor of education at the University of Southern Maine which is working with a network of nearby schools.

Theodore Sizer, the coalition's chairman, underscores this view: "You just can't talk about teacher education apart from school reform."



JACOB LAWRENCE. LIBRARY, 1978

Like all university-school collaboration, the internship concept represents a two-way approach to reform: the schools and their potential teachers benefit from the arrangement; at the same time, the university and its teacher training sector learn from the feedback brought to them by their masters degree candidates' or former students' classroom experience.

Unless the universities are deaf to the message of what reformed schools need, they will update their teacher training curriculum. This could do wonders for the improvement, or even the elimination, of many of those required education courses which have long been the butt of criticism and ridicule.

In the traditional hierarchy of academia, universities usually determine what is important and what should be researched and

taught, without paying much attention to what is important to the practitioners in the field. In a university-school partnership, the two establish goals and priorities together.

The idea of the two-way street of collaboration is hardly news to Yale professors who have taken part in the Yale-New Haven Teacher Institute.

If planned in close partnership between the schools and the university, the teacher training faculty will become a vital part of the schools where their interns teach. This could be a step toward eliminating the gap and the mutual suspicions between the two

professions: the education faculty and the practitioners in the schools. If the system works, the two sides will emerge as partners in the same enterprise, working together and helping each other in the interest of better education. As the Yale experience has shown, school teachers and university professors learn to view each other as colleagues.

Will the partnership and the internship idea replace the old, usually inadequate, student teaching component of teacher training and put an end to the "swim or sink" induction of new teachers? Probably not rapidly enough.

Established turf is not readily abandoned. Academic walls are not easily demolished. Yet, Kathleen Cushman, author of the report in "Horace," lists a number of universities that have established collaboration with schools, including Indiana State University, the universities of New Mexico, Hartford, Louisville, and Florida International University.

Betty Lou Whitford, of the University of Louisville, puts it bluntly: "We're all in the same business not just to help schools, not just to educate teachers, but to collaborate in the education of children. Our goal is to blur the lines so that it will be hard to tell whether I'm a 'university person' or a 'school person'."

It won't happen overnight, but the direction is right.

On Common Ground

Strengthening Teaching through School-University Partnership

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Yale-New Haven Teachers Institute
Box 203563 Yale Station
New Haven, Connecticut 06520-3563

Phone: (203) 432-1080
Fax: (203) 432-1084
E-Mail: Common_Ground@yale.edu

Executive Editor, James R. Vivian

The Yale-New Haven Teachers Institute is an educational partnership between Yale University and the New Haven Public Schools designed to strengthen teaching and learning in local schools and, by example, in schools across the country. Through the Institute, teachers from the University and the Schools work together in a collegial relationship. Founded in 1978, the Institute is the first program of its type to be established permanently.

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About the cover illustration:

Winslow Homer's 1872 painting *Snap the Whip* depicts boys joining hands in the common effort the game requires. They race across the valley field in a swinging line, anchored by the larger and stronger boys until centrifugal force causes two youngsters at the end to lose their grasp and tumble to the ground in the direction of two watching girls. More than a simple nostalgic evocation of the joys of rural boyhood, the painting expresses larger themes that recur in Homer's art. For one thing, in *Snap the Whip* the swinging line suggests transition or passage, and by extension the inevitable process of growing up, with evanescent wildflowers a metaphor for the transience of youth. The painting also addresses the theme of education, suggested indirectly by the red one-room schoolhouse in the middle distance, but specifically as the boys, through play, test the possibilities and limits of the physical world—speed, centrifugal force, gravity, being thrown off on one's own, and potentially painful encounters with stones amid wildflowers, the hidden dangers of real life. Most of all, the painting celebrates connectedness—having someone to hold onto and being held fast by others—the sense of community, which Homer sees as the natural condition of childhood.

— Jules D. Prown

Credits

Cover illustration: Winslow Homer. *Snap the Whip*. 1872. Oil. 22 1/4" x 36 1/2". The Butler Institute of American Art. **Page 2:** Jacob Lawrence. *The Library*. 1978. Scigraph. 10 1/4" x 15 1/8". Courtesy of the artist and Francine Seders Gallery, Seattle, Washington. **Page 19:** Celia Muñoz. "Which Came First?" *Enlightenment #4*. 1982. Mixed-media. 12" x 19". Collection of the artist. **Page 20:** Peter Halley. *Total Recall*. 1990. Day-Glo acrylic, acrylic, Roll-A-Tex/canvas. 216 cm x 246 cm. Courtesy Jablonka Galerie, Köln.

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On Common Ground: Learning to Pull Together

By Thomas R. Whitaker

The essays and images in this number of *On Common Ground* put an emphasis on the strength that can be found in the historical ancestry and the present variety of the partnership movement. The Editorial Board last year was firm in its desire that an early number should place our present efforts in historical perspective. And at its latest meeting, the Editorial Board spent a good deal of time viewing possible images for this and future numbers, and coming to a consensus about the most appropriate uses of images to accompany the essays. A few words, then, about each subject.

The Essays: Some Connections

Too often, in recent decades at least, educational proposals have been made and programs have been launched without sufficient attention to what can be learned from those who have gone before us. Too often those proposals and programs have themselves then proved to be of short duration. Indeed, the most usual pattern of funding collaborative projects in this country, through short-term initial grants rather than sustained institutional support, has only accentuated the weakness of our collective memory. The “collaborative movement” of the past fifteen years has often been ahistorical in its orientation and rhetoric. The lead essay by Vito Perrone therefore reaches back to inform or remind us of earlier collaborations in Michigan, North Dakota, Illinois, Maryland, and elsewhere, and then points toward a considerable variety of present efforts on local, state, and national levels. It is a history from which we can take heart, and one that ought to inspire us to find yet more useful ways of sustaining what Perrone calls “a collaboration over time that is empowering for teachers and students alike.”

We also print responses to Perrone’s essay from two members of the Editorial Board:

Manuel Gómez focuses on the similarities between Perrone’s historical examples and the work done by Project STEP in California, and on “the changes in educational

institutions that are essential to sustaining and expanding the collaborative movement and realizing its benefits.” Among those necessary changes, he argues, is the invention of “a new permanent structure within colleges and universities” that can provide sustained motivation for ongoing cooperative programs. (The current effort of the Yale-New Haven Teachers Institute to create a permanent endowment to support its activities as a recognized unit of the University is one such change now in process.) Gómez also calls for some important revisions in the values and incentives of our institutions of higher education, in order that they may respond more adequately to the problems of our society.

Charles S. Serns probes the reasons behind the relative absence of collaboration on the education scene. Among his points is one that Ernest Boyer develops: elementary schools have been left out in the cold in most of the collaborative dialogue between universities and schools. (We might point again to the Yale-New Haven Teachers Institute as one attempt to overcome this problem. Beginning with a focus on high schools, and soon incorporating middle schools, the Institute has been regularly including elementary school teachers since 1990.) Serns also notes that the best elementary school classrooms offer an integrative model of collaboration that deserves attention from all parts of the educational community.

Ernest L. Boyer’s piece also looks to both past and present collaborative efforts in order to find clues to the major tasks for the decade ahead. Above all, he says, we must ensure on a national level that “all children will be ready for formal schooling.” He also urges that school-college partnerships focus on primary education, and that they return to the central issue of “what we teach.”

Lauro F. Cavazos, responding in part to the essay by Secretary of Education Richard W. Riley in our inaugural issue, urges that the federal government make it clear that teacher preparation is an important priority. He is especially concerned about the small number of minority teachers now in school systems, and he argues that we must

overcome the inadequacy of current training to prepare young teachers to meet the linguistic and cultural needs of inner-city schools.

On this occasion Fred M. Hechinger’s regular column also stresses teacher preparation. He urges an expansion of collaboratively-sponsored internships as a replacement for the “student teaching component” of teacher training.

As we were preparing this number of *On Common Ground*, we learned of the death of Edward J. Meade, Jr., a long-time advocate of teachers, and friend of the Yale-New Haven Teachers Institute. At the Ford Foundation, Ed Meade directed its efforts to improve the professional abilities of teachers. He was head of the urban poverty program from 1977 to 1989. He possessed great regard for individuals who sought his advice and support, admonishing us not to be diverted from our own true purposes. His belief in the power of teaching in public schools lives on, in part, in an endowed Institute in New Haven for which he is responsible, in a significant way. On a memorial page, we include some excerpts from his lecture of 1985 on the task ahead. His comments on needed reforms in teacher preparation, and needed reforms in the schools themselves, in order to make them more stimulating places of learning for both students and teachers, have lost none of their urgency.

Other pieces in this number focus more specifically on current programs and challenges. On the federal level, Therese K. Dozier, herself a former teacher in the schools, reports on the meeting of teachers from across the nation that she convened in Washington to provide advice to the Department of Education. Among other points, she stresses the need for teachers’ participation in collaborative planning, for adequate time during the day to allow them to be professional educators, and for the overhauling of teacher preparation programs and staff development.

From the world of business, Thomas Furtado lays out the need for some frank talk among educators and businessmen about what can be done to enable more fruitful

and long-term collaboration. Furtado has been especially concerned with the difficulties encountered when businesses and schools seek to go beyond an *ad hoc* gift of computers and shop equipment. This is a subject about which we'd like to hear more in the future.

And from the university, Antonio Lasaga comments on the opportunities and challenges that are provided by the "information superhighway" and related developments in computer technology. Much has been done in the last few years, but much more remains to be done. Here as elsewhere, our technological capabilities seem to outrun our readiness to make the most effective educational use of them.

