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# Community Service Learning and the Vocational Teacher

Robert D. Shumer  
*University of Minnesota*

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# What is Service-Learning?

Service-learning is elementary school students in the state of Washington starting the above-stream



movement, learning language arts and science while helping salmon return to a once dead creek.



Service-learning is Foxfire, where students in rural Georgia cover the state instructional goals for

English while producing a magazine, video documents and preserves the folk culture and skills of a passing generation of older neighbors



Service-learning is advanced typing students, outfitted with dictaphones, visiting a convalescent home,



recording senior citizens' business correspondence and family letters and making transcriptions to be sent.

Service-learning is students from a

elementary class

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## Community Service-Learning and the Vocational Teacher

Sponsored by the  
Department of Vocational and  
Technical Education,  
University of Minnesota

August 18, 1993  
Brooklyn Park, MN

Presented by  
Dr. Robert Shumer  
University of Minnesota

*Resource Materials from  
Dr. Robert Shumer  
University of Minnesota  
1954 Buford Avenue  
St. Paul, MN 55108  
and the*

*National Youth Leadership Council  
1910 West County Road B  
St. Paul, MN 55113*

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Robert Shumer  
VoEd 5101  
August 1993

## AGENDA

- 9:00 AM -- Introductions/Purpose of the course
- 9:15 AM      Video "Y.E.A.H." -- A Vocational Model of Service-Learning  
                 Speaker: Carver-Scott Education Cooperative -- Housing Project  
                 Discussion: How one develops a housing project or other similar program
- 10:15 AM -- Define service-learning: from literature and participant's perspective  
                 "Describing Service-Learning: A Delphi Study" -- Shumer
- 10:30 AM -- Break
- 10:45 AM -- Readings:  
                 "Improving Secondary Vocational Education" -- Silberman  
                 "The Sleeping Giant of School Reform" -- Nathan and Kielsmeier  
                 "School-Based Work Experience" -- Stern  
                 (Small group work preparing readings for presentation and  
                 discussion -- each group will cover specific reading)
- 11:45 AM -- Lunch (on your own)
- 12:30 PM -- Developing a vocational service-learning program -- defining the issues  
                 Assessing what you teach -- using a conceptual approach to curriculum:  
                 Developing a checklist for your program
- 1:15 PM -- Model Curriculum Packages -- some examples of integrated service-learning  
                 programs which address Minnesota Graduation Outcomes  
                 Discussion: Where does vocational education fit?
- 2:00 PM -- Developing your service-learning program:  
                 Outlining your own program: using ideas and models from the day,  
                 describe your vision of a service-learning program for your setting  
                 (take a short break during this activity when you feel the need)
- 3:00 PM -- Discussion of Plans

3:30 PM -- Planning for tomorrow and review of assignments for course

1) Select sessions to attend and write a brief summary of each addressing question: What are the implications of this session for the development of service-learning programs?

2) Paper for course: Complete your design for a service-learning program for your setting. Identify the factors that will work in your favor and hinder your chances to actually implement this design. This is due by August 30, 1993.

3:45 PM -- Questions and concerns

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Robert Shumer  
University of Minnesota  
July 1993

## EXECUTIVE SUMMARY

### DESCRIBING SERVICE-LEARNING: A DELPHI STUDY

While many have tried to understand the notion of service-learning, no one seems to agree on one definition or description. A Wingspread conference in 1990 defined service-learning as both a philosophy and a program (Giles, Honnet, & Migliore, 1991). The National and Community Service Act (1990) contained a four part definition which described characteristics and processes of service-learning, including reflective components which tie service experiences to a curriculum.

To get a better sense of service-learning, a Delphi study was conducted to seek consensus on the characteristics and traits which defined various programs. Twenty-five service-learning practitioners and researchers participated in three "rounds" of the Delphi, providing examples and describing what makes programs different. While there is consensus on some aspects of service-learning, for the most part there is still disagreement on details. Panelists agreed on two primary categories; on most other topics there was never unanimity on what characteristics constituted service-learning. There is consensus, though, that service-learning can be envisioned through forms, or types, and that these forms are best understood through specific examples.

There is general agreement that service-learning occurs in two general categories: school-based and community-based. In this study eleven forms of school-based and fifteen forms of community-based programs were identified and defined through specific examples. In addition, twenty-nine different dichotomous variables ("continua") were named which further describe purposes, goals, processes, and settings of service-learning. All of these types or models provide a framework for conceptualizing service-learning in its various configurations; yet none of them are fixed or exact in meaning or description. Perhaps this reflects the complexity of the concept identified in the Wingspread definition of service-learning: being both a philosophy and a program. Indeed, the various forms and "continua" represent both programmatic and philosophical dimensions.

As service-learning continues to expand and grow, new forms will be added to the typology to further describe its variations and structures. Through dialogue and analysis, practitioners and researchers will refine our knowledge and improve our understanding of what service-learning is and in what forms it exists. These are not very comforting words for a world that wants precise definitions and exacting models of practice. Yet they are the honest responses of people who have thought about and practiced service-learning for a long time. As powerful and as exciting as any educational innovation and practice, service-learning is still very much an amorphous concept which continues to resist rigid definitions and universal understanding.

## CATEGORIES OF SCHOOL-BASED SERVICE-LEARNING

### FORMS

### EXAMPLES

<p><b>1. Community service class</b></p>	<p><b>A.</b> Elective where students earn credit in a class called Community Service, which is distinguished from other academic courses.</p> <p><b>B.</b> A middle school class where students tutor elementary children in reading at a near-by school as part of their "Enrichment" period, a course offered at the end of the school day.</p>
<p><b>2. Academic class</b> (either required or elective, where credit is earned in a discipline, such as English, Math, or History and service experience is integrated into the basic curriculum of the course)</p>	<p><b>A.</b> Elective Biology class with an optional assignment in stream monitoring.</p> <p><b>B.</b> Required Government course with a service component involving community projects.</p> <p><b>C.</b> Elective Health course where students do a community service project with a local hospital as part of the course requirements.</p> <p><b>D.</b> English Literature course where students read a novel with a protagonist who is homeless; students do work at homeless shelter, plan food collection and meal preparation; write opinions for local paper</p> <p><b>F.</b> Elementary school math class where students help senior citizens to save money by computing best values in stores and assisting in shopping activities.</p>

<p><b>3. Interdisciplinary projects/courses (single teacher or team teaching with service theme)</b></p>	<p>A. Science class which includes testing water quality in a local river and using the data in computing statistical trends for a Math class.</p> <p>B. Social studies/English/Video project where students conduct study of how elderly are treated and read novels about the elderly. Students write stories about elderly for young children and assist in an Alzheimer's clinic. Process is documented by students through video demonstration.</p> <p>C. Elementary children conducting research by reading, writing, using art and math to chart collection of recycled goods to raise funds to purchase trees for local park.</p>
<p><b>4. Practica (Includes apprenticeships, internships, and other forms of field study)</b></p>	<p>A. Community service experience which accompanies or follows a formal course (Social Studies course on Civics, followed the next semester by a course which requires students to do a service project in the community).</p> <p>B. Internship with a social worker where students assists with running support groups for troubled teens.</p> <p>C. Course on Child Development which has an accompanying course where students actually work with children at a school-sponsored child care facility.</p>

<p><b>5. Vocational education course</b>  <b>(Includes apprenticeships, internships, cooperative education, work experience, usually involving some vocational application)</b></p>	<p><b>A. Class which has a goal of occupational skill development, and includes a service dimension such as house building, child care, or food service.</b></p> <p><b>B. Home Economics course where students prepare meals for older citizens and study the nutritional needs of seniors.</b></p> <p><b>C. Construction course tied to Habitat for Humanity where students learn specific trade skills and techniques while building homes for low income citizens.</b></p> <p><b>D. Either paid, stipended, or unpaid work experience in a service occupation where supportive class is included in program structure.</b></p>
<p><b>6. Programs for special populations or special locations</b></p>	<p><b>A. A specific program which focuses on at-risk youth, learning handicapped, low income youth and includes a service component.</b></p> <p><b>B. Program focusing on a specific geographical location, such as a tutoring project which targets a particular inner city community or a particular elementary school.</b></p> <p><b>C. Special program for low income youth sponsored by Job Training Partnership Act funds where students serve non-profit organizations and learn pre-employment skills and basic skills.</b></p> <p><b>D. Program for Learning Handicapped students which places them at a senior citizen home to learn interpersonal skills and to study history through personal stories.</b></p>

<p><b>7. Co-curricular activities</b>  <b>(Service-learning programs existing outside the school classroom).</b></p>	<p>A. Special event, such as a food drive or community tutoring project, which is planned and organized outside of classroom time.</p> <p>B. Program, such as the Youth Community Service Project (YCS) in Los Angeles, where teachers sponsor work through student clubs to plan and execute community service projects.</p> <p>C. Distributive Education Clubs of America (DECA) which plan, outside of school time, fund raising projects for low income citizens or people with special needs.</p>
<p><b>8. Clearinghouse</b>  <b>(which engage students in researching and locating service-learning opportunities)</b></p>	<p>A. Programs providing information on service opportunities available in the community which are staffed by youth and primarily operated by youth.</p> <p>B. Program in Hudson, Ohio, where students collect requests for service from community people and agencies and assign volunteers.</p>
<p><b>9. District-wide initiative</b>  <b>(an initiative which leads to service-learning program, but is not directly a service-learning model).</b></p>	<p>A. An entire K-12 school district includes service-learning at all grade levels, as in Minnetonka, MN or Springfield, MA.</p> <p>B. A school district focuses on a specific age or grade level, such as middle schools or high schools.</p>
<p><b>10. State-wide initiative</b>  <b>(initiative leads to service-learning program, but is not directly a service-learning model).</b></p>	<p>A. Effort to include service-learning activities in all districts in a state, such as in Vermont (SerVermont) or in Pennsylvania (PennServe).</p>

**11. Service hour graduation requirement**

**A. Program administered by school personnel which requires a specific number of hours of service for graduation, such as the Atlanta Public Schools (75 hour) or state of Maryland (100 hours). There is usually a product required as part of the reflective component, such as a written paper.**

## CATEGORIES OF COMMUNITY-BASED SERVICE-LEARNING

### FORMS

### EXAMPLES

**1. Service Program sponsored by community organization or institution (which includes some type of formal or informal reflection)**

**A. A hospital volunteer program where youth are oriented to various tasks and receive follow-up training and assistance.**

**B. A docent program for a museum or nature center where youth provide direct service to clients and receive continuous training.**

**C. Student YM/YWCAs where youth perform a variety of services.**

**D. An after-school recreation program run by a community-based organization which uses high school youth to coach and supervise younger children's activity.**

**E. Troop activities sponsored by the Girl Scouts/Boy Scouts which include service activities for youth in community settings.**

**F. Programs sponsored by religious groups which engage youth in service and include well developed training and education components.**

<p><b>2. Specific courses</b></p>	<p>A. Red Cross course in Basic Aid Training (BAT) where youth initially receive instruction in basic first aid and then teach material to fourth graders in their community.</p> <p>B. Search and Rescue program by Native Americans in New Mexico where youth receive training in rescue procedures and then serve, the community, as needed, in times of emergency.</p> <p>C. Courses in Emergency Medical Technology (EMT) offered through hospitals and local health agencies where youth are taught emergency procedures, certified through testing, and then perform services to the community at large.</p>
<p><b>3. Series of courses/programs</b></p>	<p>A. Red Cross program in Disaster Action training where youth take a series of courses focusing on disaster preparedness and then perform those services when needed in the community.</p> <p>B. Series of courses/trainings offered through the Girl Scouts/Boy Scouts in environmental studies where youth engage in community projects to apply their knowledge.</p>
<p><b>4. Vocational programs where job training, skill development, and service are major goals</b></p>	<p>A. Youth Employment Programs administered by municipal governments which place young people in service related jobs.</p> <p>B. Programs which place participants in service related occupations sponsored by private industry, Private Industry Councils of the Job Training Partnership Act, or other job training entities.</p> <p>C. State sponsored employment and training programs which place youth in service occupations as part of a youth employment project.</p>



<p><b>5. Programs for special populations</b></p>	<p>A. Programs for at-risk youth sponsored by State Extension Services where youth develop and administer service programs for their community.</p> <p>B. YMCA sponsored program serving handicapped youth where the "Y" provides skills training in service areas and youth use those skills in the community.</p> <p>C. 4-H programs where low-income youth receive training in developing community gardens (urban) or agricultural business projects (rural).</p>
<p><b>6. Short term projects</b></p>	<p>A. A special project, such as a food drive, where youth assist in planning and executing the entire effort.</p> <p>B. A short term event to raise funds for a charitable organization where youth plan, implement, and evaluate the project.</p>
<p><b>7. Clearinghouse</b></p>	<p>A. Volunteer Center which both places young people in a variety of service opportunities and uses youth to research and coordinate participant placements.</p> <p>B. Program sponsored by local service organization which coordinates community service opportunities for youth and use youth to publicize the program.</p>
<p><b>8. Career Exploration</b></p>	<p>A. Programs such as the Explorer Scouts, where youth work with police departments to do service related activities for purposes of occupational exploration.</p> <p>B. Programs sponsored by the U.S. Military where youth shadow personnel and assist with routine duties.</p>

<p><b>9. Compensatory service mandated by court system</b></p>	<p>A. Juvenile court-imposed sentences to do community service which include attachment to educational programs, such as in Carver County, Minnesota.</p> <p>B. Court imposed sentences where youth provide service and discuss learning with Probation Officers.</p>
<p><b>10. Summer programs with service components</b></p>	<p>A. Governors' Schools, in many states, which engage youth in service work as part of their summer learning experience.</p> <p>B. Summer Youth Employment Programs (SYEP) which place youth in service related occupations and include educational components, as in programs sponsored through the Job Training and Partnership Act (JTPA).</p> <p>C. Park and conservation programs which place youth in local, state, and national parks to do service work and which include educational support.</p> <p>D. Leadership development programs for youth, such as the National Youth Leadership Project (NYLP), sponsored by the National Youth Leadership Council, which train youth in leadership skills and include service projects in the training agenda.</p> <p>E. Youth Volunteer Corps, which provide service to the community during summer months and include educational support.</p>

<p><b>11. State service programs</b></p>	<p><b>A. State literacy programs, such as those run by Literacy Volunteers of America, which provide older youth with training and support in providing literacy service to local communities.</b></p> <p><b>B. Intergenerational programs developed as part of the Commission on National and Community Service, Subtitle D, which are administered by state agencies and provide service and support to local communities.</b></p>
<p><b>12. Conservation Corps</b></p>	<p><b>A. State administered program, such as the Wisconsin Conservation Corps, which focuses on public service and conservation, with additional focus on job training.</b></p> <p><b>B. Municipally or locally administered program, such as the Los Angeles Conservation Corps, which focuses on service and conservation, and provides educational support to participants.</b></p>
<p><b>13. Specific event/crisis/problem</b></p>	<p><b>A. Response to a specific crises or event, such as a tornado, earthquake, or other natural disaster through organizations such as the Red Cross. Youth are trained to provide appropriate response and receive support and guidance while serving. Training is short term, though, which differs from Form 3, "Series of Courses."</b></p> <p><b>B. Girl Scouts "Stand By For Service" program, where youth perform service as needed by the community.</b></p>

<p><b>14. Youth Community Service Advisory Groups</b></p>	<p>A. Youth United Way, where youth advise United Way agencies on youth needs and learn about volunteer structures in the community.</p> <p>B. Youth Community Foundation Board, where youth advise agencies on youth issues and promote dissemination of information.</p> <p>C. Youth Engaged in Service (Points of Light Foundation) uses Youth Ambassadors (usually college students) to develop youth leadership in the K-12 arena and to assist in developing youth advisory boards.</p>
<p><b>15. National Service</b></p>	<p>A. Programs such as City Year (Massachusetts) where youth work year-round on urban problems.</p> <p>B. Programs such as New York City Volunteer Corps where youth assess community needs and then design and implement projects to provide needed service.</p>

## CHAPTER II

### Improving Secondary Vocational Education

Harry F. Silberman

We were asked to suggest ways to improve secondary vocational education and give our reasons. The letter of invitation contained four guiding assumptions which made the task much easier, for those assumptions removed some of the present obstacles to improvement. In the first assumption the purpose of vocational education has been broadened beyond job training to include preparation for the students' major roles in life. Thus, secondary vocational education is assumed to be an integral part of general education. That gets rid of the education vs. training controversy. The second assumption, that vocational education occurs in a variety of places, including home, school, workplace, and community, recognizes that it is a responsibility of the larger society, and opens the door for field-based learning, cooperative education experiences, and for other community benefactors to provide mentoring and apprenticeship relationships. The third assumption, that the secondary school is a proper place for vocational education to occur, presumes the provision of adequate resources and dispenses with recent proposals to delay vocational education until after high school completion. That settles the problem of its educational legitimacy. The fourth assumption, that vocational education is for everyone, eliminates the tracking problem and presumes equitable treatment for all groups.

Taken together, these four assumptions envision a much higher status and priority for secondary vocational education than is accorded it by present school reform advocates, not to mention the federal administration, whose recent budget proposal eliminated funds for the improvement of vocational programs.

I would like to comment briefly on ways to improve the quality of secondary vocational education under the protective umbrella of these four benevolent assumptions. Then I would like to discuss the status problem that appears to be undermining these assumptions, and consider a few alternative futures that may offer some hope for eventual restoration of the status of secondary vocational education.

Four obvious ways to improve high school vocational education are: (a) appeal to a wider range of students, (b) raise the quality of the teachers, (c) raise the quality of the learning experiences, and (d) raise the quality of the management of secondary vocational education.

## Improvements That Are Possible If We Assume Secondary Vocational Education Has High Status and Priority

Appeal to a wider range of students. A "good" program is one that is attended by a critical number of top students, but such students are less likely to enroll in vocational courses. When you find a large number of college preparatory students in vocational programs like Benson Tech in Portland, or Don Bosco Tech in Rosemead, California, these programs enjoy glowing reputations. The caliber of students in a program makes all the difference. We need to attract the best and brightest students to secondary vocational education. For vocational education to be attractive it must promise genuine future opportunities, and also provide an enjoyable and stimulating learning environment.

Proposals to broaden the range of students may threaten those who fear that the present group of vocational students will be abandoned. But the notion that secondary vocational education can only serve the non-college bound stands in the way of program improvement. The future manager, engineer, or surgeon needs secondary vocational education as much as anyone. In a survey we conducted in connection with the Commission on Secondary Vocational Education of over two hundred vocational educators, almost all respondents were against channeling students with less academic ability and motivation into a vocational track. The concern with tracking students into homogeneous groups is not only the fear that it will lead to a non-democratic dual system of education, but that it will seriously reduce the quality of education by reducing the chances for students to learn from each other. The presence of more able students in a class is essential to the quality of its instruction. Clearly, additional resources will be needed to provide a truly comprehensive program that will accommodate a broader group of students. Furthermore, instructional methods will have to be altered to accommodate a greater range of individual differences. For example, greater use of peer tutoring may be necessary.

In my opinion the advantages of appealing to a broader segment of the student body override the difficulties of adapting the instruction to a broader student population. Vocational education would gain a broader base of support, especially among parents of college-bound students who are very influential with boards of education. The status of vocational education would probably rise. Indeed, Rust (1985) describes a recent shift during the past ten years in Norwegian secondary education which has made vocational education the upper, or elite, curriculum track. Vocational courses are in great demand and only students with the highest grades and evidence of extracurricular experiences are admitted. The best universities in Norway recognize vocational courses in their admission requirements. With a limited supply of vocational education courses, students compete for the available slots, prompting great selectivity. There are some complaints that the general academic courses are being used as a dumping ground for the less able and least motivated students, who are excluded from vocational education. Low achievers, for example, aren't permitted to take advantage of the scarce apprenticeship opportunities.

I am not advocating that vocational education in the U. S. become an elite enclave, only that it be clearly accessible and attractive to all students. Some steps are already being taken to mitigate the restrictions of increased academic graduation requirements. To solve the problem of access, some

districts permit college bound students to choose vocational electives by extending the school day or the school year. Some allow academic credit for vocational courses comparable in content and rigor. Some have included vocational courses as part of the core graduation requirement. A few even provide vocational projects at the elementary school level.

Raise the quality of the teachers. Ideally, we should recruit our teachers from among the most able and desirable role models in the country. Next to reproduction and parenting there is no more vital function for the perpetuation of the human species than teaching.

We should probably use modern "head-hunting" strategies in recruiting vocational instructors. We should open up the credentialing system and recruit, the same as business does, for top talent. From among the most talented experts, we might canvas the country for persons with desired attributes of caring, patience, communication skill, persistence, and enthusiasm, who genuinely wish to help students, and actively entice them with sufficient incentives to enter teacher training. When we have recruited the best and brightest members of our population into secondary vocational teaching, its status and prestige will grow. Such persons are more likely to effectively disseminate the value of the learning that occurs under their supervision, and may be more equipped to undertake collaborative educational ventures with the private sector. But, they also may require twice the money we are now offering if we are to be competitive with the private sector. An alternative approach is to cooperate with the private sector in sharing the best, most talented performers via personnel exchanges.

Another way to attract first rate teachers is to offer training scholarships for superior students who are interested in a particular occupation, with the understanding that after they have worked in their special field for a few years, they would take time out to devote the next four or five years to teaching.

We also can improve the quality of teachers with better teacher preparation programs. Some graduate students and I have been evaluating UCLA's vocational teacher training during the past quarter. We analyzed the course materials, observed classes, and interviewed instructors, students, and former graduates who are now teaching vocational courses at the secondary and community college levels. We also conducted a survey throughout Southern California of former graduates and administrators in the school districts where they are teaching. In addition we collected data from vocational and adult teachers who had received their preparation in other programs, with the expectation that the comparisons would provide interesting clues about how to improve our own program.

Most of these comparisons were not statistically significant. No significant differences were found in responses of vocational and adult teachers, or in comparisons of the attitudes of vocational teachers from different subject areas, toward their preparatory program. Comparisons among teachers who obtained their preparatory courses from different colleges were also not significant. We have some evidence that this lack of difference is due to large within-group variation in quality of instructors who provided the teacher training. This strong variation was evident in the teacher preparation classroom observations, in the interviews, and in the survey responses. The strong

emotional tone of open-ended responses given by graduates of the courses revealed some instructors were exceptionally helpful, and some were not helpful at all. These responses indicate a potent overriding influence of instructor quality, which may have masked differences among subgroups. It is clear from our study that more attention needs to be devoted to recruiting first rate instructors to teach these courses. We recommended ongoing evaluation of the classroom performance of graduates of the credential program to detect areas that need to be strengthened in the program and also to identify outstanding teachers who might be recruited as potential instructors for the UCLA program. The need to carefully screen teachers exists both at the secondary and post-secondary teacher training levels.

Much has also been written on the need to provide adequate time, funds, respect, and authority for teachers to perform their job in a professional manner. Lortie (1986) suggests that the decline in teacher satisfaction between 1964 and 1984 is due to "increasing tension between the qualifications and self-images of teachers in large school districts, their position in the formal system of governance, and their ability to make firm decisions in matters related to their own classrooms and students." He asks, "Will teachers who have soured on their work serve as attractive models for the young people who are now choosing occupations?" When we get good teachers we must treat them well.

Raise the quality of the learning experiences. When teaching courses on learning at UCLA I always ask students to recall their most significant learning events. We then analyze these events to determine what features they have in common. Over the years I have found that students credit their most positive learning experiences to those situations where they have been trusted with some genuine responsibility and given the freedom to complete important tasks without someone checking up on them every minute and telling them what to do, how to do it, and when to do it. They want to be treated as adults. Significant learning events generally involve a realistic problem situation, often with some wise mentor or benefactor in the background who serves as a role model or coach. The learner is typically thrust into a position of responsibility from which there is no easy escape. Usually there are potent consequences that are contingent upon the learner's performance, such as strong peer approval or disapproval. It may be more possible to provide these features in field settings than in the classroom.

Field-based learning opportunities help students make contact with adults in work settings to learn a variety of skills that identify one as an adult in our society. Recognizing the value of such learning, Ernest Boyer (1984) recommended that all high school students be given academic credit for performing community service. He argued that it would help young people understand that to be truly human, one must serve. Perhaps we should judge schools and reimburse them by the extent to which they provide opportunities for young people to be of service to the community.

In my visits to various high schools around the country I was most impressed by those programs that provided a tangible service, e.g., child care, food preparation, dental care, residential repair, health care, tutoring, assistance to senior citizens, manufacture of home appliances, etc. The dedication and involvement of those students in cooperative team projects rivaled anything else that I saw.



Field-based learning doesn't always go so smoothly. Rob Shumer, a doctoral student at UCLA, found that the supervising teachers who coordinate field activities of students can help or hinder the learning that takes place. He is doing an ethnography of a Medical Magnet High School in south central Los Angeles. The school is for students interested in health occupations. The idea is to teach students subject matter such as biology and chemistry in the course of working and to observe that subject matter being applied in actual hospitals under the supervision of medical personnel. He observed work sites that students and school staff agreed were effective and ineffective learning environments. At the effective learning sites a school supervisor accepts responsibility for the education of students, persuading them to be more assertive in asking questions, and getting employees at the work site to give students responsibility. Effective supervisors get the students to do their preparation before going to the site. They work with employees and encourage them to help students who are having problems at the site. When the school supervisors sense that the students have learned what there is to learn at one site, they move them to a new site.

School supervisors also serve as role models for students by asking questions and exhibiting a willingness to get involved in bench work as active learners at the site alongside the students. They can collaborate with the employees at the site in planning learning activities for the students, and they can express their appreciation to these employees for helping, a courtesy which means a great deal to them.

On the negative side, at ineffective learning sites, school supervisors get so busy doing administrative and clerical work that they spend little time at the hospital even though they are scheduled for lengthy periods of supervision. Some spend a few minutes at each site, record the necessary attendance data, and are in a great hurry to get to their "real" duties back at the school. They don't understand what is going on at the site and do not fulfill an instructional function during their brief visit. Unless there is a behavioral problem that requires them to transfer the student to another site they quickly excuse themselves, almost as if they are intruding. They feel no strong need to work with hospital personnel to insure that students understand the relationships and connections between academic knowledge and the practical applications of that knowledge in the hospital setting. It is as if such school supervisors do not accept responsibility for the education of students outside the classroom, even if that is their designated function. Perhaps the traditions of school teaching prevent them from perceiving their educational role in a broader perspective. Perhaps teachers perceive themselves only as classroom performers, who have little to do with the growth and development of students outside the classroom.

In the final analysis the students must attain responsibility for their own learning. Shumer's notes reveal that students are very much aware of the learning environment at their work sites:

--Jerry is never too busy to talk to me about my curiosities.      or      --I didn't like the attitude people had about us young kids poking around in people's business.

--The nurses really let me take over their duties, which was a lot of responsibility.

or

--They didn't even notice I was there.

--I like having a person work with you.

or

--If your supervisor assigns you to someone who doesn't feel like being bothered, it makes you feel as if you're in the way and you just don't feel like coming back.

--I like being able to work with someone side by side, not behind or in front of.

or

--My supervisor didn't even try to teach me about the site.

I believe more field-based learning, if properly supervised, is one way to improve the quality of secondary vocational education. One employer told me,

Students are cutting their regular classes during the week but showing up on Saturdays at the bank for six and a half hours for our banking program.

Business, government, and labor might be encouraged with tax incentives to greatly expand such programs of educational field experience. Only two percent of vocational money is now spent on cooperative education, yet it is generally viewed as the most successful form of vocational education. Schools must seek out more opportunities to collaborate with business, labor, and the community in designing better learning experiences for youth.

Improve the management of secondary vocational education. To improve the quality of education, many governors and state legislators are busily implementing top-down management systems patterned after Frederick Taylor's principles of scientific management. I don't think that tighter management is the key to improving secondary vocational education. We have already gone too far in that direction in the past few decades. The preoccupation with legislating detailed regulations for the bureaucratic control of schools has separated teachers from policy making and has removed opportunities for them to exercise professional judgment and initiative. The most important outcomes of secondary vocational education are difficult to measure objectively without trivializing them. Most accountability schemes have only served to create rigid and costly perfunctory rituals which are a waste of time and divert attention away from the more substantive but subtle aspects of teaching and learning. These schemes encourage teachers to be accountable rather than responsible. Besides, most of the important purposes of vocational education in secondary schools are not uniquely attributable to specific vocational programs, but rather are synthesized through the cumulative interaction of home, school, and community environments with the total history of the individual.

In a previous paper (Silberman, 1983), I suggested that the emphasis on having everything tightly accountable stems from a fundamental distrust of the people in the delivery system. Once distrust begins to erode the relationship, no amount of tests, controllers, or inspectors are going to turn it around. You

can have all the external quality control you want, but if you have a management that fundamentally does not respect and trust the employees, and if the employees do not care about quality, you will have problems. It is easy to finesse or circumvent a regulation, or to honor its letter rather than its spirit. Regulation and reporting schemes have suspect validity as quality control devices. Improvement in the quality of teachers might generate enough public trust to permit alternatives to top-down management. For example, the best seller by Peters and Waterman, In Search of Excellence: Lessons from America's Best-Run Companies, contains ideas that might be used, such as a bottom-up management system that would place ample discretionary resources and decision-making authority at the local level, while retaining central monitoring of a few key values pertaining to client satisfaction.

#### Future Improvements That Are Possible If We Assume Secondary Vocational Education Does Not Have High Status and Priority

In the previous section I assumed that additional resources were available to raise the quality of teachers, students, and learning experiences because we accepted vocational education as a legitimate and integral part of a comprehensive secondary curriculum. If we assume it does not have that status and priority, that it is separate from general education, what is our hope for its future?

Secondary vocational education costs more than academic education. It does not provide efficient custodial care with its equipment, space requirements, transportation expenses, and smaller enrollments. Now we are talking about taxpayers money, not education. The usual solution to the cost problem is to consolidate or regionalize the more costly vocational programs in area centers. But this solution has exacted a toll in further separating vocational and academic students. The question here is whether the regionalization in area vocational schools is the first step toward a dual system of secondary education. If that is our intent, it ought to be acknowledged in a clearly stated public policy; but if such a separation is merely the inevitable but unwanted consequence of insufficient funding, then steps must be taken to restore the comprehensiveness and balance in secondary schools.

In some California districts, as academic course requirements have increased, fewer high school students are able to attend courses in the regional occupational programs and centers. Students now have less time for such electives. Consequently, some training classes had to be closed. To make up for the lost reimbursements, some programs and centers have recruited more adult students. Others have been actively recruiting high-risk secondary students and dropouts. They offer these students assessment, counseling, and remedial courses so that the students can rectify skill deficiencies and thereby meet admission requirements for the regional occupational programs and centers. High risk students are offered concurrent enrollment in a minimum day program in the high school and three or more periods in the regional occupational center or program. In cases where there is a transportation problem, one class is waived from the already minimum day requirement. Such arrangements help to restore funding levels to maintain facilities and staff, but high risk students require more help, and increasing the number of such students could stigmatize those programs and actually reduce their ability to attract additional students and resources in the future.

One diagnosis of the status problem with secondary vocational education is that those courses have no place in the career path of the young urban professional. If it were a prerequisite for college admission, that would be different. We are not talking about education here, but about credentialing, status, and getting ahead. In their pursuit of fame and fortune the "best and brightest" high school students have little time for elective vocational courses. Future lawyers and financiers do not take shop courses while preparing for the university.

The attraction of higher education is quite clear. Higher degrees lead to better jobs, jobs with more prestige, and better working conditions; but the costs associated with the pursuit of such jobs need to be examined. Better jobs aren't necessarily more productive; the status of a credential is determined more by its contribution to personal success than by its social contribution. Reich (1983) has written of the dysfunctional economic consequences of the "best and brightest" students avoiding economically productive jobs in favor of more comfortable and prestigious "paper entrepreneurial" positions in law and finance. Spence (1985) devoted her American Psychological Association presidential address to the topic of achievement and success. She expressed concern that in our country, with its success orientation, "getting ahead" is so important that nothing else matters; it transcends all other values, including health, family, community, integrity, and quality of work.

The problem grows progressively worse as each generation of success-driven graduates assumes positions of adult leadership. Those who ascend to policy making positions from strictly academic backgrounds, have never experienced, and will not comprehend, the value of secondary vocational education. They will accept the popular rationalization for ignoring secondary vocational education, that early specialized skill training somehow interferes with general education. They will associate secondary vocational education with, (to use Gordon Swanson's term), "short" education (Swanson, 1982). It will be reserved for someone else's children; "educate the best, and train the rest."

Obviously, the solution to the credentialing problem is for employers to assess all the competencies they are looking for in job applicants and ignore those without such skills, regardless of credentials. The problem is that skill assessment is very costly, and many employers are not certain about what competencies they are looking for beyond general ability and congeniality. MIT didn't get the label of "charm school" for nothing. The credentials obtained from a long education effectively screen out those applicants who do not exhibit behavior conducive to the orderly and congenial conduct of business. Placement in preferred jobs is more like being accepted into a fraternity than being awarded a merit badge for job skills.

If the source of the status problem of secondary vocational education is its association with short education and bottom track credentialing, what options are available to improve its status? What alternative futures can be envisioned that might lead to the restoration of vocational education as an integral part of the secondary education of all students? The following three items are offered with the intention of generating a discussion of other alternatives. There is no hard evidence to support these possibilities.

Reductions in the size of high school graduating classes in the next decade could increase the demand for secondary vocational education. The burgeoning population of labor market entrants in the 1960's and 1970's due to the post WWII baby boom exacerbated the unemployment problem. Increasing numbers of youth were left with the option of choosing between unemployment and continuing with their education. The surplus labor supply prompted an escalation of credential requirements for jobs that previously did not require such credentials. Ivar Berg's book on this topic, The Great Training Robbery, came out in 1970.

Since the labor supply of high school graduates will continue to be diminished into the 1990's, there may be a halt to the present enthusiasm for continuing to lengthen the period of schooling. Short education may regain some of its status in the face of labor supply shortages. That could give secondary vocational education a renewed role in preparing youth for employment.

A new version of the sputnik phenomenon could prompt a reassessment of the declining priority of vocational training in the United States. In Russia, the major educational reform of 1984 to promote vocational training education moved millions of students away from careers requiring higher education (Zajda, 1984). Even young children in the U.S.S.R. combine basic skills with hands-on experience in a job--growing agricultural plants, repairing visual aids, and making toys and various useful objects for their school, kindergartens, and homes. Although only a very remote possibility, if a future resurgence of the Soviet economy did challenge U.S. industrial supremacy in the international marketplace, the usual scapegoating of our education system could result in new American educational reforms that emulate aspects of the unpopular Soviet initiative to restore the work ethic and match their economy's labor needs more efficiently. Secondary vocational education would be the beneficiary in the United States.