The Images: Some Perspectives

The Editorial Board has come to a number of conclusions about the images in this publication. We want them to complement the essays, to be of intrinsic artistic interest, and to suggest further possibilities for incorporating the visual arts into the curriculum. We therefore believe that the images should be thematic, and not narrowly illustrative. We want them to express an array of vantage-points on our topics—historically and stylistically. We think they should represent, over the longer run, the cultural diversity of our nation and our world—and the possibility of building a community from that diversity.

And yet we do not ask of a given image that it conform entirely to our editorial point of view. After all, among the virtues of works of art is their ability to provide vivid testimony to what an artist can see, feel, and think from within a historical or cultural situation. They invite our appreciation—and our interpretation, even criticism. We incorporate them into our lives and our educational projects by noting what they say, and what they don't say, and something of why that should be the case.

That should be evident from Winslow Homer's *Snap the Whip*, which accompanies Vito Perrone's essay. It provides an eloquent image drawn from the history of American education. It depicts a youthful

and, as John Dewey would surely appreciate, playful collaborative endeavor by various talents on a common ground. Learning to pull together, even while sometimes appearing to pull apart, is the task we inherit. And yet a probing look at that image may well leave us unsatisfied with its vision of our task. Though it "celebrates connectedness," in Jules Prown's phrase, it also recognizes and may well accept division and insularity. The "watching girls" that Prown observes are clearly out of the game. What preparation for social roles may be suggested by this separation of passive females from active males? Not one that we would endorse today. And what about racial and ethnic inclusiveness? Homer's painting reflects the narrowness, and the limiting social assumptions, of a New England rural community in 1872. Only through that distorting lens does it offer what Jules Prown calls Homer's vision of "the natural condition of childhood." Here as everywhere, the "natural" is socially conditioned, and we need to recognize that fact without depriving ourselves of a rich heritage of resources.

For just that reason, we find it appropriate to complement Homer's vision of 1872 with Jacob Lawrence's vision of 1978. Lawrence's *Library*, which accompanies Fred Hechinger's column, also limits itself to a single moment, a single race, a single activity. But it too reaches out to capture something of the energy, diversity, and cooperative spirit of the educational scene. The flatness of this design, with its rather schematic figures, is charged with an extraordinary vitality. Books are all over the place, at all angles. Old and young are finding sustenance. And Lawrence, whose works often pay tribute to manual labor and craftsmanship, has here placed in the foreground, at a compelling angle, those capable *hands* that bring everything into focus. Something of the breadth of our task will come to mind only as we think of Homer and Lawrence together.

And yet more will come to mind as we think of our two other images, neither of which portrays a human figure. The page from Celia Alvarez Muñoz's *Which Came First: Enlightenment #4*, which accompa-

nies the essay by Cavazos, combines a photograph of five eggs, a printed statement about childhood difficulties in learning, and a child's handwritten sentence. The larger design is apparently simple; but, thanks in part to that proverbial riddle about the chicken and the egg, it alludes to problems that have to do with the reciprocity of language and learning—and to the role that art may play in their solution. But this is only the first panel in a brief book that tells a more complex and humorous story. Each panel portrays the eggs, continues a printed narrative, and offers another handwritten sentence struggling with the verbs "lie" and "lay." The narrative recalls the childish question, "How does a chicken lie a egg?" "I was always corrected and told, 'A chicken lays an egg through its mouth.'" The last panel reveals that the previous photographs have given us a "lying" accuracy: when the eggs are lined up before us, they are obviously of different sizes. Early in her career, Celia Muñoz worked for seven years in the El Paso public schools, teaching most of the regular subjects with a relation to art; and she has produced many of her recent works in collaboration with students.

Peter Halley's acrylic composition, *Total Recall*, which accompanies the article by Lasaga, is a "simpler" though no less sophisticated design that points toward a technologically complex process of communication: electronic computing. Here an impression of the structure of a computer chip becomes a quiet icon of the circulating and recirculating connections that we associate with the "information society."

We would like to acknowledge with gratitude several people who have assisted the Board in the selection of artwork for this and future issues: Robin J. Frank, Kenneth Haltman, James Weiss, Bryan J. Wolf, and Jules D. Prown. And we would also like to acknowledge that our format in certain respects derives from that of the *Carnegie Quarterly*. The Editorial Board had reviewed various newsletters and bulletins, and was particularly taken by the attractiveness of the Winter 1993 issue of that *Quarterly*.

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Learning to Pull Together

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More recently, we have received very helpful advice on matters of typography and format from Roland Hoover.

We would also like to acknowledge our very great indebtedness to the Carnegie Corporation of New York, whose support makes this periodical possible.

We should also note that, though the text of *On Common Ground* is not copyrighted, we cannot make that statement about the images in each issue. The artwork may not be reproduced without permission from the owners cited in “Credits” on page 3.

Join the Conversation!

If you have thoughts about the essays, the images, or the topics more generally, we encourage your responses—either as letters to the editor or as brief statements for submission. We are very much interested in hearing from teachers who have found ways to incorporate our images into their work in the classroom. If you have suggestions for topics to be considered, or artwork to be included, we would welcome them. You may easily reach us by E-mail. Our next few numbers are plotted out very roughly, but we are open to ideas we haven’t entertained.

Looking Forward

At its most recent meeting the Editorial Board sharpened and elaborated its plan for the next five numbers of *On Common Ground*. The major questions to be addressed are these: What contributions can university-school partnerships make to teaching and learning about cultural diversity? What changes need to take place in schools and colleges in order to support partnerships, and to enable all teachers to become full partners? How can university-school partnerships proceed in the arts? Can they assist in the task of integrating subject-matters and creating communities? What contributions can such partnerships make to the preparation of students for the world of work? And what contributions can they make, perhaps with the help of business, in the areas of science and technology?

Perrone: The collaborative spirit in historical perspective

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and other useful literary and scientific institutions” (Dunbar, p. 281).

How much more inclusive could one get? Even as I admit to the complexities inherent in Woodward’s formulation, I am attracted to his basic understandings of the inter-connectedness of knowledge and the importance of diversity in relation to the sources for learning, as well as his acknowledgment that learning needs to be conceptualized for a lifetime and not for a particular period of time. While Woodward’s grand conception was abandoned by 1827 as impractical, the University was still viewed, for decades later, as the critical base out of which a cohesive state system of public education would be constructed.

In 1837, under the leadership of John D. Pierce, Michigan’s first Superintendent for Public Instruction, a state system of education was carefully articulated. The University of Michigan was not only viewed as the capstone of this system; it was expected, in addition, to assume a connecting role to elementary and secondary schools by establishing mediating branches—essentially multipurpose secondary academics—throughout the state. Pierce wrote in this regard that each of the proposed branches would occupy “the middle ground, being connected on the one hand with the primary schools by the establishment of a department . . . for the education of teachers and on the other, with the University itself, by the establishment . . . of a preparatory course . . . thus being equally designed for the benefit of the University and [local communities]” (Dunbar, p. 401). Now all of Pierce’s hopes didn’t materialize but the roots—as well as the intentions—of mutuality were clear enough. It was a vision of common purposes that had counterparts across the United States.

In 1879 the University of Michigan reaffirmed, this time internally, its commitment to interact with the schools by establishing a pioneering chair in the Science and Art

Vito Perrone is professor of Teaching Education and Learning Environments at Harvard University’s Graduate School of Education.

of Teaching. In announcing the chair and its importance to the University, President William Angell made clear the University’s intent to recapture some of Pierce’s hopes. From this modest beginning emerged an experimental University high school, a system of school accreditation and field services, and a fully elaborated school of education.

The University of North Dakota, where I spent many years, is also fairly representative of this nineteenth century collaborative spirit. Founded in 1883 at a time when there were virtually no secondary schools in the Dakota Territory, the University was forced to provide for its first twelve students a two-year preparatory program. It wasn’t until 1904—over twenty years later—that the preparatory school, which generally enrolled more students than the collegiate programs, was closed. The same faculty taught across the two levels. Shared purposes and curriculum continuity existed. Students went from Greek and Latin programs in the preparatory school directly to more advanced Greek and Latin programs in the college. The same was true in other academic fields.

In addition to this direct campus and curricular linkage, the University became also the center of an emerging system of secondary schools across the state. University faculty in the various subject fields worked with secondary teachers on curriculum and assessment practices and were deeply involved in the preparation of new teachers. In fact, the University President, Webster Merrifield, was the State Inspector of High Schools from 1891-1909, a task he took seriously (Geiger, p. 114). In this role, he was responsible for developing curricular standards and graduation requirements for high schools. Not surprisingly, Webster Merrifield was honored at his retirement in 1912 as the “father of secondary schools” in North Dakota. The linkages were real.

The stories of the University of Michigan and the University of North Dakota and their connections to schools in their respective states demonstrate a direction in which the universities were first organized and then a wide range of relationships were established with schools. The reverse direction was also

true in North Dakota, Michigan and elsewhere. For example, the 19th Century Normal Schools, first begun in Concord, Vermont in 1823 and then rapidly part of the educational landscape across the United States, as the Common School Movement took shape in the 1840s, were essentially secondary schools whose purposes gradually expanded. Ultimately, they became the state colleges and universities of our nation. But their involvement with the schools remained their defining character well into the 1930s.

It needs to be noted that much in what I have described in the foregoing accounts can be found also in the nineteenth century histories of such universities as Harvard, Wisconsin, Chicago, Johns Hopkins, Columbia and Illinois, to mention only a few. Harvard, for example, was deeply involved in curriculum development with and for the schools, believing that the movement from high school to college should be more natural, the connections useful. The Harvard curriculum for high schools was an important effort to raise the quality of high school education. My overall point in the foregoing, and I acknowledge brief, accounting was to establish that interactions between colleges, universities and schools were relatively common and consciously pursued. I will continue with an element of this historical review because I want to convey an important message about the substance of some of the earlier exchange.