Underemployment of increasing numbers of people with professional credentials could inhibit the inflation of credentialism and re-establish the value of short education. With the aging of the members of the post WWII baby bulge in the labor market, the number of high status positions available for subsequent generations of high school and college graduates is diminished, especially in an era of rapid growth of low-level service jobs and late retirements. As that exceptionally large group moves into leadership roles in their 40's and 50's in the next few decades, its members will block the promotion and upward mobility of the present generation of college youth, creating intergenerational conflict at work and perhaps a reassessment of the ability of long education to deliver on its promise of self satisfaction and the good life. Horatio Alger could meet his greatest challenge in the MBA's inability to achieve an executive position. Richard Freeman and James O'Toole sounded this alarm in the 1970's, but their description may have been premature. The prophecy of youth's disenchantment with long education may not be realized until the 1990's.

A rash of research and evaluation studies in the field of professional education will likely appear during the next few decades. These will critically examine the dysfunctional properties of professional education and credentialing. We are already hearing about graduates of long education, with advanced degrees, beginning to enroll in short education programs to acquire salable skills. The higher credentials, obtained in order to get ahead and

successfully climb the career ladder, may or may not be associated with competence or productivity, but the real challenge to the inflation of credentialism will not come from its separation from education and learning, so much as from the shortage of high status positions. The value of investing in costly forms of long education will have to be reexamined. The value of short education and education for its own sake may assume a more important role.

### Summary

If we accept the assumptions cited at the outset of this paper, that vocational education has a legitimate role at the secondary level, it should be possible to improve its quality. This can be done by redesigning the program to appeal to a broader range of students, and by actively recruiting its teachers from a broader pipeline of talented persons, exposing them to better teacher training, and providing them with improved working conditions. The quality of field-based learning opportunities can also be raised and such programs can be greatly expanded. Finally, the management of these programs can be improved by finding alternatives to the growing tendency toward top-down, legislated, and bureaucratic management. Such changes can be well along in a period of five to seven years.

If the assumptions cited at the outset of this paper are unrealistic, however, the above changes will not be feasible for the foreseeable future. In place of those assumptions, some observers have argued that the inherent problems of tracking and credentialing are responsible for the common perceptions that academic studies associated with long education, are the best preparation for the most prestigious occupations, and that secondary vocational education programs, associated with short education, have no general educational value and only prepare people for low-status jobs. Some believe that the vision of a truly comprehensive secondary curriculum for all students has outlived its usefulness, and that it should be replaced with a purely academic curriculum. If these latter assumptions are substituted for the earlier ones, the scope for improvement of secondary vocational education in the short term is certainly much more constrained and vocational education may disappear from the high school curriculum. Our best hope is that demographic changes and the international economic environment will combine to render these latter conditions untenable. Thus, the worst case yields short-term pessimism, but long-term optimism.

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# II

## SCHOOL-BASED WORK EXPERIENCE

David Stern, *University of California-Berkeley*

MOST HIGH SCHOOL STUDENTS IN THE U.S. HOLD A PAID JOB AT some time during the school year. Questions have been raised about the benefits of working in the kinds of jobs that are usually available to high school students. Most notably, Greenberger and Steinberg (1986) have described students' jobs as largely repetitive and unchallenging, offering students little contact with adult co-workers. In their sample from Orange County, California, Greenberger and Steinberg discovered that students who work report more stress, use more drugs, and become more cynical about work itself.

Educators worry that working may interfere with school. A National Teacher of the Year went so far as to decry the trend toward more students working as "a cancer that's eating up excellence, and it's ruining our children." (Mihalik, 1989). Greenberger and Steinberg found that students who work longer hours spent slightly less time on homework and received slightly lower grades. Similarly, Mortimer and Finch (1986) found that boys who spent more time working while in high school had lower grades, lower estimates of their academic abilities, lower educational and occupational aspirations, and had completed less additional schooling in the first five years after high school. D'Amico (1984) also found some negative correlations of work experience with study time and high school completion, though only for students who worked more than 20 hours a week.\*

Such evidence does not prove that working undermines commitment to school; it is quite possible that the students who work, or who work longer hours, do so because they are already disenchanting with school, but there is nevertheless ground for concern. (A more complete review of research on the effects of students' work experience is in Stern et al, 1990.)

\*See research notes by Ivan Charner and Bryna Shore Fraser at the conclusion of this chapter and references on page 88.

Accordingly, some states and school districts have recently tightened restrictions on students' working hours (Graves, 1992). But legal restrictions on students' work are not likely to have much effect because the public agencies charged with enforcing them do not have sufficient resources to monitor more than a small fraction of the workplaces where students are employed.

Instead of spending additional resources in an attempt to limit students' work hours, a more productive policy would commit those resources to enhancing the educational value of students' work experience both in and out of school settings. If more students had experience-based classroom work or could use their jobs explicitly to apply and extend what they are learning in school, they might see a stronger connection between school and work. If students' jobs demonstrated the relevance of knowledge and skill acquired in school, then work might reinforce commitment to school rather than undermining it. How to build this kind of connection between school and students' jobs, identified as a core principle of apprenticeship programs, is the main focus of this chapter.

### THE RANGE OF SETTINGS WHERE STUDENTS WORK

Paid jobs outside of school are not the only settings in which it is possible to demonstrate the practical relevance of school-taught skills and knowledge. In other settings, students perform useful work—producing goods or services for sale or use to people other than themselves. To indicate the range of possibilities, this section describes the various settings where students work.

These settings can be placed on a continuum. On one end are jobs that are completely unconnected to school (non-school, unsupervised work) and on the other are work-like experiences that are completely contained



within the school (school-supervised, school-based work). The following section maps the variety of situations in which students work.

***Naturally occurring, paid, unsupervised jobs.*** This is the most common kind of work experience for students. "Naturally occurring" means that the jobs exist because private or public employers want certain work to be done, not because they are trying to create employment opportunities for young people or anyone else. "Unsupervised" means that students find these jobs without help from the school or other public agency and that the school or other public agency has no involvement other than issuing work permits for students younger than age 18. Lewis et al (1983), analyzing part of the NLS Youth sample, found that 89 percent of all paid jobs held during the school year by male high school students, and 84 percent of those held by females, were of this naturally occurring, unsupervised kind.

***Unpaid work in families and family enterprises.*** This is the most frequent kind of work in a preindustrial economy, where most work is in agriculture and crafts, and much production is controlled by families (Stern et al, 1975). Some products may be sold for money, but individual family members do not receive a regular wage or salary. Vestiges of this system survive in rural regions of industrialized countries, where children's work at home may produce something for sale or use by the family, but the children are not paid a regular wage. "Mom-and-pop" retail or other enterprises may also employ children on the same basis. Even in affluent urban and suburban neighborhoods, children are still called upon to clean their rooms and perform other household chores that have real economic value (someone hired to do it would have to be paid), but for which the children do not necessarily receive any money.

***Synthetic, paid jobs.*** Various public programs have created jobs for school-age youth. These have been synthetic jobs, invented for the express purpose of providing employment. One large federal program of this kind was the Neighborhood Youth Corps, which has continued under CETA and JTPA as the Summer Youth Employment Program. Synthetic jobs during the school year were offered to young people under parts of CETA and then YEDPA (YETP, YACC and YCCIP; see Taggart, 1981). In the 1980s, as federal money for this purpose became more scarce, several states and localities started "conservation corps" or "service corps" programs that offered synthetic jobs to young people. One purpose of all these programs has been to put money into young people's pockets. Other objectives include getting useful work done and developing participants' knowledge, skills and pro-social values. Schools have, for the most part, been involved only peripherally, if at all, in these programs.

***Naturally occurring, paid jobs that are supervised by a school or other training agency.*** One traditional program in this category is cooperative education, or "co-op." This takes various forms in secondary and post-secondary schools, as described below. One distinct form of co-op is connected with vocational education in a particular occupation. In this type of program, the instructor also acts as a work experience coordinator, arranging and supervising placements in jobs where students can practice and extend what they learn in the vocational class. The teacher-coordinator collaborates with the student's supervisor at the work site in writing a training plan for the student and evaluating the student's performance. Students receive school credit for their work experience. This is the traditional practice in cooperative vocational education. Later in this chapter I present some evidence on how co-op students perceive their jobs.

Schools also sponsor other versions of work experience programs for students in naturally occurring jobs. There is a "diversified" form of cooperative vocational education, in which students from different occupational specialties are all supervised by the same teacher-coordinator. Many students also participate in work-study or work-release programs, where their jobs do not necessarily relate to anything else they are doing in school. In work-study or work-release programs, school supervision is less intense than in the traditional model of cooperative vocational education: there may not be a written training plan, the work experience coordinator may not teach any of the students in their regular classes, and the job site supervisor may have no say in evaluating students. Still, students may receive course credit for their work or for some kind of related instruction.

Another kind of school-supervised work experience in naturally occurring jobs has been created by federal employment training efforts under MDTA, CETA, YEDPA, and JTPA. (For analysis of these programs, see Taggart, 1981; Hahn and Lerman, 1985.) Some of these have subsidized employers to make naturally occurring jobs available to students who belong to groups with high rates of unemployment. A notable program of this kind was YIEPP (Youth Incentive Entitlement Pilot Project), which made jobs available to students only on condition that they stayed in high school until graduation. (For analysis and evaluation of YIEPP, see Farkas et al., 1984.)

***Unpaid experience in real work settings.*** Schools have been extensively involved in finding unpaid roles for students in naturally occurring work settings. A major federal initiative in the 1970s was Career Education, one form of which was Experience-Based Career Education (EBCE). This program placed students in a succession of unpaid, participant-observer positions with various employers. Related classes were designed to help stu-

dents extract the educational benefit of these experiences. EBCE is discussed in the next section.

Like paid work experience, unpaid work experience may be related or unrelated to subjects a student is taking in school. Some vocational programs use unpaid job placements—much like paid co-op jobs—to give students a chance to practice what they are learning in school. Meanwhile, other school districts, including Atlanta and Detroit, have required high school students to spend time performing service to the community. In practice, this often means an unpaid job placement in a public or non-profit agency. The purpose is for students to learn to accept their responsibility as citizens, and the work is not necessarily intended to connect directly with a student's regular classes.

**Apprenticeship.** Like cooperative education, apprenticeship combines paid work with classroom instruction. But apprenticeships are sponsored by employers or labor/management groups, seldom by schools. They also last longer than most cooperative education experiences, and they result in formal certification as a skilled worker.

As organized in the U.S., apprenticeship serves few high school students or recent graduates. Less than two percent of U.S. high school graduates enter apprenticeships (Glover, 1988), compared with approximately 70 percent in Germany (Raddatz, 1989). The average age of apprentices in the U.S. is 27, significantly higher than the German average. At least 75% of all U.S. apprentices are preparing to be skilled craftworkers either in the unionized construction industry or in large-scale manufacturing (Glover, 1988).

Currently there is much interest in making some kind of apprenticeship available to more young people (Hamilton, 1990; William T. Grant Foundation Commission, 1991). The Council of Chief State School Officers has made grants of \$50,000 to each of five states (California, Maine, Minnesota, West Virginia, and Wisconsin) for implementation of youth apprenticeship programs. Arkansas, Oregon, and Pennsylvania have started pilot programs on their own. The Council of Great Lakes Governors is coordinating efforts in eight midwestern states. Jobs for the Future, a nonprofit group in Cambridge, Massachusetts, is conducting demonstrations and providing technical support for new apprenticeship-like programs. The U.S. Department of Labor, through its Office of Work-Based Learning, is also supporting demonstrations.

Jobs for the Future (1991) has defined youth apprenticeship as combining, at a minimum, three basic elements:

1. Work experience and guided learning opportunities provided for participants by employers within an industry or occupational cluster;
2. A structured linkage between secondary and post-secondary components of the program, leading to

high school diploma, post-secondary credential, and certification of occupational skills; and

3. Close integration of academic and vocational learning and of school and workplace experiences through planning and ongoing collaboration between schools, employers, relevant unions, and other key institutions and through innovations in curriculum and instructional strategies in the classroom and at work.

These elements are further elaborated in a list of 48 specific features of youth apprenticeship programs, among which some of the most important are:

- Program duration of at least two years, including at least one year of secondary and one year of post-secondary education.
- Part-time employment during the school year with employer committed to providing guided learning experiences at the workplace.
- Structured summer component integrating school-based learning and paid work experience.
- Employers provide each participant with a structured mentoring relationship with an employee of the firm or organization.
- Schools impart academic and work-related skills and knowledge (such as problem-posing, problem-solving, and critical thinking) general enough to be transferable to a broad range of work and life situations.
- Post-secondary institutions offer pre-admission or special consideration to participants who successfully complete the first two years of the program and earn their high school diploma.
- Award of credential of occupational skills achievement recognized at least within the state.
- Ability to continue post-secondary learning in a four-year college program.

**Unpaid experience in synthetic jobs designed to develop productive capabilities.** Many schools sponsor enterprises in which students learn by producing goods or services that have immediate value or use to people other than themselves. In high schools, these activities are often part of vocational classes. Typical activities of such vocational enterprises are running a restaurant, building a house, or operating a child care center. In Maryland, the Montgomery County Schools have created two non-profit foundations. One engages students in building and selling a house (or two) every year. The other operates two auto dealerships in which students recondition and sell damaged cars. There is evidence from two student-run restaurants in California that school-based enterprises can provide work of higher quality, offering more opportunities for learning than the jobs students find on their own outside of school (Stern, 1984).

In addition to enterprises attached to vocational programs, many extracurricular or co-curricular activities involve students in doing something that is both productive and educational. Junior Achievement, school newspapers and yearbooks, performing arts, spectator sports, and service societies all fit in this category. One set of extracurricular clubs that emphasizes productive activities is the vocational student organization. Clubs of this type include: the Future Farmers of America (FFA), with approximately 400,000 members; Vocational and Industrial Clubs of America (VICA), with 270,000 members; Future Business Leaders of America (FBLA), claiming 225,000 members; Distributive Education Clubs of America (DECA), with about 170,000 members; and several others. DECA has run Learn and Earn Projects, in which local chapters organize and operate small retail enterprises, and compete for national awards. FFA sponsors a program called Building Our American Communities, which engages students in such activities as renovating historical structures and establishing a farm museum.

Within agricultural education, there is a tradition of assigning students to conduct productive activities at home (Rosenfeld, 1984). The purpose was to help establish students in farming by building up a set of ongoing farm enterprises. This approach applies to fewer students now, but it is still used.

***Simulations not producing goods or services.*** Finally, at the end of the continuum opposite from paid, unsupervised, naturally occurring jobs are simulations of work that take place in school, are not paid, and are evaluated only as learning experiences. For example, students may engage in a model office, store, or shop, in which they perform some of the same tasks required by naturally occurring jobs, but there are no customers or clients who use or buy the resulting output. Simulations have the obvious disadvantage of not being real transactions, but they have other advantages, including the possibility of designing tasks to maximize what students learn. For a description of some work simulations in schools, see Jamieson et al (1988). Despite the educational potential of simulations, we will not discuss these because our focus is the educational use of work that does produce goods or services for sale to, or use by, people other than the students themselves.

## **EXPERIENCE-BASED CAREER EDUCATION: UNPAID, SCHOOL-SUPERVISED EXPLORATION**

Experienced-based Career Education (EBCE) was a good example of an educational program that was based

on unpaid experience in naturally occurring jobs. In 1971, the U.S. Office of Education awarded contracts to four regional education laboratories to develop EBCE models. EBCE programs were an attempt to provide students with learning opportunities that were individualized, action-oriented, and located in community settings. In addition, they were intended to promote cooperation between public education and manpower agencies and to broaden occupational opportunities for youth.

EBCE programs emphasized student self-development and career awareness developed in conjunction with enhancement of basic skills (reading, writing, oral communication, and communication skills) and life skills (interpersonal relations, problem solving, and decision making). Individualized learning plans constituted the major vehicle for focusing and realizing student achievement. They usually encompassed both specific experiences with employers and learning objectives in academic areas.

As conceived, these models entail students, staff, and community playing active, complementary roles. The Far West Model placed its main emphasis on the development and execution of the students' individualized plans. Research For Better Schools and Appalachia Educational Lab emphasized in-school career experiences and academic instruction coupled with community-based exploration. School credit was usually assigned as a result of a student product review, as a rating of student interest and effort, or as a mixture of Carnegie units for coursework and on-site experience completed. Most projects were staffed by a resource analyst who determined resources needed for students and identified learning activities at the site, teacher coordinators or learning managers who defined career interests and monitored progress, a director, and support staff.

Evaluations of 17 programs were published through the Education Resources Information Clearinghouse. These were conducted by a variety of agencies including the Educational Testing Service and Appalachia Educational Lab (Owens, 1982). Results of these evaluations found EBCE programs increased students' confidence in approaching career decision making. Attitudes towards career counseling services and various aspects of the learning environment were also found to be enhanced. Students' achievement in math and reading stayed even with comparison groups, and there was some evidence that oral communication was improved. Improved communication was thought to be the result of increased opportunities to deal with a variety of adults—in large part through talking to them, rather than reading or writing. Students demonstrated increased responsibility and the development of realistic job expectations.

EBCE programs developed a considerable inventory of curriculum materials. These might still be used in other programs to link schooling with experience at work sites.

## COOPERATIVE EDUCATION (CO-OP): SCHOOL-SUPERVISED EXPERIENCE IN PAID JOBS

Since co-op programs no longer receive any special categorical funding, neither the federal government nor most of the states keep an accurate count of how many students are participating in co-op. The U.S. General Accounting Office surveyed state directors of vocational education, who estimated that approximately 430,000 high school students nationwide were enrolled in co-op programs during the 1989-90 school year. Most co-op students are juniors and seniors, of whom about eight percent are estimated to participate. Jobs most commonly held by co-op students are in retail sales, secretarial work, auto repair, and construction. (U.S. General Accounting Office, 1991)

### *Differences between co-op and non-co-op work experience.*

Recent research has compared high school students in cooperative vocational education (Stone et al, 1990) and cooperative education students in two-year colleges (Stern et al, forthcoming) with other students at the same schools who were also employed but not in school-supervised jobs. Results in both high school and two-year college indicate that students in cooperative education are more likely than the other employed students to:

- Say their jobs make use of what they have learned in school.
- Say what they learn on the job is useful in school.
- See their current jobs as closely related to their desired careers.
- Say their jobs provide abundant opportunities for learning.
- Feel their jobs are intrinsically interesting and worthwhile.

In short, compared to other working students, co-op students more clearly see their jobs as part of their education.

Differences in perceptions of work between high school co-op students and their schoolmates in non-school-supervised jobs persist even when other student characteristics are statistically controlled. Controlling for grade level, gender, parents' education, reported grade point average, and expectations for further education, co-op students report more:

- Use of reading and writing on the job
- Use of other school-taught knowledge and skill
- Opportunities to learn new things
- Interest and motivation to do the job
- Use in school of what they learn at work

In fact, participation in co-op was a more consistently significant predictor of these reported job characteristics than any of the other variables (Stern et al, 1991).

### *Elements of co-op program structure*

Rather than undermining commitment to school, cooperative education provides a structure in which work and school become mutually reinforcing. Elements of that structure have evolved through practice over several decades (National Child Labor Committee, 1984; Leske and Persico, 1984; U.S. General Accounting Office, 1991). Among these elements are:

- (1) A written *training agreement* between the school and each employer sets forth the expectations for each party. The employer will provide a job with opportunities to learn. The school will monitor students' performance.
- (2) A written *training plan* for each student is at the heart of the co-op program. It specifies what the student is expected to learn on the job. Learning objectives may be linked to vocational or academic courses. The plan also specifies who will judge whether the student has achieved the stated objectives. It is usually signed by the student, the job supervisor, the co-op coordinator, and sometimes by a parent.
- (3) The co-op *coordinator* may be the teacher in a related class (e.g., business or marketing) with responsibility for supervising students only in that field. Alternatively, in a diversified co-op program the coordinator supervises students from several fields. The coordinator may also have special training and certification as a co-op specialist. The coordinator's responsibilities include:
  - Finding suitable job placements. Some programs provide summer salary for coordinators to come back early for this purpose. In well established programs, employers initiate placements by calling the school and requesting a co-op student. It is considered desirable for the coordinator to visit the worksite before placing a student there in order to ensure that the employer understands the responsibility entailed in hiring a co-op student. The training agreement embodies this understanding.
  - Identifying suitable students for each placement. It is considered advisable to refer more than one student for the employer to interview. This gives students practice in job interviews and gives the employer some choice.
  - Negotiating training plans for all students.
  - Monitoring students on the job. Coordinators must have released time during the day for this

purpose. By visiting the job site, the coordinator can ensure that both the student and the job supervisor are satisfied with the way things are going. If there are problems, the coordinator can try to mediate or, if that fails, can remove the student from the job. At the end of the student's placement, the coordinator is responsible, usually in collaboration with the job supervisor, for evaluating students' performance according to their training plans.

- Offering related instruction. If the co-op program is offered in conjunction with a regular class, the coordinator would normally be the teacher in that class, which would naturally deal with issues from students' jobs. In a diversified program, there may be a special class for co-op students, which would deal with more generic issues about work.

It is evident from this description that co-op programs require resources. Some of these are provided by the school: for example, released time for co-op coordinators to visit job sites, or summer salary to develop job placements. Other resources must come from the employer: in particular, the time spent by job supervisors to provide guidance and instruction to students.

## **CAREER ACADEMIES: INTEGRATED CURRICULUM AND EXPERIENCE**

Since co-op programs in high schools are often connected to vocational classes, they sometimes suffer from the reputation of high school vocational education as a second-class program (U.S. General Accounting Office, 1991). Vocational education in U.S. high schools has had an image problem since the early part of this century when it became established as a separate track, set apart from the college preparatory program. Over the objections of John Dewey and others, the 1917 Smith-Hughes Act (which first provided federal money for vocational education) defined vocational programs as preparation for occupations not ordinarily requiring a bachelor's or advanced degree. Accordingly, students aspiring to the more highly paid and prestigious jobs for which college degrees are required have avoided vocational education (although in some schools with strong vocational programs, vocational classes may attract stronger students than the general track). The unintended result has been to institutionalize a dichotomy between theory and practice, rigor versus relevance. College-bound students have been deprived of opportunities to apply academic subjects in practical contexts while many vocational students have

been denied sufficient academic preparation for upward mobility in the workplace.

For these and other reasons, Congress in 1990 made a 90-degree turn on vocational education, maintaining it as a separate categorical program, but now requiring that federal money be spent on programs that integrate academic and vocational education. This might be done in various ways: using new curricula that teach academic subjects through practical applications, beefing up the academic content of vocational classes, offering tech-prep programs that coordinate the last two years of high school with two years of college in a technical field, or organizing the entire high school curriculum around a career theme (Grubb et al, 1990).

This last approach is exemplified by career "academies." These started in Philadelphia in the late 1960s, spread to California and New York in the early 1980s, and now exist in most states (Stern et al, 1992).

A career academy is a school-within-a-school, where a team of teachers offers a career-related academic curriculum to students in grades 10-12 or sometimes grades 9-12. Evaluations have found these programs effective in retaining potential dropouts and at the same time preparing students for college. They keep the college option open by offering a complete curriculum that includes college prerequisites while they organize the curriculum around a theme such as health careers, electronics, finance, or computer-related occupations. Each of these themes encompasses a set of jobs ranging from those that require no post-secondary schooling to those that require advanced degrees. Students graduating from a career academy can seek full-time work related to their high school program or they can go to college for further study, which may or may not be related to the same theme.

In addition to offering an integrated academic/vocational curriculum, most career academies also give students the opportunity for paid employment in their field of study. This usually starts during the summer after junior year and may continue part-time through senior year. In the context of a career academy, work experience can be especially powerful in demonstrating the practical use of school learning—not only what is learned in vocational classes, but also in academic subjects.

## **STUDENTS' PERCEIVED CONNECTION BETWEEN SCHOOL AND WORK IN CO-OP PROGRAMS AND CAREER ACADEMIES**

Evidence on the relatedness of school and work comes from four career academies in Oakland, California. In the summer of 1991 questionnaires were given to academy students who had been placed in summer jobs (Rubin et

**Table 1. Relatedness of work experience to school, as reported by Oakland Academy and other high school students in school-supervised work experience (SSWE) and non-school-supervised work experience (NSWE) jobs.**

	OAKLAND (n = 72)	SSWE (n = 362)	NSWE (n = 600)
"My job gives me a chance to practice what I learned in school." (% "very true")	38	24	6
"What I have learned in school helps me do better on my job." (% "strongly agree")	39	12	3
"My job provides information about things I am studying in school." (% "strongly agree")	28	10	3
"School makes me realize how important it is to learn to do things well on my job." (% "strongly agree")	49	13	7
"My job has made me realize how important it is to learn and do well in school." (% "strongly agree")	48	23*	16*
"Do you use reading on this job?" (% "yes")	86	59	36
"Do you use math on this job?" (% "yes")	45	70	58
"Do you use writing on this job?" (% "yes")	86	73	48

\*Question read, "My job has taught me the importance of getting a good education."

al, 1992). Thirty-two questionnaires were completed by students from the Health Academy, 29 from the Media Academy, seven from the Business Academy, and four from Pre-Engineering. Table 1 shows some of the responses. (This table and surrounding discussion are from Stern et al, 1992.) For purposes of comparison, Table 1 also shows responses from high school students in other parts of the country in the fall of 1988 and 1989 (Stone et al, 1990). The comparison study included students who were employed in school-supervised work experience (SSWE) programs (mainly cooperative vocational education) and students at the same schools who were employed in non-school-supervised work experience (NSWE).

Table 1 shows that Oakland Academy students report a stronger perception that their jobs are related to what they do in school compared to other students. The only exception is in use of math on the job. Among the students from other parts of the country, SSWE participants report a stronger relationship between school and work than their schoolmates who were employed in NSWE. On five of the seven questions where Oakland Academy students' percentages are highest, the difference between the Oakland students and SSWE students elsewhere is bigger than the difference between SSWE and NSWE students. Compared to other working students, Oakland Academy students report that they make more use on the job of what they learn in school, except math. More of the Academy students also report that their job informs and motivates their work in school.

These differences occur in spite of the fact that other questions—which asked about involvement of teachers or other school staff members in visiting the job, writing a training plan, and evaluating students performance on the job—indicated less direct school supervision of students' work experience in the Oakland Academies than in the SSWE programs elsewhere. Apparently, Oakland Academy students see a strong connection between school and their summer work experience, even though their summer jobs were not closely monitored by school staff.

The focused Academy curriculum, complemented by direct contacts with employers in the field before they actually apply for a paid job, evidently prepares Oakland Academy students to see their summer jobs as a direct extension and application of what they do in high school. For these students there is no longer such a sharp boundary between school and work.

## SCHOOL-BASED ENTERPRISE: AN ALTERNATIVE TO OUTSIDE JOBS

Cooperative education and career academies demonstrate that experience in paid, naturally occurring jobs can be linked to students' schoolwork. However, in some communities it may be difficult or impossible to find enough high-quality job placements and, in all communi-

ties, the availability of placements fluctuates with the business cycle. School-based enterprises (SBEs), unpaid experience in synthetic jobs designed to develop productive capabilities, are an alternative source of work experience for students, which are controlled by the school itself. Because the school does control them, SBEs can be designed to provide more opportunities for learning than most outside jobs. Job rotation, cross-training, teamwork, and learning from mistakes are easier to arrange in SBEs than in profit-seeking firms. The price of these advantages is that SBEs usually do not pay wages.

Most existing SBEs have been attached to the high school's vocational program. Students in construction trades build houses, food service students run restaurants, child care students operate centers, marketing students manage school stores, students in automotive classes repair cars, and so on. Although the SBE provides a real context for learning, the scope of learning is circumscribed by the limited purpose of the vocational course.

It is possible to broaden the scope of SBEs by attaching them to integrated academic/vocational programs such as career academies. The Foxfire project has already demonstrated how a productive application—publishing books and magazines—can make an English class into something much more powerful for students (Wigginton, 1986). Foxfire has engaged students in documenting and preserving the folklore and culture of their rural region. Students have published their stories and pictures in a magazine and books for the mass market. Offshoots of this move toward experience-based education provide a powerful idea of the possibilities. One can only imagine what students might achieve if a school enterprise were sponsored not just by a single academic or vocational class, but by an integrated academic/vocational program. For example, a career academy or other integrated program in electronics could sponsor an enterprise where students repaired VCRs and personal computers. A house-building SBE could be part of a program where math, history, literature, and other academic subjects were all related to analyzing the built environment. A program where all the courses were related to health careers and health issues could run a screening clinic that performed simple tests such as blood pressure and vision screening. A child care center could be a useful adjunct to a program that organized a whole curriculum around human development. Such configurations not only would blend academic and vocational coursework, but also would combine theory with problem-solving in the context of actual production.

The possible advantages of work experience related to the content of schoolwork should not be limited to students who are not planning to attend college right after high school. All students, including those who are college-bound, can benefit intellectually from applying theoretical subject matter to problem-solving in a practical context

(Brown et al, 1989; Resnick 1987a, 1987b; Raizen, 1989; Lave and Wenger, 1991). There may also be a practical benefit for college-bound students: since most of them will hold paid jobs while in college, work experience during high school can help them materially if it enables them to earn a higher hourly wage. Furthermore, keeping high school work experience programs open to all students, including the college-bound, avoids the risk of such programs being viewed as second-rate. First-rate work experience, whether through paid or unpaid placements in jobs outside the school or in school-based enterprises, should be an option for all students.

*Publisher's Note—Regarding Professor David Stern's concerns about students' after-school paid employment, I append these comments by Ivan Charner and Bryna Shore Fraser of the National Institute on Work and Learning, Academy for Educational Development:*

It is a recurrent cause for concern that most American young people work in naturally occurring jobs that they find on their own while in high school (56 percent in 11th grade and 66 percent in 12th grade). Many continue in these jobs after high school, generally in retail, food service, clerical and unskilled manual work.

In our 1987 comprehensive review of what was known and not known about the impact of teenagers working, we concluded that,

With regard to the effect of working on grades, the findings are mixed. There seems to be a curvilinear relationship between hours worked and grades, with 20 hours the "magical" cut-off for when a negative effect emerges. (Charner and Fraser, 1987:53)

Four studies conducted since that earlier review (Barton, 1989; Lillydahl, 1990; Yasuda, 1990; Steinberg and Dornbush, 1991) confirm this earlier conclusion, with the possible exception of a lower cut-off. The consensus suggests that for up to about 15 hours worked there appears to be a *positive* relation between number of hours worked and grade point average, while above 15 hours the relationship is negative.

With regard to other areas of impact, our 1987 review found general agreement that working while in high school:

- generally promotes desirable work habits and world of work knowledge;
- has little impact on days tardy or absent, or number of extra curricular activities;
- has some impact on time spent on homework and watching television for those who work more than 20 hours per week;
- has little effect on educational plans. Students who work more than 20 hours per week, however, had lower educational aspirations;

## SCHOOL-BASED WORK EXPERIENCE

- is positively associated with employment and income after completion of high school in the short range;
- is not related to delinquent behavior, with findings inconclusive and contradictory;
- generally is approved of by parents and friends;
- generally does not affect relationships with parents and siblings, albeit they do spend less time with their families;

Despite the findings cited above, studies of youth employment suggest that while young people gain some skills from the jobs they hold while in high school and after graduation, these jobs are generally not tied to academic learning or to school programs, nor are they linked to any career path. Many of these working students lack a sense of career direction and see work as successive short-term jobs, not in terms of careers. These naturally

occurring jobs that could have enormous potential for education-work experience—with advantages to both students and employers—are largely being wasted, because there is little connection to what goes on in school.

Until more complete, longitudinal data are available, the debate over the effects of young people working while in school will continue. What is clear is that, whatever the effects, educators and employers must create mechanisms for jointly promoting the long-term economic benefits of education while encouraging productive, developmentally appropriate work by young people. Further, we agree with Stern's view about enhancing the educational value of students' work experience, with the added statement: If students' classroom work utilized and extended the knowledge and skills developed in jobs, then education and work might reinforce one another to the great benefit of the student.



# IV

## APPRENTICESHIP AS A PARADIGM FOR LEARNING

Sue E. Berryman, *The World Bank*

THIS REPORT AROSE OUT OF A CONCERN ABOUT, AND PROPOSES A solution for, the education of "the forgotten half." This chapter argues that this solution—apprenticeship—is a learning paradigm broadly applicable to the education and training of *all* individuals, whether college-bound or not. It also argues that the optimal location for apprenticeship learning—the workplace, school, or some mixed arrangement—remains an open question, even for the non-college-bound. Specifically, this chapter develops four arguments:

1. The learning paradigm that prevails in K-12 education routinely and profoundly violates what millennia of experience and a century of formal thought and research tell us about effective learning, whether for the college-bound or the non-college-bound.
2. Apprenticeship, understood as a way of setting up the learning situation, is an alternative paradigm that promises to generate more effective learning for all students.
3. Traditional apprenticeship—usually organized around visually observable practices that need to be learned—has to be modified to make visible for modeling and discussion the non-visible cognitive components of modern work. It also needs to be modified to help individuals accommodate the non-routine and changeable nature of modern work.
4. Apprenticeship as a paradigm for learning needs to be distinguished from the location for apprenticeship. "Work-based apprenticeship" blurs the two issues. Apprenticeship normally occurs in the workplace, but as a paradigm of learning, it can and should occur in schools. The optimal location for apprenticeship as an organization of learning is an open question for the United States.

### THE PREVAILING K-12 PARADIGM OF LEARNING

Although this discussion is couched in K-12 terms, it is important to recognize that K-12 practices tend to permeate all levels and sectors of American education and training, from elementary school to corporate training. Americans share the common experience of elementary and secondary schooling, and this shared experience seems to frame our ideas and models of what learning environments should look like, whether called a college classroom, an adult literacy class, or a corporate training classroom. Thus, despite the rhetoric about their differences, the nation's educational and training systems do not differ significantly in their teaching and learning strategies, and the limited success they share seems to arise partly from shared problems in how they structure learning.

For example, studies of advanced technical training—such as radiology, electronic trouble-shooting, and the law—show a mismatch between the theoretical principles, processes, and skills learned in formal school and the structure of knowledge needed and contexts of use in professional practice (Resnick, 1987). Even corporations as advanced in their training practices as Motorola are having to unlearn traditional, less effective practices, such as job training separated in time and place from the work problems to be solved.