The life and work of John Dewey provide a particularly illustrative starting point. Shortly after reaching Chicago, after a formative decade at the University of Michigan, Dewey began putting some of his educational thought into action in a school which he and his wife, Alice, organized. This endeavor resulted in a body of powerful literature produced by Dewey that was influential in his day and continues even now to possess considerable meaning; literature produced by others in the school, such as Ella Flagg Young, Katherine Camp Mayhew and Anna Camp Edwards, that has for many years influenced school practice constructively; and practical experience in university-school collaboration which provided excellent examples of how to integrate

university faculty, especially in more traditional arts and science fields, into the life of a school. Moreover, the Dewey School clearly furnished constructive models of inquiring into questions of curriculum, teaching and learning. What emerges for me—and I commend in relation to this aspect of Dewey’s work a re-reading of *The Child and the Curriculum* (1902), *School and Society* (1899), and *The Dewey School* (1936) in particular—is the validity and importance of educational settings where university scholars and classroom teachers can consider together a range of theoretical and practical formulations about teaching and learning.

In the nineteenth century, interactions between colleges, universities and schools were relatively common and consciously pursued.

Dewey’s efforts at Chicago, and, for that matter, much of the work that characterized the related progressive movement in American education, contributed to what I have come to label as an important reciprocity of authority, an essential aspect of school-university collaboration that is critical if current interests in connectedness are to be realized at the highest levels possible. Progressive philosophy encouraged, for example, teachers to become close observers of children and young people, materials and their uses, and instructional practices. Many teachers became enormously articulate about education matters, easily the equals of the pedagogical scholars in the colleges and universities. The school-college collaborations that resulted had a quality of reciprocity that made for equality. The agendas, the purposes, the conditions were mutually derived. I am convinced that some of the projects that pass for educational research these days, emanating principally from the universities and often entangling teachers in the name of collaboration, would have been rejected as simple-minded and wasteful by these powerful school people.

While there is a large historical literature that could be examined as a way of understanding issues of reciprocity, a particular reference I often suggest to those who wish to think more about university-school collaboration is Lucy Sprague Mitchell’s *Our Children and Our Schools* (1950). Essentially the record of a very large effort linking Bank Street, then a group of teachers who believed in the need for a “give and take between research and practice,” and the New York Public Schools, it documents well the collaborative experience. It gives important attention to the relationships that were built—a binding together of those within and outside of school classrooms, of the practitioner-researcher and the external scholar-researcher.

Why go through this addition to the historical journey? Quite simply, I wanted to make as clear as possible the belief that collaboration, however conceptualized, should, at its best, lead to greater empowerment of those in the schools, enabling them, among other things, to be more equal partners in the struggle for high quality educational programs, in the writing of critical educational literature, in decision-making about what kinds of educational research are necessary in relation to teaching practice, and in the determination of what kinds of collaboration would be most useful.

Historically, the Child Study Movement, introduced as a major focus for pedagogical study at Johns Hopkins in 1896 and the University of Chicago in 1898, becoming a national movement in the early decades of the twentieth century, was built around the forgoing formulation (Brandt, 1980; Cremin, 1962). Teachers at the elementary and secondary levels were encouraged to be documentors of children’s learning and their teaching practices, being able in the process to be active contributors to knowledge and the developing field of educational psychology. Many teachers and university professors were in ongoing conversations about matters of teaching and learning. The intellectual exchange for those participating was by all accounts invigorating. John Dewey’s belief that teachers needed to be students of teaching, persons capable of re-

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Perrone: The collaborative spirit in historical perspective

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flection on their practice, independent in thought and confident as decisionmakers, related closely to the Child Study Movement and was carefully nurtured in the pre-World War II period through university-school collaborative structures.

Efforts to reestablish such school-university collaboration related to intellectual exchange, pedagogical practice and what is often termed teacher research are currently emerging. The Bay Area writing project, along with its affiliated ventures such as the Urban Sites Writing Research project, is one such direction. It brings teachers and university faculty together around an active writing agenda. While the expectation is that students in the schools will be better served through this interchange, the professional growth of teachers, the reciprocity of exchange is the real story. The work of the English Composition Board at the University of Michigan has had a similar outreach dimension. Its work has produced a wonderful community of readers of writing to emerge in a large number of schools.

Another long-standing effort of consequence is the Yale-New Haven Teachers Institute which annually brings teachers and Yale faculty together around a series of seminars which focus on new scholarship in various academic fields as well as ways of bringing this scholarship into classrooms. The expertise of both university faculty and elementary and secondary teachers is critical to making this effort a success. This Yale related activity is being emulated at many institutions across the country with similar results. The University of Minnesota College of Arts and Science is now in its third year of doing so. And Harvard will host its first Teachers Institute, modeled fully on the Yale experience, in the spring of 1994.

Another outgrowth of this kind of exchange is the American Council of Learned Societies' Project which brings together classroom teachers in the humanities with university humanities scholars to explore jointly the intellectual traditions of the vari-

ous humanities' fields and work together on humanities curriculum. ACLS Projects exist currently at Harvard, the University of Colorado, the University of Minnesota, the University of California at San Diego, and the University of California at Los Angeles. The foregoing examples, of course, just barely touch the surface of what is developing.

The kinds of efforts I have just outlined lead to high levels of mutuality. They represent directions we need to foster on a larger scale. But a number of other kinds of inter-

Dewey's efforts contributed to an important reciprocity of authority, an aspect of school-university collaboration that is critical if current interests in connectedness are to be realized at the highest level.

changes also exist. There are, for example, a multitude of fairly standard programs in which high school students take a portion of their academic or technical coursework in post secondary institutions such as community colleges and universities. The State of Minnesota, among others, has encouraged such directions. For the most part, however, these efforts do not result in very much communication among teachers across the two levels, generally being defined narrowly as programs aimed at benefiting students exclusively.

There are also programs such as Simon Rock (Bard College) where high school students begin full-time college level work in what would normally be their tenth or eleventh grades of high school. Simon Rock has attempted to share with secondary schools the ways students respond to academic course work, the approaches faculty there are taking to curriculum, skill development, and the like, but the impact seems not to be high, the reports remote from the discourse of most secondary school educators. This is unfortunate because the Simon Rock experi-

ment has much to offer secondary schools in regard to the broad issues surrounding expectations.

There are also a number of minority recruitment-support programs related to the health fields at the University of Alabama, the City University of New York, and the University of North Dakota, among others, in which students are identified in the schools as ninth graders and are the recipients of a variety of collegiate experiences aimed at encouraging their interests in science, mathematics and study skills. While

these efforts make some important connections to the general interest in student transitions across the upper levels of schooling, they don't seem to generate much fresh discussion about teaching and learning or curriculum in the schools themselves.

The Boston desegregation case of the mid-70s brought an interesting history of collaboration when each college and university in the Boston area was assigned by the court a school, or set of schools, to work with. The expectation was that these collaborations would result in better schools. With just a few exceptions, however, these efforts struggled for the initial five years, in part because of the post-desegregation confusion which existed in Boston, but also because most of the colleges had so little experience with any long-term relationship with a school.

After five years, one of the more prestigious institutions, for example, when describing its accomplishments, could only point to the development of an elaborate remedial reading program in its paired high school, which most teachers didn't understand or value, the provision of resources to the counseling staff to assist with college admissions activities during February and March of each year, and the printing three times a year of the school's newspaper. Few faculty from that higher education institution ever spent time in the high school. Those in the school felt as isolated as ever. Nonetheless, there were some successful collaborations in Boston, and these are instruc-

tive. In these more successful examples, teachers began to meet frequently with their higher education colleagues to share materials and insights about teaching. The isolation which is so endemic and so demoralizing was partially dented, lifting the spirits of many teachers and reinvigorating their teaching.

An interchange that has fueled considerable discussion is Boston University's recent agreement to run the Chelsea School system. By bringing the resources of many parts of Boston University to bear on the needs of the schools, some general improvement has occurred. It is currently a bit one-sided but the potential for a collaborative spirit to emerge exists. In the current climate of "Charter Schools" we will likely see more schools developed with these kinds of close ties to colleges and universities.

There are also some teacher exchange programs in existence—essentially visiting teachers and scholars. By having university faculty teaching on occasion in the schools and teachers from the schools teaching in the colleges and universities, more commonalities of understanding are possible, a base for constructive discourse established. These kinds of exchange activities were more common in the 1960s and early 70s than in the past decade but the possibilities are large and need to be reformulated.

The Teacher Center movement across the country has also served as an excellent vehicle for promoting school-university collaboration. The Institute for Teaching and Learning at the University of Massachusetts-Boston has served this teacher-center function, drawing heavily on University resources broadly in such areas as multicultural and bilingual education as well as in "writing across the curriculum." In North Dakota, there are now nine regional teacher centers with the University of North Dakota serving as the coordinating-collaborative agent, providing a large array of human and curriculum resources. Each of the state's public colleges and universities is connected to at least one of the centers.

There is also a long tradition of curriculum development activity with potent

school-university connections. The major curriculum efforts of the 1960s—ESS, PSCS, BSCS, and Project Social Studies, among others—had their origins in these linkages. And the current computer activities associated with Logo, Seymour Papert's work described so well in *Mindstorms* (1981), grew out of several MIT-school collaborations.

Even as collaborative exchange is increasing, however, we are far short of what existed at the turn of the century. The need to move forward, to a more solid common ground, is absolutely essential—not just for the health of the schools but for the health of the colleges and universities as well.

Even as collaborative exchange is increasing, we are far short of what existed at the turn of the century. The need to move forward, to a more solid common ground, is absolutely essential.