The basis for this and the next section of this chapter is a powerful knowledge base known as "cognitive science." At the heart of this research is the presumption that intelligence and expertise are built out of interaction with the environment, not in isolation from it. It thus challenges our traditional distinctions between:

- Head and hand

- Academic and vocational education
- Knowing and doing
- Abstract and applied
- Education and training
- School-based and work-based learning

We characterize the standard K-12 paradigm of learning by talking about four flawed practices that combine to give us the learning situations that we see in too many American classrooms: passive learning; fragmented learning; fact-based/right-answer learning; and noncontextual learning.

### *Passive Learning*

*Although schools treat the learner as a passive vessel, research shows that students need to be actively engaged with what is to be learned.*

In a typical schoolroom, Congressional hearing, or corporate training session, the teacher—or “expert”—faces the learners, in the role of Knowledge Source. The learner is the passive receiver of wisdom, a glass into which water is poured. This instructional arrangement comes out of an implicit assumption that the basic purpose of education is transmitting the society’s culture from one generation to the next. The concept of transmission implies a one-way flow from the adult members of the society to the society’s young (Lave, 1988)—or from the expert to the novice. In fact, schooling is often talked about as the transmission of “canonical” knowledge, “canon” referring to religious regulation or dogma. Education as canonical transmission thus becomes the conveying of what experts know to be true, rather than as a process of inquiry, discovery, and wonder.

This view of education leads naturally to the student as receiver of The Word, to a lecture mode of teaching, and to the teacher as the controller of the process. These arrangements have several unhappy consequences.

*Under a passive learning regime, learners do not interact with problems and content and thus do not get the experiential feedback so key to learning.*

Students need chances to engage in choice, judgment, control processes, problem formulation; they need chances to make mistakes. The saying, “experience is the best teacher,” is borne out by the research—you learn when you do. Not sufficient for effective learning, doing is nonetheless necessary.

However, if schools present what is to be learned as a delineated body of knowledge, students come to regard the subject being studied—mathematics, for example—as something received, not discovered, and as an entity to be ingested, rather than as a form of activity, argumentation, and social discourse.

*Passive learning places control over learning in the teacher’s, not the learner’s, hands.*

Passive learning creates learners dependent on teachers for guidance and feedback, thus undercutting the development of confidence in one’s own sense-making and problem-solving abilities and discouraging displays of initiative. As Lave (1988) observes, people experience themselves as both subjects and objects in the world. In the supermarket, for example, they are subjects, seeing themselves as controlling “. . . their activities, interacting with the setting, generating problems in relation [to] the setting, and controlling problem-solving processes . . . In contrast, school . . . create[s] contexts in which children . . . experience themselves as objects, with no control over problems or choice about problem-solving processes” (pp. 69–70).

As important as the effects on confidence, passive learning also undercuts the development of certain higher-order cognitive skills known as “cognitive self-management” or “executive thinking” skills. These are simply the skills we use to govern our problem-solving attempts. They include goal setting, strategic planning, checking for accurate plan execution, monitoring our progress, and evaluating and revising our plans.

We now know that those whom we recognize as knowing how to learn are people with cognitive self-management skills. However, as Pea (1989) observes, passive learning is disastrous for developing these skills. Such skills seem to get developed when the learning situation is structured to shift control from the teacher to the student, the teacher gradually removing the support that students need initially as they begin to show the ability to work autonomously.

*Passive learning creates motivational and “crowd control” problems.*

Jordan (1987) describes a Mexican public health training program designed to improve the practice of Mayan midwives. Her analysis spotlights behaviors that American teachers constantly complain about in their students.

The teaching is organized as straight didactic or instructional material in a mini-lecture format. When these lectures begin, the midwives shift into what Jordan calls their “waiting-it-out” behavior: “. . . they sit impassively, gaze far away, feet dangling, obviously tuned out. This is behavior that one might also observe in other waiting situations, such as when a bus is late or during sermons in church” (p. 3).

We see the same behaviors in American third graders. Hass (n.d.) found students deeply engaged in team problem-solving during their drill and practice time, but investing little attention or involvement in the teacher’s instruction sessions. During three weeks of observation, the children had not adopted any of the specific strategies

demonstrated by the teacher during general instruction time.

As teachers know so well, motivational problems end up as crowd control problems, illustrated by the behaviors of different groups of school children at a Metropolitan Museum display of Ice Age art and artifacts (Farnham-Diggory, 1990). Most of the school groups were moved from one exhibit to the next, pausing before each to hear a guide's or teacher's lecture. Since the children were bunched in front of an exhibit, they could not all hear the lecture, and, even when they could, they lacked understanding of the time frames involved or the archaeological significance of bits of bone. Teachers had not set up the museum visit to prepare students for and involve them in what they were going to see. Groups were therefore restless, and crowd control became the teacher's primary concern.

One junior high school class behaved very differently, exhibiting a quiet intensity as they moved through the exhibit. They had packets of work sheets with questions about issues and problems that they were expected to use the exhibit to solve. Some questions were factual, but most required inference and thought. The students had to figure out for themselves where and what the evidence would be concerning particular questions.

### ***Fragmented Learning***

*Although schools fragment knowledge into pieces, research shows that fragmentation destroys the learner's ability to make sense out of what is being learned.*

American education reflects a behaviorist theory of learning, a view that conceives of learning as the strengthening of bonds between stimuli and the learner's responses to those stimuli. Based on his animal experiments, the brilliant psychologist Edward Thorndike (1898) developed a new theory of learning. As Cremin (1961) observed, the theory presumed that learning was the connection of a specific response to a specific stimulus through a physiological bond in the neural system. The stimulus [S] then regularly called forth the response [R]. The bond between S and R was created by being continually rewarded; an undesired bond was extinguished through punishment or failure.

This psychological theory had several effects. It led to the breakdown of complex tasks and ideas into components, subtasks, and items ("stimuli") that could be separately trained. It encouraged repetitive training ("stamping in"). And it led to a focus on the "right answer" ("successful response") and to the counting of the number of correct responses to items and subtasks, a perspective that ended up in psychometrically elegant tests considered the scientific way to measure achievement.

The result was fractionation, or splitting into pieces: having to learn disconnected subroutines, items, and sub-

skills, without an understanding of the larger context into which they fit and which give them meaning. Farnham-Diggory (1990) notes that fractionated instruction maximizes forgetting, inattention, and passivity. Since children and adults seem to acquire knowledge from active participation in complex and meaningful environments, "school programs could hardly have been better designed to prevent a child's natural learning system from operating" (p. 146).

The phrase "a child's natural learning system" goes to the heart of why the usual school programs do not meet their own learning objectives well. Human beings—even the small child—are quintessentially sense-making, problem-solving animals. "Why" is a hallmark of children's talk. Fractionated and decontextualized instruction fails to mobilize this powerful property of human beings in the service of learning.

The point about "subtasks" is not that learners do not have to do simple operations. Studies of traditional apprenticeships in tailoring show that novices start with simple tasks. However, they conduct simple tasks in the context of being able to observe the masters' execution of complex tailoring, which involves the integration of different subskills. Observation lets learners develop a conceptual model or cognitive map of what it means to be an expert tailor. This model gives learners an advanced "organizer" for their initial attempts to execute a complex skill; it provides an interpretive structure for making sense of the feedback and corrections from the master; it provides a guide to which the learner can refer during times of relatively independent practice (Collins et al, 1989).

### ***Right-Answer/Fact-Based Learning***

*Schools focus on getting the right answer, at the cost of developing the processes that generate answers.*

Both the transmission and behaviorist views of learning place a premium on getting the right answer. A transmission view stresses the ability of the learner to "reproduce" The Word; a behaviorist view, the ability of the learner to generate the correct response. The end result is the same: students and teachers focus on the "right answer," jeopardizing the development of real understanding. This focus plays out in several ways.

*Students resort to superficial accomplishment.*

Students learn to sound and test "right" within the school system. They figure out what answers the teacher or the test seems to want, but often at the cost of no real learning. These surface achievements have been called "vener of accomplishment" (Lave et al, 1988).

Again, Jordan's (1987) analysis of a Mayan midwives' training program illuminates basic truths about the learning and testing of American students. She found that midwives who had been through the training course saw the

official health care system as powerful, in that it commanded resources and authority. They came to distinguish "good" from "not good" things to say. Specifically, they learned new ways of legitimizing themselves, new ways of presenting themselves as being in league with this powerful system, but with little impact on their daily practice. Although they could converse appropriately with supervisory medical personnel, their new knowledge was not incorporated into their behavioral repertoire. It was "... verbally, but not behaviorally fixed ..."

The same behaviors show up with Hass' American third graders. He observed that in mathematics lessons the students got much practice in problem-solving methods that they had brought into the classroom with them—methods that were not being taught and that were not supposed to be used. The children used these methods to produce right answers, which the teacher took as evidence of their having grasped the formal procedures that she was teaching them. *In fact, all that had happened was the appearance of learning.*

Lave et al (1988) cite Resnick's (1986) observations that school learners have reasonably correct calculational rules and, in the classroom, learn rules for manipulating the syntax of symbolic notation systems. However, they fail to learn the meaning of symbols and the principles by which they represent quantity. Thus, wrong answers can look right and may not betray the students' lack of mathematical understanding. (The attack on multiple-choice tests is targeted at the veneer problem, in that these tests fit and reinforce an emphasis on fragmented knowledge and superficially correct answers.)

*Teachers fail to understand the assumptions that students bring to what is being learned.*

This is part of the veneer problem. We end up with appearances of learning because, in their search for right answers, teachers often fail to check behind the answers to understand what assumptions students have brought into the learning situation.

The evidence shows that learners carry into the learning situation conceptions and constructs that they have acquired elsewhere—Hass' students are an example. In other words, the teaching challenge is not to write on a clean slate. It is to confirm, disconfirm, modify, replace, and add to what is already written there.

As Raizen (1989) points out, traditional curricula are based on a conceptual analysis of the subject matter that ignores what is already in the learner's head, with the result that students make mistakes that arise from undetected ideas that they brought to the lesson. Or they can play back memorized canonical knowledge and conceptions but return to their own ideas when confronted with unfamiliar questions or non-routine problems. One study found that students in college physics courses designed for physics majors solved "book" problems in Newtonian

mechanics by rote application of formulae, but—even after instruction—reverted to naive pre-Newtonian explanations of common physical situations (Raizen, 1989).

*Teachers do not focus on how to use student mistakes to help them learn.*

In their search for right answers, teachers tend to ignore student errors as "failures" rather than as opportunities to strengthen students' understanding.

In their observations of urban and suburban Chicago, Taipei (Taiwan), Beijing (China), and Sendai (Japan) first and fifth-grade mathematics classes, Stigler and Stevenson (1991; also Stevenson and Stigler, 1992) found a marked difference in how American, versus Asian, teachers treated student mistakes. American teachers place little emphasis on the constructive use of errors as a teaching technique, a practice that Stigler and Stevenson attribute to the strong influence of behaviorism in American education. Behaviorism requires teaching conditions that help learners to avoid errors and to make only correct responses which can be reinforced through praise.

For example, a teacher in a Japanese fifth grade class was introducing the problem of adding fractions with unequal denominators. The problem was simple: adding  $1/2$  and  $1/3$ . The teacher called on one of the students to give his answer and explain his solution. The student answered two-fifths. Pointing first to the numerators and then to the denominators, he explained that one plus one was two and three plus two was five, giving him two-fifths. Without comment the teacher asked a second student his solution. This student said that two point one plus three point one added up to five point two. When changed into a fraction, he got two-fifths. The teacher, unperturbed, asked a third student for her solution, and she answered five-sixths. She showed how she had found the common denominator, changed the fractions so that each had this denominator, and then added them.

Instead of emphasizing the correct solution and ignoring the incorrect ones, the teacher next capitalized on the errors that the first two students had made to help them and the other students confront two common misconceptions about fractions. She helped the first student test the sensibleness of his solution by asking which was larger, two-fifths or one-half? When it was acknowledged that one-half was larger, she asked whether it didn't seem strange that adding something to one half gave you an amount less than one-half? In working with the second boy, she helped him to see that he had confused decimals with fractions, but that, *given that error*, he had arrived at a sensible solution.

*Since the instructional focus is on the right answer, it is not on how to think about problems or on different ways to solve them.*

Perhaps the most serious consequence of a "right answer" emphasis is just that: it excludes a focus on how

to approach the problem to be solved or on different ways to solve the same problem. It emphasizes facts, which are important, but by themselves constitute an impoverished understanding of a domain. A fact-focus does not develop students' abilities to think about the domain in different ways. Cognitive analyses of a range of jobs show that being able to generate different solutions to problems that are formally the same is a hallmark of expert performance (Scribner, 1988).

Again, Asian teachers differ markedly from Chicago teachers. They seem to focus more on concepts, conceptual understanding and, at least in mathematics, on the notational system needed to represent concepts and their relationships. Stigler and Stevenson (1991) found that teachers ask questions for different reasons in the United States and in Japan. In the United States, the purpose of a question is to get an answer, but Japanese teachers pose questions to stimulate thought. In fact, they consider questions to be poor if they elicit immediate answers because this indicates that students were not challenged to think.

A common type of lesson in Asian classrooms is one that asks the students to invent and evaluate different ways of solving the same problem without worrying about specifying an answer. A videotape of typical Asian classrooms (Stevenson, 1989) shows a fifth-grade teacher who started her class by showing the students a trapezoid drawn within a rectangle. She divided the class into small groups, asking each group to figure out one or more ways to determine the area of the trapezoid. She stressed that it did not matter which method they used. "You don't need to show us your calculations; just show us your method. It is your method that matters, not simply getting the correct answer." The groups came up with several different and ingenious solutions.

Lessons like these have several effects. First, they give control over problem-solving to the students, both in terms of generating the solutions and evaluating their mathematical validity. The teacher guides the process and insures that mathematical values are respected; but her role, in the words of an American teacher, is that of "guide on the side," not "sage on the stage."

Second, lessons such as these reproduce the actual processes in which mathematicians themselves engage—the processes of mathematical argument, discourse, and proof. By doing mathematics, students come to understand how mathematics got put together over the centuries, see that they can engage in the same processes and, by virtue of participating in mathematical argument, develop a deeper understanding of mathematical concepts. Finally, by being encouraged to generate multiple solutions to the same problem, students can regard the problem from multiple angles, thus developing a fuller understanding of its properties. They come to realize that

problems can usually be solved in several ways, freeing them from a constraining hunt for the "one right way."

### *Non-contextual Learning*

*Although schools often teach skills and knowledge outside of their contexts of use, the research shows that context enhances learning.*

This problem is often talked about as "decontextualized learning," which simply means learning in the absence of context or meaning. The rationale for decontextualized learning is that, if fundamentals are learned independent of specific context, they become available for application to a wide range of specific situations. A behavioral theory of learning also implies stripping away "extraneous" stimuli—i.e., stimuli that can give context and meaning.

Almost three-quarters of a century earlier, John and Evelyn Dewey (1915) wrote about the learning costs of decontextualized education:

A statement, even of facts, does not reveal the value of the fact, or the sense of its truth—of the fact that it is a fact. Where children are fed only on book knowledge, one "fact" is as good as another; they have no standards of judgment or belief. Take the child studying weights and measures; he reads in his textbook that eight quarts make a peck, but when he does examples he is apt, as every schoolteacher knows, to substitute four for eight. Evidently the statement as he read it in the book did not stand for anything that goes on outside the book, so it is a matter of accident what figure lodges in his brain, or whether any does. But the grocer's boy who has measured out pecks with a quart measure *knows*. He has made pecks; he would laugh at anybody who suggested that four quarts made a peck. What is the difference in these two cases? The schoolboy has a result without the activity of which it is the result. To the grocer's boy the statement has value and truth, for it is the obvious result of an experience—it is a *fact*.

Thus we see that it is a mistake to suppose that practical activities have only or even mainly a utilitarian value in the schoolroom. They are necessary if the pupil is to understand the facts which the teacher wishes him to learn; if his knowledge is to be real, not verbal; if his education is to furnish standards of judgment and comparison.

Context turns out to be critical for understanding and thus for learning. We are back to the issue of meaning-making and sense-making, discussed earlier. The importance of context lies in the meaning that it gives to learning.

Asian teachers rely much more heavily on context than American teachers, both in terms of using concrete objects and real-world problems (Stigler and Stevenson, 1991; Stevenson and Stigler, 1992). Sendai teachers were twice as likely as Chicago teachers, and Taipei teachers five times as likely to use concrete objects to teach fifth-grade mathematics.

American teachers tended to introduce mathematical concepts and rules abstractly, only later (if ever) turning to real-world problems that involved those ideas. For example, they often started the lesson on fractions by defining the term "fraction" formally and naming the elements of fractional notation ("denominator" and "numerator"). Asian teachers, however, tended to introduce new mathematical ideas by first "interpreting and relating a real-world problem to the quantification that is necessary for a mathematical solution" (Stigler and Stevenson, 1991, p. 20). For example, a teacher might start the lesson by asking students to estimate how many liters of colored water a beaker contains, the amount always being some part of a whole liter, such as  $1\frac{1}{2}$  or  $1\frac{1}{3}$  liters. He then helps them translate their visual appreciation of "parts of" into fractional notations. The terms "fraction," "denominator," and "numerator" are mentioned only at the end of the lesson, these formal words now being connected to real-world experiences. In other words, these teachers understand that concrete experiences are not sufficient for learning—they have to be linked to formal notation and abstract concepts. However, real-world experiences provide the intuitive meaning that lets students "hook into" and "take possession of" abstract ideas.

Confusion surrounds the idea of "teaching in context." It is not about making learning "relevant," as that term came to be used in education in the 1960s. In the 1960s "relevance" came to be defined as teaching subject matter directly applicable to students' lives rather than the traditional academic disciplines. This is not the same as using students' experiences to help them learn the disciplines.

It does not refer to a vocational or applied curriculum. As we just saw, Asian teachers make use of context in the form of concrete objects and real-world problems for teaching a distinctly "academic" subject (mathematics). As the Oxford English Dictionary states, relevance is about that which "connects," "makes coherent," "gives meaning," "makes interpretable."

And that which "makes interpretable" comes out of the experiences of those doing the interpreting. It is for this reason that "context" often gets confused with applied curricula. Context involves experience, which comes out of specific situations, and the presumed objective of vocational curricula is for use in specific situations. These are not the same thing. The fact that well-designed vocational curricula use real-world problems and objects does not mean that "teaching in context" is vocational teaching.

There is only limited research on the outcomes of learning in context, versus out of context. For example, Brazilian street vendor children successfully solved 98 percent of their marketplace transactions, such as calculating total costs and change. When presented with the same transactions in formal word arithmetic problems that provided some descriptive context, the children correctly solved 74 percent of the problems. Their success rate

dropped to 37 percent when asked to solve the same types of problems when these were presented as mathematical operations without descriptive context (Carragher et al., 1985.) Sticht (1989) found that marginally literate adults in a job-related reading program gained in job-related reading twice what they gained in general reading that is, they did better when a meaningful context was provided for the text.

## TRADITIONAL APPRENTICESHIP AS A PARADIGM OF LEARNING

In their search for learning strategies more effective than those often evidenced in K-12 schools, analysts looked at the "spectacular" learning of young children and at apprenticeship in developing countries. They noted that children's learning situations had certain characteristics (Bransford et al., 1985; Pea, 1989). First, learning took place in context. During their first five years, children were learning in the midst of culturally meaningful, ongoing activities, and receiving immediate feedback on the success of their actions.

Second, learning was often guided. Parents, friends, and peers not only served as models for imitative learning, but helped the children learn by providing structure to and connections between their experiences. These mediators highlighted information in the situation that helped the child carry out a task. They let them take on "part" activities in the conduct of a whole task, such as mixing sugar and flour in the whole process of making a cake.

Third, learning was useful. Learning in context and with adult guidance gave children an understanding of the role of information in problem-solving. Concepts and skills were acquired as tools with a range of purposes. And fourth, the uses of new knowledge were not only shown, but often explicitly stated—in other words, the need for and purpose of the learning were explained.

Another source of effective learning ideas was watching how individuals learned in traditional apprenticeships, including informal on-the-job training in American companies (Lave, in preparation; Jordan, 1987; Scribner and Sachs, 1990).

What does traditional apprenticeship look like? In her studies of Vai and Gola apprentice tailors, Lave noted that the tailoring curriculum arranges opportunities for practice, whereas school curricula tend to be a specification of practice (Lave et al, 1988). Collins et al (1989) note that Lave found that the apprentices learned tailoring through a combination of observation, coaching, and practice:

In this sequence of activities, the apprentice repeatedly observes the master executing . . . the process [that they are trying to learn], which usually involves a number of different

but interrelated subskills. The apprentice then attempts to execute the process with guidance and help from the master (coaching). A key aspect of coaching is the provision of scaffolding, which [simply means] the support, in the form of reminders and help, that the apprentice requires to approximate the execution of the entire composite of skills. Once the learner has a grasp of the target skills, the master reduces (or fades) his participation, providing only limited hints, refinements, and feedback to the learner, who practices by successively approximating smooth execution of the whole skill.

Jordan (1987) identifies several characteristics of traditional apprenticeship learning. Those include:

1. Apprenticeship happens as a way of, and in the course of, daily life and may not be recognized as a teaching effort at all. In other words, there is likely to be almost no separation between the activities of daily living and learning of "professional" skills. This aspect of traditional apprenticeship recalls how very young children learn in contemporary families.
2. "Work" is the driving force. In apprenticeship the activities in which masters and students engage are driven by the requirements of the work to be accomplished: pots need to be fired, a shawl needs to be woven, trousers need to be manufactured. The activities to which the apprentice is a witness and, by stages, a contributor, are organized around work to be done, and whatever teaching or learning may happen is coincidental to that overriding concern. As a consequence, the progressive mastering of tasks by the apprentice is appreciated not so much as a step towards a distant, symbolic goal (such as a certificate), but for its immediate use value. Apprentices are not so much "practicing for the real thing" as doing useful and necessary tasks.
3. There is a temporal ordering of skill acquisition. Apprentices start with skills that are relatively easy and where mistakes are least costly. For example, young tailor apprentices first experiment with parts of the production process that are least costly in terms of wasted materials. The apprentice's first assignments are sewing garments from pieces someone else has cut, not constructing it from start to finish. Only when the individual production processes are mastered is the entire production sequence put together. The concept of working from the "sidelines" of a complex task to its center stands in contrast to the ways that knowledge is usually transferred in formal schooling. In a formal classroom there is usually a (chrono)logically ordered sequence of things to be learned. The components are treated as equal in importance to one another, and it is assumed that they have to be acquired in a linear way, in other words, one after the other, rather than in "bundles."

4. Traditional apprenticeship learning focuses on bodily performance and embodied knowledge. When lectures are used to convey knowledge, the focus is on verbal and abstract knowledge. However, apprenticeship learning is the acquisition of bodily skills. It involves the ability to do rather than the ability to talk about something. Indeed, it may be impossible to elicit from people operating in this mode what they know how to do. The master is less likely to talk than to guide the hands, producing truly embodied knowledge. In the apprenticeship mode, acquisition of bodily skills is primary, while the verbalization of general principles is secondary, ill-developed, and not well rehearsed.
5. Standards of performance and evaluation of competence are implicit—in fact, they are embedded in the work environment in which the novice participates. What constitutes expert execution of a task is obvious and observable in the master's performance. Judgements about the learner's competence emerge naturally and continuously in the context of the work being accomplished, rather than occurring as a specially marked event, such as a test. The success or failure of a task that has been performed is obvious and needs no commentary. To a large extent, the person who judges the apprentice's performance is the apprentice himself or herself rather than the expert. The apprentice, having observed the work sequence many times, knows what remains to be learned. Moving on to the acquisition of the next skill may be up to the apprentice and largely under her or his own control, rather than that of the master's. In other words, the apprentice tends to "own the problem" of moving on to learning the next skill.
6. Teachers and teaching are largely invisible. In apprenticeship learning—and during informal on-the-job training in modern American workplaces—it looks as though little teaching is going on. Teaching does not occur as an identifiable activity and whatever instruction the apprentice receives originates, not from a teacher doing teaching, but from a weaver/tailor/stockroom worker doing his or her work that the apprentice observes.

In sum, an apprenticeship situation consists of a community of experts and novices. Apprenticing is a process of being inducted or trained into the community of expert practice, whether the practice is that of tailoring, weaving, or farming. In the case of the very young child, the child is being inducted into the broader community—into the "way" of his or her native culture. Critical to this learning situation is that the "teacher" continuously engages in and is a master at the practice being learned. His or her performances constitute the standards of performance for the apprentice.

## COGNITIVE APPRENTICESHIP AS A PARADIGM OF LEARNING

### *The Need to Modify Traditional Apprenticeship*

Traditional apprenticeships, however, are not entirely transferable to a modern society for two reasons. First, practical work such as tailoring or weaving are visually observable to the novice, and embodied knowledge—the knowledge of the hand—is important. However, in many modern practices, whether reading, machine repair, management, mathematics, law, or computer-based machining, cognitive skills complement embodied knowledge in importance. Cognitive components of activity are ordinarily not visible.

Visually observable or “externalized” skills make them available to students and teachers for “observation, comment, refinement, and correction.” Externalized skills bear a fairly transparent relationship to concrete products, such as the assembly of pieces into a shirt. This ability to see the relevant skills, procedures, and resulting products helps the student build a conceptual model of the complex target skill—to envision his or her ultimate performance goal. And the relatively transparent relationship, at all stages of production, between process and product facilitates the learner’s recognition and diagnosis of errors, upon which the early development of self-correction skills depends. Applying apprenticeship methods to skills that are not particularly visually observable—in other words, to largely cognitive skills—means that ways have to be found to “externalize” processes that are usually carried out internally.

Today, many occupations that previously depended primarily on the skilled hand and the skilled eye now also require facility with symbolic material. For example, in traditional machining, responsibility for part dimensions and tolerances, metal properties, and tool use is literally in the hands of the machinists who have extensive knowledge of part geometry, metallurgy, output requirements, and tool functioning. Computerized numerical control (CNC) machines radically alter these processes of set-up, control, and operation—a decisive transformation that replaces manual set-up and control with set-up by symbolic command. Whereas the machinist working on a traditional machine reads an engineer’s blueprint and then manually adjusts dials and levers to set up a particular operation, a machinist on the CNC machine reads the blueprint and then creates commands in a programming language to govern the machine’s operations (Martin et al, 1990).

In the textile industry, when textile machines were mechanically-based, workers could visually observe how

they operated. Working around them gave operators a sense of how to repair them, and the additional training needed to become a “fixer” was acquired on the job with little or no formal instruction. This situation has now changed. Most machines now have microprocessors and other electronic components. Since important machine components are not visually observable, operating the machines does not provide much of a sense of what it takes to repair and maintain them. Now, to understand, diagnose, and fix the new machines, technicians have to be able to represent their structures and processes symbolically in their heads. To do this they have to be able to follow complicated manuals, diagrams, and updates provided by the manufacturers.

Second, traditional apprenticeship is not entirely transferable to the modern world in that it presumes relative constancy in the activities being learned. Thus, it does not focus on developing the skills and knowledge that seem to be needed when domains are characterized by change and non-routine events. Tailors, midwives, or rug-makers encounter non-routine events, but the incidence of these events would seem to be much lower than in modern work, especially in economic sectors characterized by substantial international or domestic competition.

Greater volatility should increase the importance of two types of skills. One is higher-order cognitive skills, such as problem-defining, problem-solving, and knowing how to learn. The other is facility with the principles that govern a domain and that can be used to handle variations in the situation-specific manifestations of those principles.

### *Modifying Traditional Apprenticeship to Fit the Modern World*

At the same time, traditional apprenticeships show what contextualized, effective learning looks like. Given the images of traditional apprenticeships, cognitive scientists have been able to invent analogies appropriate for learning less visible practices and those subject to change. Collins et al (1989) have proposed what they believe to be key elements of these environments, calling the emergent strategy “cognitive apprenticeship.”

Cognitive apprenticeship modifies traditional apprenticeship to teach symbolically-based and therefore less observable activities, such as reading, writing, and mathematics. The term “cognitive” should not be read to mean “academic.” The model ignores our usual distinctions between “academic” and “vocational” education, in that its objective is to train the novice into communities of expert practice, whether the practice is what the rest of us might call “academic”—for example, mathematics, or “vocational”—for example, interior design.<sup>2</sup>

Collins et al (1989) argue that the most important difference between traditional schooling and apprenticeship



is that, in schooling, skills and knowledge are abstracted from their uses in the world; in apprenticeship, they are continually used by skilled practitioners and are instrumental to accomplishing meaningful tasks. In other words, "apprenticeship embeds the learning of skills and knowledge in their social and functional context." Thus, their focus is on learning through guided experience, but emphasizing cognitive skills and processes, not just the physical ones that characterize traditional apprenticeship.

Collins et al (1989) identify characteristics of ideal learning environments. Their ideas hold on to the power of traditional apprenticeships, modified for contemporary activity, and eliminate the flawed characteristics of the standard K-12 paradigm of learning. The characteristics of effective learning environments are listed in Table 1.

**Table 1. Characteristics of Ideal Learning Environments: Content**

Target knowledge for an ideal learning environment includes domain-specific conceptual, factual, and procedural knowledge and three types of strategic knowledge. Schools and traditional apprenticeships usually focus only on the first type of content. However, the last three types are needed to operate effectively in, on, and with domain-particular knowledge.

- *Domain Knowledge:* The conceptual and factual knowledge and procedures associated with a particular subject, e.g., geography, repairing textile machinery, comparative literature, physics, accounting, architecture, radiology, contract law.
- *"Tricks of the Trade":* Called more formally "heuristic strategies," these are problem-solving strategies that experts pick up with experience. They do not always work, but when they do, they are quite helpful.
- *Cognitive Management Strategies:* These cognitively govern the process of carrying out a task and are also known as "executive thinking" skills or "metacognitive" skills. They include goal setting, strategic planning, checking for accurate plan executive, goal-progress monitoring, plan evaluation, and plan revision.
- *Learning Strategies:* These are strategies for learning any of the kinds of content described above. Knowledge about how to learn includes general strategies for exploring a new domain. It also includes strategies for getting more knowledge in an area already somewhat understood and reconfiguring the knowledge already possessed.

**Table 2. Characteristics of Ideal Learning Environments: Methods**

Teaching methods should be designed to give students the chance to observe, engage in, invent or discover expert strategies in context.

- *Modeling:* For students to model expert performance, the learning situation must include an expert's performing a task so that the students can observe and build a conceptual model of the processes that are required to accomplish it.<sup>4</sup>
- *Coaching:* This means observing students as they carry out a task and offering hints, support, feedback, modeling, reminders, and new tasks to bring their performances closer to expert performance.
- *Scaffolding and Fading:* "scaffolding" refers to the supports that the teacher provides to help the student carry out the task. Supports can take either the form of suggestions or help or actual physical supports, such as the short skis used to teach downhill skiing. "Fading" is the gradual removal of supports until students are on their own. Fading is critical to autonomous and independent functioning.
- *Articulation:* This includes any method to get students to articulate their knowledge, reasoning, or problem solving processes in a domain. It makes visible otherwise invisible cognitive processes. It also makes explicit assumptions that students bring to the learning situation.
- *Reflection:* This is any technique that lets students compare their own problem-solving processes with those of an expert, another student, and, ultimately, an internal cognitive model of expertise.<sup>5</sup>
- *Exploration:* This refers to any device that pushes students into a mode of problem-solving on their own. Forcing them to explore is critical, if they are to learn how to frame questions or problems that are interesting and that they can solve. This part of the model provides the opportunities for experiential feedback so key to learning.

**Table 3. Characteristics of Ideal Learning Environments: Sequencing**

Learning should be "staged" so that the learner builds the multiple skills required in expert performance and discovers the conditions to which they generalize.

- *Increasing Complexity:* Tasks and task environments are sequenced to require more and more of the skills and concepts necessary for expert performance.
- *Increasing Diversity:* Tasks are constructed so that they require a wider and wider variety of strategies or skills. This strategy helps students learn to distinguish the conditions under which they do (and do not) apply. (This principle is key to students' seeing transfer possibilities and their limits.)
- *Global before Local Skills:* This simply means staging the learning so that students first develop a "feel" for, sense of, a conceptual map of, the overall terrain before attending to its details. (In tailoring appren-

tices learn to put together a garment from precut pieces before learning to cut out the pieces themselves.) Having a mental image of the overall activity helps the student make sense of the sub-activity that he is carrying out. It also acts as a guide for the learner's performance.

#### Table 4. Characteristics of Ideal Learning Environments: Sociology

The learning environment should reproduce the technological, social, time, and motivational characteristics of the real world situations in which what is being learned will be used.

- **Situated (Contextualized) Learning:** This refers to students' carrying out tasks and solving problems in a way that reflects the nature of such tasks in the world. For example, reading and writing instruction might be situated in the context of an electronic message system that students use to send each other questions and advice.
- **Community of Expert Practice:** This refers to the creation of a learning environment where participants actively communicate about and engage in the skills evidenced by experts. In other words, the learning situation needs to include experts and learners; experts performing tasks; and learners being drawn into the community of expert practice by watching experts, working with experts to solve problems and carry out tasks, and coming to assume autonomous control over problems and tasks.
- **Intrinsically Motivated Learning:** This refers to the incentives that govern the learning situation. Intrinsic motivation arises when students are engaged with interesting or at least coherent goals, rather than for some extrinsic reason, such as pleasing the teacher.
- **Co-operative Learning:** This refers to having students work together to solve problems and carry out tasks. Learning through cooperative problem-solving is both a powerful intrinsic motivator and a way to extend learning resources. For example, in contemporary computer clubs nonexperts were able to use each other as "scaffolding" for increasing their command of computers. They pooled their fragments of knowledge about computers to bootstrap themselves toward expertise (Levin, 1982).
- **Competitive Learning:** This refers to giving students the same task to carry out and then comparing their performances to focus their attention on strengths and weaknesses. Learning in today's classrooms is competitively and usually destructively structured. For competition to be constructive, comparisons should be made, not on the products of student problem-solving, but on the processes that generate the

products. The learning objectives for students should be defined, not as making no errors, but as learning to spot errors and using an understanding of them to improve. Combining co-operative and competitive learning can mitigate the destructive aspects of competition: for example, students might work together in teams to compete with other teams, thus letting them use team members as scaffolding and comparisons of team performances to focus attention on better ways to carry out a task.

Of these four building blocks, the *content* building block includes knowledge and procedures specific to a domain, a "domain" simply referring to subjects, such as Russian literature, photography, structural engineering, cooking, economics, dancing, or statistics. The content block also includes strategies for effectively using and expanding one's grasp of domain-particular knowledge and procedures. These strategies correspond roughly to what are called the higher order thinking skills, taught, not separately, but in the context of particular content.