Before closing, I should comment briefly on some of what I have learned over many years of working closely with university-school collaborations—issues which must be considered. At the university level, there has to be an institutional commitment to such a direction, one that provides time, accepts a broader than usual view of scholarship, comes to value conversation and inquiry-related teaching and learning, acknowledges the importance of interdisciplinary collaboration, understands the necessity of long-term involvements, and affirms mutuality, a parity of authority. At the school level, similar commitments are needed. Time is more difficult to control in the schools but it needs to be considered. Greater teacher autonomy is also necessary as is support from principals. An openness to dialogue, alternative structures, greater diversity of materials and schedules is also needed to sustain a collaboration over time that is empowering for teachers and students alike.

Collaborations that focus on the technical aspects of education—teaching grammar, introducing computer programming,

developing SAT preparation courses—aren't very interesting or productive over the long run. Those which make connections to critical social and intellectual issues have more potential; for example, considering ways of assuring higher levels of communication skills and literacy writ large for minority, and low-income students, bringing a school-wide focus to writing, linking more effectively school curriculum with community resources, trying to understand how various students enter the world of reading or come to understand the logic of mathematics, or assisting teachers in documenting growth, reflecting on pedagogy, materials, and curriculum content or identifying critical barriers to learning.

Now I realize that I have covered a vast terrain. My major point, what I want to leave with, is that our separateness is in many ways a scandal, a serious waste of human and fiscal resources. But we are capable of doing better. The history as well as current practices have some high moments to inspire us.

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Responses to Vito Perrone's article appear on pages fourteen and fifteen.

New Directions for Collaboration

By Ernest L. Boyer

More than thirty years ago, I was director of the Center for Coordinated Education at the University of California, Santa Barbara. This project had grown out of urgencies triggered by the Soviet Union's successful launch of Sputnik. There was a flurry of concern about how well our schools were doing, and the Center was created to establish more contact between them and the university.

All educational institutions in Santa Barbara County—from elementary schools to the university—joined together in a loose-knit consortium. And I worked for the governing board that represented all levels. As part of our mandate, we developed a cluster of projects—from curriculum planning to teacher training programs. Looking back, the Center was an experiment with both vision and inspiration. School and college leaders did communicate carefully with each other. Still, gains were marginal at best. While experimental projects were introduced, thanks in part to a Ford Foundation grant, it was difficult to sustain systematic change. Resources were limited, day-to-day pressures were distracting, and the campus crises of the late 1960s forced other priorities on administrative leaders.

Three decades have passed, the challenges confronting American education are even more urgent, and today no one seriously doubts that higher education has a responsibility to work closely with schools. Colleges and universities with all their talent and resources can no longer be spectators. Many of our classrooms are filled with students who are falling by the wayside, dropping out. Many others, who do make it to graduation, lack the requisite skills for further education, for effective citizenship, and for success in life.

I am convinced that we must, in the next five years, immerse ourselves in collaboration. The time has come to acknowledge that education is a seamless web and that all levels of education are inextricably connected. But how is this to be accomplished?

First, in the decade that lies ahead, collaborative efforts must focus, not just on schools, but most especially on children. The

harsh truth is that, in America today, nearly one out of every four children under six is officially “poor.” They are undernourished, disadvantaged, struggling. If we continue to neglect poor children, both the quality of education and the future of the nation will be imperiled. We know, for example, that

Today no one seriously doubts that higher education has a responsibility to work closely with schools.

brain cells develop before birth, and yet one-fifth of all pregnant women in this country receive belated prenatal care—or none at all. We know that all malnourished babies are two to three times as likely to be blind, deaf, or intellectually deficient, and yet nearly half a million children are undernourished. The social and human costs of these deprivations are tremendous, and the fact that a country as rich and as well-educated as ours tolerates such conditions speaks unfortunately to our foolishness and to our shortsightedness.

But what does all this have to do with higher education? For universities and colleges to ignore the deteriorating health and education of the youngest generation is not unlike the vision of the snake who feasts on its own tail. Funding priorities, college standards and goals, and even the availability of promising students will all be affected by this neglect.

I believe that higher education must recognize that the nation's first education goal—that all children will be ready for formal schooling by the year 2000—is the most essential goal of our six educational goals. For all children, this means good nutrition, a stimulating childhood, and good parenting. In a very practical way, it also means that higher education must become an active partner in the process. Last year, for example, at the Texas Woman's University, I visited a residence hall that had been converted into apartments for single mothers and their children. While the mothers worked and attended classes at the college, the youngsters were cared for in a day care center run by college students. And the

Nursing School at the University had a medical clinic for mothers and babies at a nearby housing project.

As well as becoming actively committed to helping single parents complete their education, other roles are available to institutions of higher learning. In a recent Carnegie Foundation report called *Ready to Learn*, we suggest that both two- and four-year colleges take the lead in training preschool teachers. It's a disgrace that we are trusting our youngest children to those who are often poorly educated and who are paid far too little. We know that children

need continuity of care, yet the turnover rate in many of these centers is sometimes 40 percent each year. Preschool teaching is an undervalued profession that must be given status and recognition in the culture. Some colleges are already developing a response to this critical need.

Dutchess Community College in New York grants an associate degree in early childhood education. About half of those who graduate teach at child care centers, and the rest transfer to four-year programs. Miami-Dade Community College has a 62-credit child-care degree program, and the college also has established a “satellite” public school on its campus to help preschools make the transition to elementary education.

The Bank Street College of Graduate Education in New York offers graduate programs in early childhood education, with an infancy program and a day care program. Bank Street also has a Child Family Center, which serves children six months to four years of age and is a demonstration site for teacher training in infant care. Efforts such as these demonstrate the vital role that higher education can play in advancing school readiness in the nation.

The second issue is that while all children must be well prepared to learn, it is equally essential that schools are ready for the children. After a decade of focusing reform efforts on the upper grades, the time has come to concentrate on improving elementary education as well. The gap between preschool years and the elementary schools also must be bridged. And restructuring kindergarten through grade five in a way that taps the full learning potential of all children should become a national priority.

Several years ago, I proposed that we reorganize the first years of formal education into a single unit called the Basic School. The Basic School would combine kindergarten to grade four. It would give top priority to language, and every student from the very first would be reading, writing, engaging in conversation, listening to stories, in what the foreign language people like to call the “saturation method.”

I’ve spent forty years in higher education. College education is surely consequential, and I love to teach undergraduates. But the years of early formal education establish the foundation of all future learning. If this country would give as much status to first grade teachers as we give to full professors, that one act alone would help revitalize the nation’s schools.

I’m suggesting as a second priority that school-college partnerships focus on primary education. In this arena, the collaboration provides the ideal forum for modifying the education of elementary teachers. In addition to more short-term institutes for practicing elementary teachers and arranged exchange relationships for mutual mentoring and growth between teachers and college students, there should be increased expectations for college students to volunteer not only in child care centers but in afterschool programs as a way of widening their own understanding about people and to benefit the young students. Another way that the collaboration should exist is by colleges and universities reexamining their course offerings in the schools of education with the counsel of professional teaching groups. Given the political exigencies of such matters, this is not an easy exercise. But with the growing agitation for improved education, those institutions that raise standards, that offer courses that inspire creativity instead of rote methodology, that require aspiring teachers to be truly well-educated in their fields of speciality—and in the case of young children, this means great understanding of human development and capabilities as well as domains of knowledge—those institutions will become leaders in the educational revolution that is fomenting.

Third, in the coming decade school-college collaboration must return to the central issue of what we teach. Colleges and

universities have a responsibility to develop with the schools a curriculum with more integration and coherence. Today almost all colleges have a requirement in general education. But all too often this so-called “distribution requirement” is a grab bag of isolated courses. Students complete their required credits, but what they fail to gain is a more coherent view of knowledge and a more integrated, more authentic view of life. And what’s even more disturbing is the way colleges impose the old Carnegie units on the schools, requiring students to complete credits in history and mathematics and science and English without asking what’s behind the label.

The Carnegie Foundation created the Carnegie unit eighty years ago. High school students were applying to college from places colleges didn’t know existed, much less what kind of program they offered. The Carnegie unit was meant to set standards, and it worked in its own way, but it fails now because it focuses on seat time rather than substance. It is time to bury the old Carnegie unit.

The truth is that the old academic boxes do not fit the new intellectual questions. Some of the most exciting work going on in the academy today is in the “hyphenated disciplines,”—in bioengineering and psycho-linguistics and the like—in what Michael Polanyi calls the “overlapping aca-

Wouldn’t it be tragic if a nineteenth-century curriculum design continued to be imposed on schools?

demic neighborhoods.” Anthropologist Clifford Geertz, at the Institute for Advanced Study, in his fascinating book called *Blurred Genres*, says that “these shifts in the disciplines represent a fundamental reconfiguration of knowledge. Something is happening,” Geertz says, “to the way we think about the way we think.”

During the coming decades, we will see a fundamental reshaping of the typology of knowledge as profound as that which occurred in the nineteenth century when philosophy was submerged by science. And wouldn’t it be tragic if a nineteenth-century curriculum design continued to be imposed

on schools at the very time scholars were redefining the structure of knowledge for the twenty-first century?

This collaboration of educators at all levels, then, can be forged not only by common goals but by common questions: What do we want our children to learn and be able to do after sixteen years of formal education? Wouldn’t it be exciting, as we move toward the next century, if we would start to rethink the nature of the new knowledge that relates not to the last century but to the coming century? How can we organize knowledge in a way that seems to make it relevant and powerful for students in the days ahead? Wouldn’t it be exciting if both kindergarten teachers and college professors could view knowledge using understandable categories that would be newly integrated and would spiral upward in common discourse? Wouldn’t it be exciting not only to build connections across the disciplines but to build them vertically as well, from preschool through college?

The new directions for collaboration between colleges and schools must be on the early years—preceding school itself and on the very first grades—as well as on what students are actually taught at the beginning of formal classroom work. If we’re truly serious about the attainment of quality education for all, then we have to be equally serious about building a better foundation for learning, a new—truly new—design of curriculum and expectations, and a professional level of collegiality among teachers at all levels. In this way not only will our schools be better served, we also can have, in the longer run, a profound impact on the future of higher education.

More than fifty years ago, Mark Van Doren wrote: “The connectedness of things is what the educator contemplates to the limit of his capacity.” Van Doren concluded by saying that the student who can begin early in life to see things as connected has begun the life of learning. And this, it seems to me, is what school and college collaboration is all about—connections.

Ernest L. Boyer is President of The Carnegie Foundation for the Advancement of Teaching. He was U.S. Commissioner of Education from 1977 to 1979.

Business and Education: Crossing the Divide

By Thomas Furtado

Not too long ago, I came across a bit of trivia in the newspaper about shoes. It seems that it's only been 200 years since shoemakers began fabricating a different shoe for the right and left foot. Prior to then, both shoes were exactly the same. In hindsight, one wonders why it took so long to happen.

As I look at the Yale-New Haven Teachers Institute, I have the same feeling. The idea of college faculty working with high school and middle school teachers to enrich all parties and to develop curriculum units for the schools seems self-evident. The Institute has moved quickly in the last ten years from a tentative experiment in collaboration to a nationally recognized model for university/college relations with public schools across the country. The model works so well we wonder why it took so long.

As a businessman, I'm somewhat envious of how smoothly that effort got off the ground. Collaboration between business and the public schools has taken place for decades, but seldom leads to an institutionalized long-term relationship. There are several reasons for this, but perhaps the most fundamental is that many businessmen and educators have different perspectives on what education is about. This frequently leads to entrenched attitudes that make long-term relationships difficult. Occasionally an enlightened businessman and school superintendent can make things happen, but when one or both of them move on, the collaboration weakens or ceases.

What is frustrating about this situation is that both sides need to support one another in order to survive as healthy, productive institutions. The economy of this country and the survival of its industries are directly linked to the knowledge and skills of our people, and this is increasingly so as we compete around the world. We depend on our schools to provide a competitive workforce in a global economy. By the same token, public and private financial support

Thomas Furtado is Corporate Ombudsman at United Technologies in Hartford, Connecticut

of schools ebbs and flows with the country's economic situation. School budgets take a beating when the economy is bad and people are out of work.

Adult life is not easy, and for some it is a nightmare. There are many reasons why some succeed and others fail, but one of the key ingredients for a useful life is a basic education. Yet one out of every four children who start kindergarten in Connecticut does not complete high school. Almost an equal number graduate without marketable job skills. These figures translate into frustration, unemployment, wasted lives and crime. The inability to read or write, to com-

Collaboration between business and the public schools has taken place for decades, but seldom leads to an institutionalized long-term relationship.

pute, to think logically and make decisions, is a handicap few can overcome. Education, or the lack of it, can make or break most lives.

Knowledge, skills and attitudes are the tools needed to function effectively as citizen, parent, neighbor, worker. The critical questions, however, are: "How much knowledge?" "About what?" "What kind of skills?" "How specialized?" "What attitudes?" "How to teach them?" It is in this arena, where we try to define the specifics of public school education, that sharp differences of opinion often exist between business and education.

There are business people, I'm sure, who feel that knowledge of art, music, geography and history is a waste of time and does not contribute to one of the first needs of a young adult—finding and retaining a job. That attitude is a pity. There are also teachers, I'm sure, who feel there is no reason for the schools to prepare young people for the workplace—how to dress, how to sell yourself, how to present your strong points and interests. That attitude is also a pity. Business people often weigh schools against a single standard—how well they prepare young people for work. That standard is in-

adequate. Educators on the other hand often evaluate their product as though work did not exist. That standard is also inadequate.

School is more than academics. It is a process of growth, of young people maturing into adults who know themselves, their likes and dislikes, interests and aptitudes. It should include learning the difference between long-term and short-term goals, weighing alternatives and making decisions against those goals. It begs an understanding of our economy, how it works, what the job market is like and what preparation is needed to play a role in it. All of these things

can be taught in school and should be taught in school, and I happen to believe that business can assist greatly in this area.

Just as important, a business-school collaboration can help to strengthen the content of certain courses and to enrich the development of teachers. Computer labs, laser research, cutting-edge

manufacturing techniques are a few of the business applications of math and science that could turn on the gifted youngster and rekindle the marginal student. Summer internships for teachers, carefully planned and with long-term commitment, could add a dimension to teaching not found in the textbooks.

It seems a natural linkage, and sometimes it happens. It simply doesn't happen enough, and it doesn't become institutionalized, or take on a life of its own. Both sides settle for business gifts of used computers and shop equipment, along with business advisory boards that seldom make a difference. The fault lies with both parties and centers around entrenched attitudes that are understandable but are ultimately self-defeating. We have differences and we need to examine these differences through dialogue. Let it be blunt, honest, critical, but let it take place. I hope that this article continues the dialogue and action needed to move this issue into a more public forum. The more educators and businessmen talk, the more we will see that we have something very important in common—we both want young people to learn and to succeed in life.

The 1993 Goals 2000 Teacher Forum: Lessons Learned

By *Therese K. Dozier*

Reaching the National Education Goals and helping all students strive for high academic standards will take unprecedented partnerships.

Key partners in our states and communities have to be classroom teachers. Teachers must help lead the charge. By appointing me as the first resident teacher-advisor at the Education Department, Secretary Riley signaled that teachers will be a significant part of the Clinton Administration's process of educational reform.

But I can't do it alone.

That's why last November the U. S. Department of Education invited a group of 119 exceptional public and private school teachers to Washington to hear their thoughts and to explore ways that the federal government can work with educators to make sure our thinking was in touch with the classroom. I'm pleased to report that this event, the Goals 2000 Teacher Forum, was a great success.

While in Washington, these outstanding teachers demonstrated that they have much to contribute—beyond their work in their individual classrooms—to improving education in this country. The participants had a lot to tell us about how we, as a nation, need to rethink our educational system.

The department wants these and other teachers like them to be agents of change. These teachers agreed that if we are going to help all kids reach high standards, first we are going to have to change the way the education system does business. At the close of the forum, we asked teachers for recommendations on how the system should change. They said:

Therese Knecht Dozier is a special advisor to the U.S. Secretary of Education on Teaching. Prior to joining the Department, she was teaching at Irmo High School in Columbia, South Carolina. In 1985, while she was teaching world history at Irmo High School, Dozier was named National Teacher of the Year.

- Teachers must be included in any decision-making process that affects them and their students.

- The education system must be reshaped from that of a factory model to one that reflects high-level thinking, academic rigor, and the skills necessary to make our students competitive in this fast-changing world.

Higher education's commitment to teacher development should be sustained throughout a teacher's entire career.

- Policymakers at all levels must ensure adequate, equitable and stable funding for education.

- Teachers must be given adequate time during their day to allow them to be professional educators.

- Teacher preparation programs and staff development must be overhauled to adequately meet the needs of today's students.

One of the messages that came through loud and clear was that teachers need more *time*. Time to become more competent professionals and to become active in school reform. Time to plan effective lessons that actively engage students. Time to assess students in meaningful ways. Time to talk with and listen on a personal level to students, many of whom have no support system outside of school.

In short, teachers need time to be professional educators.

The forum participants also expressed their belief that universities and colleges must play an integral role in ensuring that we have professional, highly competent teachers in our classrooms. However, there was also a strong consensus on the need to overhaul teacher preparation and staff development programs. They said they believe teachers should work collaboratively with higher education faculty to

plan curricula and powerful clinical experiences for preservice teachers and to help shape ongoing professional development experiences.

Higher education's commitment to teacher development should not end with preservice training but should be sustained throughout a teacher's entire career. Because the nature of teaching is changing, teachers are beginning to see themselves as mentors and facilitators, rather than disseminators of facts. And as one teacher observed, "Teaching as a mentor is definitely more difficult and requires vast staff development."

As another teacher stated, "Professional development is a process, not an event."

At the Department of Education, we hope the formal report of what the forum teachers had to say will enable teachers to participate in and contribute to the policy-making process at every level. If we hope to be successful in our efforts, we must honor what teachers know and listen to what they say.

For a copy of the final report from the Goals 2000 Teacher Forum, please call 1-800-USA-LEARN.

Cavazos: The Role of . . .

(continued from page nineteen)

the teachers we will need to truly provide quality education for all children.

Colleges of Education must communicate with the schools about the transformations taking place that will improve teacher preparation. They should encourage and aid the schools to critically review their teaching goals, methods, and programs. If needed, the colleges should provide expertise that will assist the schools strengthen their educational efforts. University-school collaboration is vital if education in America is to markedly improve. The federal government has a role in furthering this mission by targeting funding that makes such activities the norm and not the exception.

Responses to Vito Perrone

by Manuel N. Gómez

“The world seems mad in preoccupation with what is specific, particular, disconnected.” (John Dewey, Democracy and Education, 1916)

Those of us committed to collaboration between higher education and K-12 schools continue to search out pathways for creating long-term partnerships among our educational institutions. Vito Perrone’s *Collaboration in Historical Perspective* is a valuable contribution to our movement which suggests fundamental unchanging attributes of successful collaboratives. My comments focus on two significant issues: (a) the similarities between Perrone’s historical examples and our work in California; and (b) the changes in educational institutions that are essential to sustaining and expanding the collaboratives movement and realizing its benefits.