The *methods* building block describes the work relationship of teacher and students—their roles and responsibilities. It also identifies ways of making visible and accessible to the students and teacher the reasoning, knowledge, and strategies that students bring to their problem-solving.

The third building block focuses on the *sequencing* of learning. It talks about deepening knowledge—increasing the student's expertise. It talks about broadening knowledge—understanding more about where and how the knowledge and skills can be appropriately used. It talks about how to stage the initial acquisition of knowledge—finding ways to let the student "see" the whole before trying to develop the subskills implicated in producing the whole. For example, being able to watch an expert tailor construct a garment gives students mental representations or cognitive maps of their ultimate goal. They can then use that map as an "organizer" for their early attempts to acquire the subskills involved in the expert performance.

The final block is the *sociology* building block. "Sociology" refers to reproducing in the learning situation the characteristics of the real world situations in which what is being learned will be used. The characteristics include the technology, the social relationships and incentives that govern the accomplishment of tasks in the real world, and the time frames for real-world tasks. For example, the learning situation should set up both co-operative and competitive incentives for learning. It should teach content in the context of real world problems.

#### Examples of Cognitive Apprenticeship

Instances of cognitive apprenticeships occur not just in the annals of cognitive scientists, but also in real world

school courses and projects, designed by real world school teachers. Although these examples come from schools, this does not mean that work-based apprenticeships cannot incorporate cognitive apprenticeship principles.

*Redesigning the American Constitution.* Salomon (1990) describes a project for studying the American Constitution. Recognizing that studying constitutions is not very exciting for eighth graders, the designers first thought about structuring the project so that the students could create a computer database that they could use to sort information, reconstruct it into newly invented categories, and so forth. However, they immediately asked themselves: Why would students want to do this? They realized that individuals rarely classify novel information and cross-tabulate it without having a motive, a reason, a purpose for doing so. "And how does one classify legal clauses, according to what criteria, in the absence of a clear purpose?" (p. 8). Salomon and his colleagues were struggling with the issue of meaning for the students, the problem addressed by authentic situated learning.

They created a purpose. The students took the positions of different stakeholders—the federalists, the loyalists, representatives from the different colonies (New York, Pennsylvania, Virginia, etc.), plantation owners. Working in teams of three, the students treated the Constitution as a draft, the study teams proposing changes in it according to their stakeholder perspectives. This gave them reason and framework for dealing with the Constitution in database form, inviting them to reclassify its legal clauses, compare them, and draw out their implications for their political positions. They then formulated proposed changes in the Constitution, to be introduced in subsequent inter-team debate.

In other words, the Constitution is not treated as The Word, but as a document that was originally built out of dynamic political forces and that students can rebuild in the same spirit.

The project culminated in a Constitutional Convention, where the teams, as delegations and under the guidance of George Washington (the teacher), debated the changes that they wanted adopted. Three students became clerks of the Convention to count votes and announce decisions, and other students served as an audience. Creating a position to take to the Convention generated opportunities for the students to articulate their positions, knowledge, reasoning, and problem-solving. It also let them reflect on their efforts by letting each student compare his/her own problem-solving processes with those of other students in the team. The Constitutional Convention created more opportunities for articulation, for reflection, and, because it had important elements of competition and public comparison, for focusing the teams' attention on the strengths and weaknesses of their performances.

*Building and racing a solar-powered car.* Students from Conval High School in Peterborough, New Hamp-

shire, built and raced a solar-powered car as an applied science project (National Council on Vocational Education, 1990). The project demonstrates all four blocks of the cognitive apprenticeship model.

The project extended over nine months, an unusually long time frame for a school, but a realistic one for real world tasks. It culminated in the team's competition in a 234-mile, five-day race from Montpelier, Vermont, to Boston, a goal that created both cooperative and competitive incentives.

The project required the students to acquire and use a wide variety of skills spanning many academic and practical disciplines, including physics and mathematics, basic solar engineering, hydraulics, electronics, drafting, model fabrication, metal working, and welding. Ten models were built and tested before the students finally decided on a production design, the decision process requiring the students to articulate and reflect on the strengths and weaknesses of each model.

The students quickly learned the necessity for other skills as well. They had to acquire the business skills necessary to manage some grant funds. They also had to learn the English, journalism, and graphics skills needed for a public relations effort about the project. Perhaps most surprising to the students, they had to acquire the leadership, management, and interpersonal relations skills necessary to construct a rational division of labor to keep the project moving forward. Among the more significant outcomes of the management process was a negotiated decision to build the car for racing safety at the sacrifice of speed, a decision that forced students to articulate their positions, to reflect on the merits of those positions, and to cooperate with each other.

Mr. Bigelow, the instructor, had four educational goals: (1) the project should control curriculum in a way that enabled students to see worthwhile connections between their work and real environmental and economic problems; (2) the students would become managers of their own learning—in other words, they would learn what they needed to know to accomplish specific goals through team decision-making; (3) the project would integrate study across the curriculum, for example, the project's success depended as much on a solid PR effort involving journalism skills as on understanding the physics of photovoltaics and (4) the students would learn the necessity for building bridges to critical local resources to acquire the technical support and financial assistance required.

*Reciprocal teaching to strengthen reading comprehension.* Palincsar and Brown (1984) developed reciprocal teaching to increase students' reading comprehension, especially that of poor readers. Collins et al. (1991) observe that reciprocal teaching embodies several features of cognitive apprenticeship. The method involves modeling and coaching students in four strategic skills: formulating questions based on the text, summarizing the text,

making predictions about what will come next, and clarifying difficulties with the text. Both teacher and students first read a paragraph silently. Whoever is playing the role of teacher formulates a question based on the paragraph, constructs a summary, and makes a prediction or clarification. The teacher initially models the process and then turns the role of teacher over to the students, coaching them extensively at first on how to construct good questions and summaries and critiquing their efforts. The teacher ultimately fades into the role of monitor, providing occasional hints or feedback.

Poor readers improved their reading comprehension scores from 15 to 85 percent accuracy after 20 training sessions. Six months later they were still at 60 percent, recovering to 85 percent with one session.

Collins et al. (1991) attribute the success to several factors. First, the method engages the students in activities that help them form a new conceptual model of the task of reading. They are reading to understand what they are reading, and developing the critical ability to read to learn.

The second factor seems to be that the teacher models expert strategies in a shared problem context. Students can compare their own questions or summaries with the questions or summaries generated by the group. They can reflect on any differences, trying to understand what causes them. The third factor seems to be the provision of scaffolding. Finally, students assume the dual roles of producer and critic. They not only must produce good questions and summaries, but also learn to appraise those of others. By becoming critics as well as producers, students are forced to articulate their knowledge about what makes a good question, prediction, or summary. This knowledge then becomes available for use in their own summaries and questions. Moreover, once articulated, this knowledge is freed from its contextual binding and becomes available for use in different contexts.

*Designing the six-room interior of an historical Victorian house.* Stasz et al (1990) describe a high school interior design class where students had six weeks to complete a contemporary interior design for an historical Victorian house. They had to research the original house and the design tradition, draw the house, draft the floor plan, select furnishings and coordinate colors, and prepare boards to display the proposed design. Most of the students worked in teams of four to six people, but some worked individually.

To help students learn from errors, the teacher frequently provided active coaching and support. However, in general, she backed away from active coaching. She tried to structure the project assignment so that it naturally produced opportunities for students to learn skills such as "monitoring as you go."

She worked to foster what Collins et al (1989) call exploration. Although some aspects of the interior design project were constrained, she deliberately under-constrained

the task to encourage students to create their own problems and solutions. She pushed students to the boldness and risk-taking associated with exploration. She told the research team: "If I had spoon-fed the kids, it would have defeated the whole purpose of the project; they would have never shifted gears. They were frustrated when they did not get the answer, but they learned that it's okay for them to have an opinion as long as it's backed by a rationale . . . Liking something is not enough" (p. 26).

\* \* \*

We do not yet know how effective cognitive apprenticeship will be, especially if the question is about effectiveness in routine, as opposed to hot house, learning situations. However, the ideas are unusually well grounded in a century of thought and research, and small studies suggest the potential for spectacular improvements in learning.

At the same time, learning situations that reflect cognitive apprenticeship principles are not thick on the ground. Extending them in schools will require dealing with institutional, curricular, pedagogic, evaluation, and professional training issues. The magnitude of the changes required to shift from a traditional K-12 paradigm of learning to a cognitive apprenticeship paradigm cannot be underestimated. It will involve theoretical considerations as well as the practical consideration of location.

## WHERE SHOULD APPRENTICESHIPS BE LOCATED: WORKPLACE, SCHOOL, OR SOME MIXED ARRANGEMENT? \_\_\_\_\_

The current explosion of interest in apprenticeship in the United States has conceived of it as work-based, not school-based, for several reasons. The German, Austrian and Swiss work-based apprenticeship systems are better-known in the United States than the school-based systems of Sweden, Denmark, or France. The U.S. Department of Labor saw the traditional, work-based, apprenticeship programs under its jurisdiction as a base for a work-based system that could be extended to younger ages and a wider range of occupations. It was also generally acknowledged that many school-based programs—even many vocational ones—are divorced from the needs of the workplace. Some do not connect with the knowledge and skills needed at work, and some do not reflect the ways in which knowledge and skills are used in the workplace.

Thus, a work-based system seemed a good solution. It seemed to eliminate the problem of coordinating work-oriented schooling with the workplace because learning and the workplace were coincident with one another. It

seemed to reduce the school-to-work transition problem for youth for the same reason.

Work-based apprenticeship presumes an apprenticeship learning situation and the workplace as the locus of that situation. These represent two separate assumptions; one does not logically require the other. The previous section argued for apprenticeship forms of learning, albeit modified to reflect the greater cognitive and theoretical demands of contemporary activities, especially in restructured workplaces. Still unresolved is the optimal location for cognitively-oriented apprenticeship. Although we associate apprenticeship with the workplace, it is a paradigm of learning that can be implemented in schools, workplaces, or some combination of school and work. It promotes the principles established in Chapter I: programs should use work-based learning methodology and be connected to schools and, if programs are school-based, they have to include and build on real work experience.

We can evaluate possible apprenticeship locations using several criteria. (1) Is the interest in apprenticeship learning broad enough to support a national system? (2) Is the option organized to deliver effective learning? (3) Is it organized to deliver efficient learning? (4) Does it reflect the knowledge demands of the workplace and the work contexts in which knowledge and skill have to be used? (5) Does it develop broadly applicable knowledge and skills? (6) Does it blur the division between the academic and vocational educational tracks?

(1) *Is interest in apprenticeship learning broad enough to support a national system?* Neither workplaces nor schools appear broadly responsive to apprenticeships, but for different reasons. For employers the issue is their willingness to undertake coherent training of the less educated and the very inexperienced. Although these patterns could change, employers now tend to focus their formal training on the better educated and on the not-so-young (Tan, 1989). Thus, employers' training policies, staffing, and arrangements are structured for an older and better educated group than we envision for work-based apprenticeship. The fact that cooperative learning, a cousin of work-based apprenticeship, has remained a minor work-based educational alternative in the United States is consistent with these traditional investment patterns.

Employers' traditional training patterns reflect structural arrangements that isolated policy incentives cannot be expected to change. For example, a mass production organization of work generates the need to train technical specialists, supervisors, and managers (the older and better educated), not novices or experienced workers in the less skilled occupations (Berryman and Bailey, 1992). When companies shift from mass to flexible organizations of work, we see attendant shifts in their training patterns to include all workers. However, companies make these

shifts in response to economic incentives far more powerful than any policies can be expected to generate.

The United States also differs from our competitor nations, such as Germany or Japan, in the social contracts between employers, workers, the educational system, and government. For example, American individualism seems to show up in a tenuous commitment of management and workers to one another, giving employers the flexibility to fire and employees the flexibility to change jobs. Relative to competitor nations, American policy is correspondingly fairly mute with regard to employers' freedom to fire, layoff, and contract work out. This cross-national policy difference manifests itself in various ways. For example, during recessions American companies tend to maintain stock dividends and fire workers; Japanese and European employers tend to reduce dividends and retain workers (Lichtenberg, 1992). The relatively tenuous ties between American workers and employers affect the incentives of both parties to invest in skills. Another national difference is how various social benefits, such as health care, are financed. Allocating the costs of health insurance to employers in the United States can further weaken employer-worker ties, in that it creates an incentive for employers to resort to contract workers who are ineligible for company benefits.

Although schools focus on the education of the young and inexperienced, the problem here is their receptiveness to apprenticeship forms of learning. Even a casual comparison of the traditional K-12 paradigm of learning with that of cognitive apprenticeship shows the major changes that will be required to replace one with the other. For example, curricula need to change; teachers' roles need to shift markedly, requiring retraining; evaluations need to include performance-based assessments, such as portfolios; the daily schedule needs to change to create the blocks of time required for students to work on problems of significant scope and complexity.

(2) *Is the location organized to deliver effective learning?* Work-based apprenticeship has tended to assume that if school-based programs are bad learning places for work, then workplaces must be good places. This may turn out to be true empirically under some circumstances, but is bad logic. In fact, observations of informal on-the-job training of the less educated also raise questions about the workplace as learning place. They show that informal on-the-job training can be catch-as-catch-can. Its quality depends heavily on who happens to be around to train. In work groups with high turnover, almost-novices are training novices, a situation that violates all models of good apprenticeship training. (This problem is analogous to "out of field" teaching in schools, as when the coach is drafted to teach chemistry.) Even experienced members of a group can only pass on their understanding of the job and the corporate context in which this is embedded.

This understanding is rarely monitored and can vary wildly (Scribner and Sachs, 1990).

At the same time, another Scribner and Sachs study (1991) shows that the key issue for the workplace as a learning place is no different than for school-based learning. How work or school activities are set up is what enhances or inhibits learning. For example, a company that organizes work or a school that organizes learning as a set of segmented tasks will limit what its workers or its students learn. (Companies with mass production organizations of work will be more apt to structure learning as segmented tasks.) Whether in the workplace or the schoolroom, what is emphasized and encouraged in the setting helps learners develop either a conceptual understanding or a highly routinized, inflexible set of responses. Since most companies follow a mass production organization of work, we may face a Hobson's choice between two worlds (schools and the workplace), neither of which is routinely well designed for powerful learning.

The inherent power of the location to motivate the learner also affects learning effectiveness. Collins et al (1989) note the motivating quality of a work-based option:

... apprentices are encouraged to quickly learn skills that are useful and therefore meaningful within the social context of the workplace. Moreover, apprentices have natural opportunities to realize the value, in concrete economic terms, of their developing skill: well-executed tasks result in saleable products (Collins et al, 1989).

At the same time, actual school-based trials of cognitive apprenticeships show that intrinsically motivating learning situations can be set up in the school (Schoenfeld, 1988; the Vermont example). A motivational key seems to be whether the learning situation is organized around the natural learning system of human beings—around the fact that we are naturally sense-making, problem-solving, and environmentally interactive.

(3) *Is the option organized to develop skills and knowledge efficiently?* Here the school-based option may have an edge over the work-based option. Collins et al (1989) point out that the problems and tasks given to learners in standard, work-based apprenticeships arise not from pedagogical, but from workplace, concerns:

Cognitive apprenticeship selects tasks and problems that illustrate the power of certain techniques, to give students practice in applying these methods in diverse settings, and to increase the complexity of tasks slowly so that component skills and models can be integrated. Tasks are sequenced to reflect the changing demands of learning. Letting job demands select the tasks for students to practice is one of the great inefficiencies of traditional apprenticeship (Collins et al, 1989).

Since a highly motivating work-based apprenticeship means that individuals learn whatever they are trying to learn quickly, the inefficiency of a work-based option

seems to reside, not in the initial speed with which learning occurs, but in its potential for learning "holes" and unnecessary repetition.

(4) *Does the option reflect the knowledge demands of the workplace and the work contexts in which knowledge and skill have to be used?* A workplace location seems to be a winner here with two caveats. First, if a work-based apprenticeship system picks up a normal sample of workplaces, it will include many with traditionally organized work contexts. If one objective is to prepare individuals for a restructuring economy, the nature of the work contexts has to be monitored carefully.

Second, a key principle of cognitive apprenticeships—which were developed as school-based—is that they mirror the non-school conditions under which knowledge and skill are used. Thus, a school-based option can meet this criterion, but not as automatically or easily as the work-based option.

(5) *Does the option develop knowledge and skill that are broadly applicable?* We noted earlier that modern activity is relatively changeable and non-routine, requiring an arrangement of learning that develops higher order cognitive skills and an understanding of the principles that govern the domain under study. A school-based option would seem to have the edge here. A work-based option can be set up to develop higher order cognitive skills in the context of the domain being learned. However, the embeddedness of the learning within a work situation makes it harder to insure that learners grapple with issues and problems outside the limits of that situation.

At the same time, a work-based option can be designed to develop broader skill and knowledge. Without extensive academic, professional, or even on-the-job training, people can achieve conceptual understanding on the job. Again, the issue is the nature of the individual's job responsibilities—how the work situation is set up. Some work activities, in and of themselves, are educationally rich. The question is the probability of finding such arrangements in the workplace versus the school.

(6) *Does the location blur the division between academic and vocational?* Parents, poor and rich alike, have clearly understood the society's message: "college"—and the high school academic track that gets you there—is the only routing destination that gives their children a shot at an economically viable future. In the absence of a national system organized around preparing students for middle/higher-skill jobs, anything other than the academic track and college amounts to no preparation, which at best translates into low skill jobs.