In 1983, the University of California, Irvine (UCI) and Santa Ana Unified School District formally entered into an academic partnership known as the Student/Teacher Educational Partnership (Project STEP). During this period the Santa Ana school district, the largest in Orange County, had changed dramatically in its demographic composition, and the question of how to improve the college/university preparation of its student body had become one of shared critical concern. In 1985, our partnership expanded to include Rancho Santiago College, CSU Fullerton, and Chapman University.

From its inception, STEP was designed as a collaborative that corresponds to many of Perrone’s descriptors, including mutuality of exchange, creation of an equal partnership in the struggle for high quality educational programs, empowerment of those in the schools, and a shared determination to develop the kinds of collaboration that would be most useful. These are indeed the characteristics that have been most evident in successful academic partnerships.

To share our experience with others, we wrote *To Advance Learning: A Handbook on Developing K-12 Postsecondary Partnerships* (Manuel N. Gómez, et. al., Uni-

versity Press of America, 1990). The dimensions of successful collaboratives we found to be paramount parallel those cited by Perrone. The starting point is the dimension of leadership: top-level leaders of UCI, the Santa Ana school district, and our other partners were and have continued to be committed to genuine collaboration. There was clear recognition that we were dealing with two different cultures and that we had to overcome not only institutional barriers but also the profound differences in organizational cultures between the university and the K-12 schools.

As in the historical cases of John D. Pierce at the University of Michigan, John Dewey at the University of Chicago and the Bank Street teachers described by Perrone, the

We must invent a new permanent structure within colleges and universities that helps advance cooperation between universities and schools.

leaders within both educational institutions were highly committed to “school/college collaborations that . . . had a quality of reciprocity that made for equality . . . [and in which] . . . The agendas, the purposes, and the conditions were mutually derived.” (Perrone, *On Common Ground*, Summer 1994, p. 7) Perrone’s historical examples also describe the quality of collaboration that has characterized Project STEP--the reciprocity of authority, the emergence of teachers who became enormously articulate about education matters, and the binding together of those within and outside of classrooms for a common purpose.

In *To Advance Learning: A Handbook on Developing K-12 Postsecondary Partnerships*, we identify operational features of successful collaboratives necessary for the realization of the shared vision of mutuality. The methods needed to cross institutional boundaries in order to create co-equal working relationships among K-12 and postsec-

ondary institutions, and to achieve mutual goals, are complex. Strategic development of the following dimensions is especially important: organizational structures; inter-institutional teams; fiscal and human resources; meaningful participation; objective evaluation; continuous communication; and ongoing leadership and momentum. While Perrone’s analysis was not aimed at identifying operational features of historical cases, this is a separate analysis well worth undertaking.

Perrone describes, in the last section of his paper, some of the changes in institutions of higher education that are needed to sustain collaboratives. As Perrone notes, “universities must accept a broader than usual view of scholarship, . . . value conversations and inquiry related to teaching and learning, understand the importance of interdisciplinary [and, I add, interinstitutional] collaboration, understand the necessity of long-term involvements, and affirm mutuality, a parity of authority.” (Perrone, p. 9) In Project STEP, we continue to grapple with these fundamental parameters.

We are not there yet, and I doubt whether any institution of higher education can achieve and sustain the changes in institutional culture that are needed to maintain ongoing substantive cooperation for a significant period of time without changes on a national level that relate to collaboration. New institutional structures and faculty motivation for involvement in collaborative efforts are currently *ad hoc* on the campuses where they do exist. Across the nation, it is not commonly an expectation that colleges and universities will have a top institutional leader responsible for K-12 school collaboration, as there are individuals responsible for academic programs, research, student services, and the like. I believe that we must invent a new permanent structure within colleges and universities that helps further motivate and advance ongoing cooperation between universities and schools.

However, institutional structures for guiding and sustaining longterm collaboration with K-12 schools are only part of the equation. Faculty recognition and rewards must

by Charles S. Serns

also be changed to include this dimension. A different type of research must, as Perrone notes, be recognized for its legitimacy and excellence. Research deriving from collaborative projects will often lead to different products, such as improved school practices, new instructional methods, and higher-level curricula. These can be documented and evaluated, as scholarly papers have been for so many years, but the commitment must exist to invent new procedures

What are the benefits of K-12 school/college and university collaboration, and do they justify significant departures in the structures and norms of postsecondary institutions? The answer is “yes” on at least two counts. Experience of successful collaboratives has shown significant increases in the preparation of secondary students for higher education. In Project STEP, the numbers of students from Santa Ana attending postsecondary institutions have increased from 40% to more than 57% in a six-year period, and the success and retention rates of these students have been unusually high.

The fundamental question that we should be asking as we consider collaboration with K-12 schools pertains to what we believe should be the roles and responsibilities of our institutions of higher education, and how our society should be investing and providing more, not less, critical support to our teachers and young people. If higher education is to remain vital, we must respond to the problems of our society, and as the experience of cooperative agricultural extension programs has demonstrated, the greatest contributions of universities to society’s problems require mutuality and collaboration. The current educational partnership movement enables colleges and universities to make profound contributions to our nation’s schools, teachers, students, families and communities. The institutional structures, values, and incentives of our educational institutions must change to make this important responsibility a reality.

Manuel N. Gómez is Associate Vice Chancellor of Academic Affairs for the University of California at Irvine.

Collaboration as a whole, and university-K12 collaboration in particular, is something that does not seem to have high value in our society. While the politically correct rhetoric talks exhaustively about learning *about* each other, little seems to be being done about working *with* each other either as people or as institutions. As we increasingly divide ourselves into sides or groups, it seems as if we do not have the tools to join together for the common good. Part of this inability may stem from the fact that children are seldom allowed to truly collaborate in school settings and they are often not in environments where they see effective collaboration taking place among adults. Children are exposed to a series of educational settings in which few adults can articulate the big picture of the learning process. Certainly, if collaboration was an actual cultural norm, time would be allocated for people to collaborate as a valued process and the collaborative process itself would be respected.

Vito Perrone’s excellent perspective on university-school collaboration cites several examples of learned communities setting up collaborations. The collaborations, with only a few exceptions, have not been embedded in the culture of education. The widespread lack of collaborative endeavors among elementary schools and universities highlights the condition of elementary education as being seen as out of the loop of a collaborative dialogue about teaching and learning in its formative stages.

Granted these observations are generalizations, but if one truly wants to develop collaborative models in schools, there are some big questions that remain unanswered. Perrone’s article serves as a springboard for these questions:

- Why is there a lack of “mutuality” among learning institutions? It seems as if we are programmed to accept that these bodies should never mingle. It is a waste—of time, of money and of the potential for a common understanding about teaching and learning.

- Why are the conversations about teaching and learning limited to the college of education and random meetings of teachers? It would seem that every university

would want to engage in examining how people learn. People do not learn best at any one particular age. However, they do learn differently at different ages; a fact that, because we are divided, is not well utilized.

- Why is it the notions of equality and partnership in education often do not include the learner as teacher and the teacher as learner? It seems that the value of such inquiry is lost in issues of turf, control, and self-serving regulation.

- Why is it that those who regale public school educators have such disdain for the very people who are charged with shaping the nature and scope of inquiry in students? The universities that see no need for high quality teacher preparation programs with high academic rigor seem to doom themselves and our future.

- Finally, why do both universities and schools thwart the things that Perrone points out, such as interdisciplinary collaboration, parity of authority, mutuality, and articulated dialogue regarding teaching *and* learning? It seems as if the answer serves as an unwitting partner in those things that continually divide us.

While these questions may pose a bleak setting, there are answers. Answers are found in the very best elementary school classrooms which provide micro learning communities. Teachers facilitate learning experiences that integrate skills and content and connect practice and experience. Collaboration is done in a mutually supportive environment which expects continuous learning. Many lessons can be learned from this model.

Clearly, by Perrone’s description and from a cultural imperative, we need to find ways to collaborate. This collaboration must be part of our essence as educators. To do less relegates us to small mindedness, fearfulness and loneliness. When we refuse to collaborate, we fail to empower one another and we fail to celebrate the strength of our diversity.

Charles S. Serns is Principal of Hubert Humphrey Elementary School in Albuquerque, New Mexico.

Collaboration and Technology

By Antonio Lasaga

At the same time as the collaboration between universities and schools intensifies across the country, telecommunications is fundamentally transforming the manner in which the collaboration is pursued. The field of electronic communication has already begun to play a dominant role in the exchange of ideas and data. Local links (e.g. ordinary cables, a fax, or a modem) between similar computers have usually enabled the transfer of information or the sharing of software and printers. However, the need for a much more powerful global link between local networks led to the development of "Internet," which is a network of networks using a standard communication protocol called TCP/IP. In a sense, the "Internet" provides an information superhighway that links the smaller roads built from the simple local networks.

The first Internet, ARPANET, arose from research supported by the department of defense. Today, the US government spends billions of dollars a year to provide the satellite and cable coverage needed to physically link computers around the nation and the world. In particular, NSFNET (National Science Foundation Network) provides the major backbone connecting universities and colleges around the nation. Today, the Internet is a huge world-wide network of networks comprising thousands of networks interconnecting more than 500,000 computers ranging from the smallest PC to the most powerful computers on earth. This information superhighway is now travelled by more than 15 million people and is truly turning the world into a "global village."

The electronic superhighway is becoming an essential element in catalyzing the collaboration between universities and schools. The possibilities in this domain are just now being explored and the current activity is but a shadow of what is to come. Already, there are tens of thousands of elementary school students around the world engaging in global communication through

Antonio Lasaga is Professor of Geology and Geophysics at Yale University in New Haven, Connecticut.

the Internet. Even the White House is accessible to the students via the Internet and President Clinton has already sent some replies to students. Armed with even the humblest of computers, the students and teach-

Telecommunications is fundamentally transforming the manner in which the collaboration is pursued.

ers can communicate across the planet and share in a virtually unlimited wealth of resources.

An example of a vibrant forum using electronic communications is the KIDLINK network. KIDLINK has been in operation for several years. During 1991 and 1992, KIDLINK had 6200 children from 45 countries participate in a global dialogue. Students can communicate with each other using KIDCAFE and teachers can discuss projects in KIDPROJ. The students answer four questions about themselves to enter the system: 1) Who am I? 2) What do I want to

The electronic superhighway is becoming essential to collaboration between universities and schools. Its possibilities are just now being explored.

be when I grow up? 3) How do I want the world to be better when I grow up? and 4) What can I do now to make this happen? In fact, recent studies have analyzed the responses according to gender and found some interesting conclusions. The global chats can introduce many different cultures and languages to these kids in the global village, in addition to providing new friends. Teleconferencing can be achieved through IRC hookups. IRC (Internet Relay Chats)

can link many students and their teachers into a live global exchange on any topic. For example, such IRC's have taken place during the launching of several of NASA's Explorer missions. KIDLINK enables the discussion of current topics with many different countries. In some cases, the discussion is occurring before the newsmen can cover the issue.

For example, the historic trek through Antarctica carried out earlier this year by Sir Rannulph Fiennes and Dr. Michael Stroud to raise funds for multiple sclerosis was followed closely in KIDLINK with the help of Ham Radio

operator Peter Daly, who was in communication with the Antarctic team and then relayed the messages on KIDLINK. The team set a record for the unaided crossing of the Antarctic continent. Current projects on KIDLINK include a discussion of war and peace in the world today; a global discussion group on children's rights focusing on UNICEF; Environment 2093, which asks the students to imagine the world 100 years from now and to write about it, including a discussion of pollution; a travel project in which students first describe their area and plan a 3-day visit for guests their own age

and then go on to carry out a virtual trip to other places in the world with the help of students from those areas (which involves further dialogue between the students and teachers); use of daily satellite pictures of the world (which can be downloaded free of charge) to carry out weather forecasting.

Because professors and school teachers can be in constant communication using the network, the possibility of jointly discussing particular projects is significantly enhanced including discussions between "experts" on one continent and teachers on another. The access to huge databases, pictures from all around the world (including the exchange of scanned pictures of the students themselves), and educational software as well as the ability to talk to new friends can help transform the classroom into an exciting place. University faculty can help in formulating the

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Edward J. Meade, Jr., 1930-1994

In a lecture in 1985 to the Education Writers Association, Edward J. Meade, Jr., offered a look back over the previous three decades of teaching in America and a view ahead over the next decade. As that decade now draws to a close, Meade's comments on teacher preparation and on school-university partnerships remain as important as when he made them. He said in part:

“Two basic assumptions undergird my remarks. One is very simple: Teachers have been and will continue to be central to education in schools. I think the recent spate of reports about schools, however many you wish to count, and regardless of their specific recommendations, acknowledge the centrality of the teacher as the key to improvements we're going to make in schools. The second is related; namely, that changes in curriculum, more knowledge about learning, and the increased use of technology for teaching and learning also will underscore again the importance of the teacher.

“Recently, I was asked by the National Commission on Excellence in Teacher Education to examine many of the reports about schools and see what they said about teacher education. . . . There was very little in them about teacher education in any direct sense. So, I examined what they said about teachers, what they assumed teachers to be like, to learn whether in some collective sense I could find that information and relate it to teacher education. . . .

“In summary, my analysis of the reports revealed eight factors related to teachers: (1) a teacher is, first, a well-educated person; (2) he or she ought to be an intellectually curious person; (3) he or she should have mastered the knowledge about the subject or subjects he or she is expected to teach; (4) a teacher ought to be knowledgeable about the American society: its history, its political, economic and social systems, and about the place and role of education in it; (5) a teacher should know about children—how they develop, how they learn, and the contexts in which they live; (6) a teacher should ‘coach’ or ‘manage’ learning and be a decision-maker in the pedagogical sense; (7) a teacher should be a continuous learner; and, finally, (8) a teacher should be able to have a career in teaching, one that is varied and rewarding.

“Currently, there is much ferment about the preparation of new teachers for the schools. . . . Clearly, we will need teachers who know what is needed to be known and learned, who will know students and how to help them learn, and, therefore, who will be able to teach effectively.

“At the very least, the colleges and universities that prepare teachers will need to view the preparation of teachers as a priority and use all their best intellectual and professional resources to do so, and not rely only on those in their education departments. Also, schools and school systems will need to be more actively engaged with higher education in the preparation of new teachers. No longer should schools take their share of responsibility in this regard in a casual fashion. If clinical train-

ing is essential to preparing teachers, as I believe it is, then the schools need to be more formally arranged and prepared to be a partner (perhaps the dominant partner) in this aspect of teacher preparation. We will need arrangements in the schools that foster clinical training, and we will need teachers in the schools who have the capacity and the time, and the support, to work with those being trained to teach.

“Further, once a person is inducted into teaching . . . the responsibility of college or university is not finished as is currently the case in most instances. Higher education, as much as the schools, has a responsibility to nurture those beginners so that they will continue to grow academically and intellectually as well as pedagogically. After all, school teachers and college professors are, in many ways, engaged in the same business. They are peers, and the collaboration of both—during teacher preparation and after it—ought to strengthen both schools and colleges.

“Where does this all lead to for teacher preparation? Does it lead again to the M.A.T.? Perhaps. Does it lead to teacher preparation taking longer? I think so. I don't see how we can meet the demands for academic, intellectual and professional competency along with those for solid clinical training in just four years. After all, we now assume that four years of education in the liberal arts is the minimum for someone to be ‘well-educated.’ Teachers for America's future need to be that and more, much more. They need to be the best we can find—as well-educated as any first-rate college graduate who has a sensible ‘mix’ of knowledge of content—the real and fundamental stuff of the fields in which they will teach—along with that knowledge which undergirds a teacher's craft, and with clinical training on a par with the best now offered by other humanserving professions.

“Still, all of this kind of preparation will be of little consequence unless the schools in which these new teachers teach are, themselves, places that are stimulating and arranged for learning—not only for students, but also for teachers. Clearly, one aspect of that is more intellectual or academic autonomy for teachers. The fact that many teachers are not allowed to participate in the selection of instructional materials for the students they are expected to teach is wrong, plain wrong. The fact that many teachers are restrained in how they teach by having to conform to prescribed—no, mandated—styles of teaching wrought by excessively rigid curricula is wrong, just wrong. The fact that accountability by teachers has become more important than trust in teachers is wrong, just wrong. We need teachers in schools where there are opportunities to grow, to have a career, and to be rewarded accordingly as teachers who continue to teach, rather than having them seek growth and reward by leaving teaching.

“For this society to find such a talent for teaching, to educate and train it for teaching, and to allow it to properly serve the children and adolescents in our schools is no small task. It will require a new vision, a new understanding, and a new commitment by all of us.”

The Role of the Federal Government in Enhancing Teacher Education

By *Lauro F. Cavazos*

Teacher education is currently in a state of turmoil, unrest, and uncertainty. The poor performance of America's schools despite a decade of education reform has increased the pressure on teacher educators to take the initiative in reforming their programs. This may prove difficult for them because teacher education is often a low priority at most colleges and universities. Another failing of higher education is that it does not appear to value the mission and purpose of teaching among its own general faculty. Too many institutions have emphasized research at the expense of teaching in making hiring and tenure decisions.

Colleges and universities need to rearrange their priorities to reflect the pressing need for effective teaching and better teachers at all levels of our education system. At the same time, Colleges of Education must lead in bringing about major reform and change on how we prepare teachers; that is where teacher improvement must start.

The concept that the federal government has a major or significant role in teacher education is not valid. It is true that the funds requested in the Goals 2000 Act and the Improving America's Schools Act of 1993, contain welcomed support for professional development for teachers. Both of these bills, however, have other education objectives. Teacher education at the university level is not emphasized. The federal government needs to target teacher education directly in stand alone legislation and not as part of an omnibus bill on education. This would serve to focus the attention of the nation on teacher education.

The federal government should make it clear that teacher preparation is a priority and that teachers are a national resource. Then, funding needs to be provided for in-

Lauro F. Cavazos is adjunct professor in the Department of Community Health at the Tufts University School of Medicine. He was U.S. Secretary of Education from 1988 to 1990.

novative teacher education, for programs that target minority teacher recruitment, and for increased collaboration between universities and schools in the preparation of teachers. For example, schools and Colleges of Education can work together to blend education innovation concepts into the teacher education programs at the undergraduate and graduate levels. Further, the school systems should provide opportunities for their teachers to return to the College of Education for continuation education programs or courses. There they would learn about in-

Colleges and universities need to rearrange their priorities to reflect the pressing need for effective teaching and better teachers at all levels of our education system.

novative teaching methods and concepts that would renew their teaching skills, and thereby enhance student education.

Beyond appropriating funds to initiate teacher education reform, the role of the federal government should be limited to monitoring and assessing the results. The details of improving teacher education should be left to the schools and colleges. In response to funding support, universities should direct their priorities toward the pressing need for effective teaching and better teachers.

The reforms we are seeing today in teacher education, led by some of the Colleges of Education, are aimed partly at undoing the mistakes of the past and empowering professional educators to organize their schools and teach to the best of their abilities. School based management will create the kind of entrepreneurial environment that will reward professional initiative and innovation. It is based on respect for the ability of professional educators to create effective schools where all children can learn.

There is no single model that can effectively reform teacher education. Ways must

be found to attract and prepare talented persons to teach under the widely differing conditions found in America's classrooms. The best way to ensure quality teaching for all children is to permit the maximum flexibility in teacher education programs, limited only by the need to maintain accountability for outcomes.

There should be three overarching objectives for any teaching program. First, graduates must know how to create active learning environments. Second, all teachers must have a thorough understanding of the subject they teach. Third, all teachers must be educated to meet the challenges of cultural diversity in our schools. One of the most striking aspects of teaching in the 21st century will be the diversity of students who will be in America's classrooms.

Over thirty percent of public school enrollment is now minority. By the end of the first decade of the 21st century, they will comprise more than 50 percent of the students in twelve states. This changing population poses some special challenges and problems for teachers and teacher education.

Many of these minority students speak a language other than English at home. Social and cultural differences can present extra challenges to teachers. Encouraging feedback from students experiencing difficulties, communicating effectively with parents, and overcoming gaps in student preparation are a few examples of areas in which minority students may require special attention.

Too many young teachers today find their training for a suburban education environment to be inadequate for the inner city school system where they are most likely to find jobs. Most teachers will not be able to draw on their own experiences to meet the instructional needs of a disparate population, so it is critical that teacher education programs provide the necessary background and training. It is important for teachers to see themselves as part of the community in which they teach, even if they live elsewhere. Schools must be careful that staff attitudes

about poverty and ethnic background do not bias their teaching approach to minority students. Teachers need to learn about the culture and language of their students. Colleges of Education can provide continuing education activity and courses for those teachers from communities with large numbers of minorities.

If we are to prepare a generation of teachers to deal effectively with the linguistic and cultural needs of the student population, there needs to be a new emphasis on language proficiency in the undergraduate curriculum. Currently only ten percent of baccalaureate degree recipients are proficient in a language other than English. As a first step to increased bilingualism, that proportion needs to be increased to 50 percent. Further, Colleges of Education, which seldom require any language instruction, should make proficiency in a second language mandatory for all students, given the importance of understanding other cultures, and the need to relate to the growing changes in our society.

It is never too late for those teachers already in the system to learn a new language. In order to increase language proficiency, Colleges of Education should create partnerships with the schools that teach significant numbers of minority students. Through these arrangements, and in conjunction with the foreign language department of the university, learning opportunities could be provided in evening courses or during the summers. The federal government might target language proficiency as an important facet in teacher education and could provide funding as a stimulus to improving foreign language skills in the Colleges of Education.

The federal government should designate the education of minority teachers a national priority. Despite the growing minority representation in America's student population, the number of minority teachers has remained relatively stable at about ten percent during the last ten years. This means that many of our children will never have the opportunity to learn from minority teaching professionals during their growing years. As in other professions, minorities have important contributions to make to teaching, based on the unique perspectives, experience, and understanding that they may bring to the classroom.

Minority teachers may also serve as needed role models for minorities and dis-



CELIA MUÑOZ, "WHICH CAME FIRST?" ENLIGHTENMENT #4, PAGE 1, 1982

"Which Came First" is the fourth of nine pieces of the Enlightenment Series produced during the 80s when I was attempting to define my existence in relation to the rest of humanity. The series is composed of artist's books that function as little morality stories. The fact that I have been in the educational field must have had some influence. I guess I continue to give form to complex issues in a manner that is nonthreatening while hopefully providing enjoyment in the process. Education, whether it be formal or not is, for me, more about learning than about teaching. . . . I am very happy to learn that this country is trying to redefine the nature of education through a collaborative approach. I want to believe that this nation will consider the role of art to be as important as that of the other areas of learning, all of which grew out of the creative process. That art is about the skill of thinking and a respect for feeling. — Celia Alvarez Muñoz

advantaged students from communities in which the value of education may not be understood. A shared background may help a teacher communicate the importance of learning to students who otherwise would see little purpose in attending school.

In order to educate more minority teachers, Colleges of Education must recruit outstanding minority students to enter their programs. Colleges of Education should establish collaborative efforts with secondary schools that have large numbers of minority students. On a regular basis, education faculty need to work with the schools to identify minority students who have an interest in a teaching career. Faculty members should counsel them about a teaching career, and guide them in their choice of academic courses. The students should be advised of the costs of a university education, and be made aware of financial aid opportunities.

Student visits to the College of Education should be encouraged in order that they observe teaching activities and talk to enrolled students and faculty about a teaching career.

Universities must make education a priority and recognize that the preparation of teachers is not just the responsibility of Colleges of Education, but an integral part of the university mission. Institutions of higher education must make a real investment of attention and demonstrate a commitment of purpose in teacher training. In turn, the federal government should constantly remind universities of the importance of preparing teachers, and initiate programs that support Colleges of Education.

The challenge in teacher education is clear. We have set far-reaching national education goals, at a time when our schools are failing to meet the needs of an increasingly diverse society. Teaching in the classroom of the 1990s demands individuals who can create effective learning conditions, and who have developed an understanding of how to meet the education needs of a changing student population. We must not only restructure our schools, but we must transform the culture of professional educators into a culture of educational renewal that will produce

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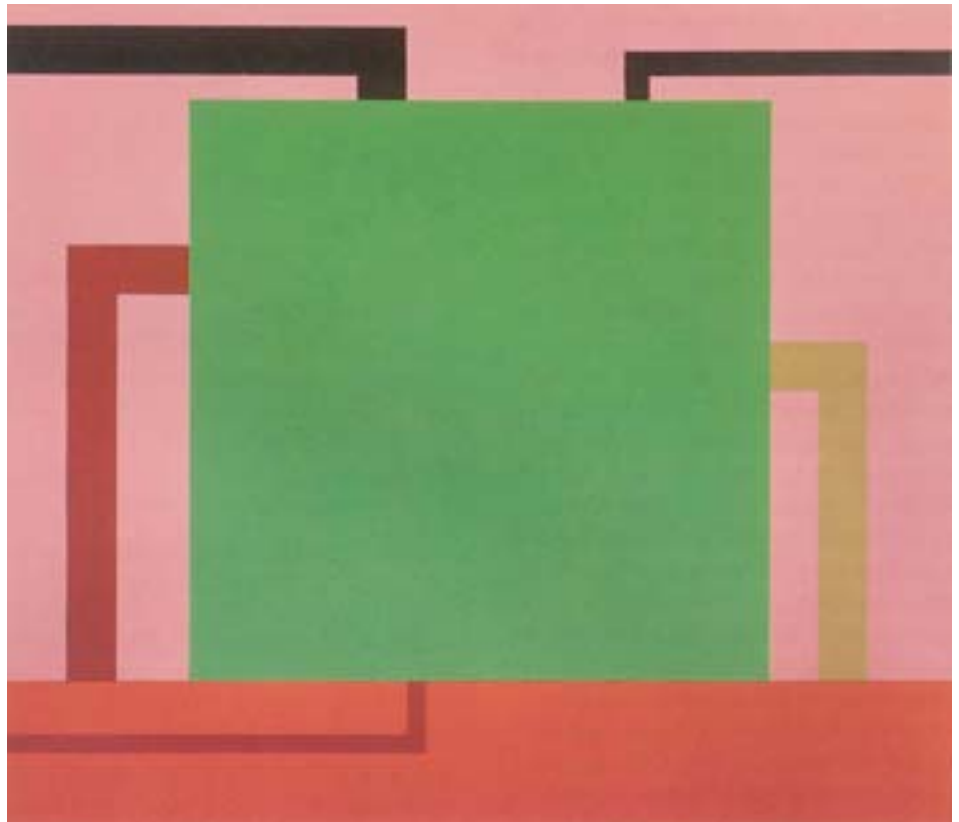
Lasaga: Collaboration and Technology

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various projects, suggesting contacts, analyzing the data, and preparing reports. Computers can also be used in the visualization of data and in simulations of the real world. The development of new curricula by teachers can be enormously aided by tips and suggestions from other teachers around the world. Just now, there are proposals to establish user groups within KIDLINK for teachers in specific subject areas including the creation of a network of people who can serve as contacts.

As exciting and promising as the use of high technology in the classroom is, there are serious problems to overcome before the huge potential comes to fruition. The number of ways of using Internet and computers in enlarging the classroom can be quite overwhelming to many teachers. In addition, teachers often lack the computer skills needed to use important operations such as ftp (file transfer protocol) and telnet. Therefore, the various options available to teachers must be clearly explained and there have to be some instructions on the use of computers that do not assume any computer literacy. Teachers must feel comfortable with the use of the network before they can effectively pass that information to the students (students will pick up the techniques quite fast!). This is a particularly important area for future collaboration between university and schools.

Full access to the Internet is still a major problem in applying the high technology to classrooms around the world. Universities, which in many cases provide the only access to the Internet for schools, again can play an important active role in the introduction of telecommunications to future generations. In addition, access to the Internet requires a PC and a modem in the classrooms as well as an account on a university computer. Unfortunately, many schools lack the resources to provide even the PC's in the classroom. In some instances, there are computer resources in the school but the usage of the computers is quite constrained. This is another important area for collaboration between the university faculty and schools.



PETER HALLEY, *TOTAL RECALL*, 1990

As we look to the coming of a new millennium, the traffic through the electronic superhighway will change dramatically. Just as real highways promote the growth of cities, the electronic superhighway will promote the growth of academic endeavors, and in particular the teaching of students in the K-12 grades of our schools. The choices are so numerous and the possibilities so great that the challenge for us in the

future is to chart an optimal path not only to provide adequate access of our children and teachers to this wonderful high technology, but also to collaborate on developing the most efficient use of telecommunications to enhance the understanding of history, geography, science, environment, politics, cultures, and most importantly the students' views of themselves and their world.

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