Thus, parents resist any reform that sounds as though it might preclude college for their children. They are willing to settle for the "general" track, a virtual wasteland, because it purports to give weaker students "academic," albeit applied academic, training. "Vocational," "workplace," or "applied" are all heard as warning bells. In

fact, early returns from some work-based apprenticeship demonstrations show that parents are reluctant to place their children in work-based apprenticeships. They see these options as foreclosing college for their children, whether or not they in fact do. (However, see the Hamiltons' contrary experience described in Chapter 3—ed.) A school-based cognitive apprenticeship, even if focused on an occupational domain such as interior design, blurs the division better.

In sum, on these six criteria, work-based apprenticeships and school-based cognitive apprenticeships have both advantages and disadvantages. A mixed strategy may ultimately turn out to be optimal, but what that strategy might look like is now unclear. We need much more experience with, and analysis of, work-based and school-based apprenticeships.

There is a final reason to think carefully about the location of apprenticeship learning. A fundamental impetus for work-based apprenticeships is that schools generally have done a poor job of preparing the non-college-bound. The question is whether we let the schools off the hook of taking educational responsibility for this large group of students. If the workplace turns out to be the learning place of choice for this group, well and good. However, we need to be careful that we do not resort to work-based apprenticeships to finesse problems with the schools. We are already paying for second chance programs and remedial college programs to get done what the K-12 system should have done properly in the first place.

## Notes

1. Cognitive science is an interdisciplinary field that encompasses psychologists, linguists, anthropologists, computer scientists, philosophers, and neuroscientists. The work "cognitive" refers to perceiving and knowing, and cognitive science is the science of mind. Cognitive scientists seek to understand perceiving, thinking,

remembering, understanding language, learning, and other mental phenomena. Their research is very diverse, ranging from observing children learning mathematics or experienced workers handling the cognitive demands of their jobs, through programming computers to do complex problem solving, to analyzing the nature of meaning (Stillings et al., 1987).

2. The subtitle of the authors' original paper on cognitive apprenticeship is revealing in this respect, "teaching the craft of reading, writing, and mathematics." The subjects might be seen as "academic," but their practice is defined as a craft.

3. Table 1, with some changes to simplify language is based on Collins et al (1989). Collins et al (1991) is a more accessible discussion of this table.

4. In cognitive domains, this requires the externalization of usually internal cognitive processes and activities. For example, an expert's exercise of cognitive self-management skills is normally a silent and unobservable activity. In cognitive apprenticeship situations, the expert (teacher) might model the reading process by reading aloud in one voice and verbalizing her/his thought processes in another.

5. An article on school reform in Vermont gives an example of reflection:

"In Mrs. Rainey's eighth-grade algebra class at Shelburne Middle School in Shelburne, Ryan Galt, 13, swiftly explained with a lighted overhead projector how he got the solution to a problem. He calculated madly, his pencil flying through numbers as he talked. Suddenly out of the darkened classroom came the kind of sheer admiration usually reserved for a wheeling, over-the-head basketball jam by the Chicago Bulls guard Michael Jordan: 'Jeez, that's sweet,' cried Casey Recupero. He had had the same correct answer as Ryan, he explained, but was delighted by the other student's elegant methodology. As the class ended, clusters of students compared their approaches to the problem with the passionate ardor that teachers everywhere dream of inspiring. 'I had an interesting way of doing it, but I messed up,' one student said. 'That's because you did this here,' his classmate said, pointing out an error" (*New York Times*, April 24, 1991, p. A23).

Robert Shumer  
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SERVICE-LEARNING AND THE POWER OF PARTICIPATION:  
SCHOOLS, COMMUNITIES, AND LEARNING

"It takes a whole village to educate a child"

African Proverb

America is in transition. Institutions are changing from segmented, hierarchical configurations to collaborative, interdependent organizations. The realization that working together enhances human productivity and learning is spreading throughout our businesses and our schools. There is a new appreciation for the workplace and the community as learning environments. Americans are returning to their roots and rediscovering the power of participation and democracy.

Business processes are changing. Past organizational schema, based on factory models and Taylorism, are giving way to quality circles and shared decision-making. In the past, employees were told what to do and when to do it. Today, they are asked to plan and to evaluate processes and procedures. They no longer work mindlessly; rather they think, learn, and participate.

Schools, too, are in transition. They are also moving from a factory model, where teachers told students what to do and when to do it, to a more cooperative environment where students help each other and teachers coach more than lecture. Schools are changing from management dominated institutions to places where parents, teachers, administrators, and students share in decision-making. They are shifting from isolated, uninvolved organizations to institutions integrally connected to the workplace, the community, and the world. Education of the past no longer prepares students for the demands of the future -- decision-making, responsibility, application of learning in work and personal contexts, effective group skills, active citizenship, and lifelong learning.

PAST REFORMS

Suggestions for needed educational reform have been made for some time. Reports from the 1970s condemned the isolation of schools from their communities and the lack of student participation in the educational process (Brown, 1973; Coleman, 1974; Martin, 1974;



Gibbons, 1976). Similar claims were made in the 1980s, where lack of active learning led to student passivity and inability to relate classroom learning to life beyond the school (Goodlad, 1984; Boyer, 1983; Carnegie Council, 1989; W.T. Grant Foundation, 1988).

Research on vocational education and school-to-work transition programs called for active participation in community programs. The majority of the studies and reports recommended learning about the world of work through apprenticeships, cooperative education, monitored work experience, and service-learning (National Commission on Secondary Vocational Education, 1984; W.T. Grant Commission, 1988; American Vocational Association, 1990; Hamilton, 1990). To make these programs effective, academic instruction is tied to the community activities, bringing the effort into the mainstream of educational practice.

Recent reports from business emphasize the importance of learning in the community to acquire interpersonal and broad based skills and attitudes. Studies define the skills high school graduates need for entry level work: ability to apply knowledge, teamwork, reasoning, ability to use computers, and a passion for learning (SCANS, 1991). Other studies report on the skills employers want from their new employees: ability to learn how to learn, apply basic skills, communicate effectively with co-workers and supervisors, be adaptable, develop with the job, work effectively in groups, and influence others on the job (Carnevale, Gainer, and Meltzer, 1988). These reports describe the tasks and educational skills necessary for occupational success in the twenty-first century.

Research in the field of cognition recommends learning in real-world contexts. Students need to do "cognitive apprenticeships"--where they perform real tasks, apply contextualized practice, and observe others doing the work they are expected to learn (Resnick and Klopfer, 1989). Real tasks involve activities such as calculating the number and cost of meals needed for a homeless shelter, or writing information guides for a local nature center. Doing tasks for people and agencies beyond the school encourages serious effort, the kind that has meaning for others besides the teacher and student. There are consequences imbedded in the activity which impose real challenges to the work. It also places the learning in context so the abstractness of the work is focused and grounded for a particular purpose and for a particular audience. By observing others do similar work, students see how tasks are done prior to executing them on their own.

High dropout rates ("Chronicle of Higher Education", 1991) and dissatisfaction with school among racial and gender groups indicate a need for flexible, more effective school models. Such alienation requires programs which address individual and group needs, which connect young people with adult role models, and which stress alternative learning environments (W.T. Grant Commission, 1988 and

1991; Carnegie Council, 1991; Orr, 1987; Weis, Farrar, and Petrie, 1989; American Association of University Women, 1992). Schools need to do a better job of integrating social, cultural, and human differences into the educational process. This cannot effectively be done without active involvement of the community.

### SERVICE-LEARNING: CONNECTING SCHOOLS WITH COMMUNITIES

Several reforms have been proposed which involve the community in the educational process. Of those currently being implemented to change the education system, service-learning has perhaps the greatest potential to deliver outcomes necessary for the next century. Called the "sleeping giant of educational reform" (Nathan and Kielsmeier, 1990), service-learning is more than a program, it is also a philosophy. Service-learning not only assumes that students are connected with their communities to learn from experience, but that their learning also benefits others (Honnet, Giles, and Migliore, 1991). Such activities contribute to academic learning and instill a sense of civic and social responsibility in those who provide service.

Research has demonstrated that service-learning has great potential for delivering important educational outcomes. Students involved in such programs demonstrate significant improvement in areas of intellectual, social, and psychological development (Conrad and Hedin, 1981; Hamilton, 1988; Bucknam and Brand, 1983). Students develop good self esteem, favorable attitudes towards others, and effective skills in dealing with others (Conrad and Hedin, 1981; Luchs, 1981; Newmann and Rutter, 1989). Students learn the most from service experiences where reflective sessions are included in the educational process (Conrad and Hedin, 1981; Moore, 1981, Newmann and Rutter, 1989).

Service connected to vocational education improves its effectiveness, too. Programs which include "tangible service, e.g. child care, food preparation, tutoring, health care, residential repair are among the best observed anywhere in the country (Silberman, 1986)." Student motivation is enhanced, as is the ability to connect academic subjects with community activities.

### SAMPLES OF SERVICE-LEARNING

Service-learning takes many forms in schools (Conrad and Hedin, 1987; Cairn and Kielsmeier, 1991). In its simplest application, the service experience can be an assignment in a class. For instance, K-2 students can go on field trips to community agencies with "buddies" from upper grades or junior highs, and then do language experience activities. The K-2 students tell their stories, the upper graders write them on paper, the K-2 students do the pictures, and together, they produce books for their own library. These books become the reading material for the K-2 classrooms.

At another level, service-learning can follow a theme. Learning about senior citizens can occur as a year long project. For example, K-6 students can adopt "grandparents" from the community and write them letters, visit them periodically, and get assistance on school work. Upper graders can also do oral histories with the "grandparent", help the "grandparent" with their personal budgets, and write letters for them. In each instance, children expand their knowledge of senior citizens, and at the same time, perform learning tasks as a normal part of language arts, social studies, and math.

Moving to yet another, more involved level, students combine several courses with their service activity. Students in one community actually work with governmental agencies to monitor the pollution in a local river. They do much of their science program based on issues of ecology, do much of the English curriculum by writing papers and reports related to the study, do art projects around the river theme, and even do social studies based on the history of the river and the region. In this case, the service activity becomes the focus of much of the learning.

In the most comprehensive settings, students participate in programs where all their academic learning is in some way related to community activities. They learn foreign languages by serving as translators for non-English speaking members of the community. They do science projects with local zoos, animal shelters, and nature centers. They produce publicity for various community agencies and surveys which analyze the effectiveness of programs. They work with local political representatives to study government in practice, as well as engage businesses and community agencies in the implementation of various programs and policies. Apprenticeships are also done in public and private businesses.

In all cases, teachers use their expertise of subject matter and classroom learning to connect curricular requirements of the school with the learning demands and opportunities of the service experience. They build upon their personal knowledge base to expand the classroom into the community. Teachers monitor and evaluate the educational process and award academic credit based on what is learned.

#### IMPLEMENTING SERVICE-LEARNING

Implementing educational reform takes the efforts of all members of the community (Sarason, 1991). Each has a special responsibility for creating a supportive atmosphere and for developing specific components.

- . What national and state policy makers can do:
- . create an environment to promote service-learning

- by developing supportive policies
- . engage state and national organizations in the development of service-learning
- . encourage teacher training and staff development institutions and organizations to include service-learning in courses and programs
- . encourage and support research and evaluation of educational reform as it relates to service-learning

. What state education agencies can do (Council of Chief State School Officers, 1989):

- . assign staff to coordinate state service-learning activities and to provide technical assistance and networking services to school districts
- . provide grants as incentives to local program development
- . provide in-service training and staff development to assist schools implement curricular reform which supports service-learning
- . promote the integration of service-learning into core academic curricula throughout the state
- . assist local districts in evaluating service-learning programs
- . examine how service-learning can help achieve the goals of state and local programs such as those supported through Drug Free Schools and Communities Act Dropout Prevention funds

. What school boards can do:

- . endorse service-learning as a mainstream educational process
- . provide liability coverage and transportation for students
- . promote collaboration between school district, local businesses, community agencies, and local colleges
- . provide staff development programs for teachers and community members
- . provide additional classroom support either through budget allocations or recruitment of volunteers from local colleges/community members

. What school administrators can do:

- . encourage and support team teaching and interdisciplinary instructional methods
- . provide for flexible scheduling of classes
- . recognize and support teachers who implement service-learning
- . establish school/university partnerships with teacher preparation programs to incorporate service-learning

- into student teaching
- . grant teachers release time to attend service-learning staff development programs
- . assist in the recruitment of parent and community volunteers for the classroom and assist teachers in service related activities

.What businesses and community agencies can do:

- . endorse the concept of working collaboratively with students for educational purposes
- . promote connections with schools through professional organizations
- . assign staff to be liaisons with schools and to help with organization of activities
- . direct staff to assist students with educational projects

.What community members can do:

- . encourage community organizations to get involved with schools for service-learning activities
- . develop community liaisons in community organizations to plan and implement service-learning activities
- . volunteer to assist with school/community collaborations either in schools or in community activities

. What teachers can do:

- . participate in staff development programs which support service-learning
- . develop curriculum to support service involvement in the community
- . develop programs which assist community sponsors to understand the academic agenda of the schools
- . assist in recruitment of volunteers for the classroom

Conclusion

There is much to be done to prepare our institutions and our youth for the next century. One important activity is connecting schools and communities for the purpose of learning and service. Service-learning provides the opportunity for students to participate, along with members of their community, in the solution of community problems, in the application of knowledge in situations beyond the classroom, and in the development of responsible citizenship. Such participation will make a world of difference in the quality of students we produce and in the quality of communities within which we reside.

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# The Sleeping Giant of School Reform

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*Learning through service is an idea that is bubbling up, rather than trickling down, Messrs. Nathan and Kielsmeier point out. It creates new roles for students and teachers, makes use of action-based instructional methods, and leads to the learning of meaningful, real-world content.*

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BY JOE NATHAN AND JIM KIELSMEIER

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**B**RISK WINDS blowing across the American political landscape are now converging behind national proposals for youth service, and their force has stirred a sleeping giant in the school reform movement. Combining classroom work with service/social action projects can help produce dramatic improvements in student attitudes, motivation, and achievement. Moreover, this strategy is not a "one size fits all" change imposed from above but builds on local circumstances and teacher insights.

Before going any further, let's get specific. Barbara Lewis is a Salt Lake City teacher whose fourth- through sixth-grade students have been

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*JOE NATHAN is director of the Center for School Change at the Hubert Humphrey Institute, University of Minnesota, Minneapolis. JIM KIELSMEIER (University of Minnesota-Twin Cities Chapter) is president of the National Youth Leadership Council, Roseville, Minn. Support for the preparation of this article was provided by the Charles Stewart Mott Foundation and the W. K. Kellogg Foundation.*

*Illustration by Bruce Dean, Dean Johnson Design*

responsible for the cleanup of a hazardous waste site, the passage of two new environmental laws, the planting of hundreds of trees, and the completion of a number of other neighborhood improvements. The families of the students in Lewis' school have the lowest per-capita income in Salt Lake City, and the students themselves aren't unusually gifted or articulate. However, according to Lewis, "One thing they do have is courage. They don't give up easily. They believe that the future depends on them. They're not afraid to attack things that other people say can't be done."<sup>1</sup> And Lewis' students are not alone.

and then created a new playground. They had to make 20 phone calls before finding someone who would donate six truckloads of sand. The arrival of that sand was a big event in the students' lives.

The youngsters at this inner-city school learned important skills in research, thinking, writing, public speaking, and problem solving — the very outcomes that many school critics demand. The students also learned that they could make a difference.

As one youngster noted after his picture appeared in a local newspaper story about the consumer action class, "I often thought I might have my name in the

I felt needed for a while." Boyer then commented, "There's something unhealthy about a youth culture where feeling needed is pushing Big Macs at McDonald's."<sup>4</sup>

Young people used to assume increased levels of responsibility gradually as they grew into adulthood. Over time, however, the classic agrarian models of apprenticeship with and mentoring by adults have given way to the isolation of young people in youth-only educational, social, and employment groupings.

Young people have become a distinct subculture that is unique in modern history, and their adjustment to this phenomenon has been uneven. In a University of Minnesota poll conducted in 1985, 66% of the young Minnesotans polled said they believed that adults have a negative view of youths.<sup>5</sup>

Though they may be in high demand for entry-level employment at fast-food restaurants and all-night gas stations, many young people are alienated from the society. They are heavy users of drugs and alcohol, they consistently maintain the lowest voting rates of any age group, and the teen pregnancy rate has been described as epidemic.

We believe that these problems stem in part from the way adults treat young people. Unlike earlier generations, which viewed young people as active, productive, and needed members of the household and community, adults today tend to treat them as objects, as problems, or as the recipients (not the deliverers) of services. Young people are treated as objects when they are routinely classified as a separate group, isolated in age-based institutions, and beset on all sides by advertising — though not otherwise recognized or treated with respect. They are treated as problems when they are feared, criticized, and made the focus of preventive and remedial programs. They are treated as recipients of services when they are viewed as creatures to be pitied, "fixed," and "controlled."

We need to change our views of the young. We need to see youths as citizens: as resources and producers who are valued, needed, respected, and acknowledged. Ken Nelson, a Minnesota state representative and a strong advocate of learning from service, believes that much of the concern in this country about youths "at risk" should be refocused on "youth potential, youth strengths, youth

## YOUNG PEOPLE HAVE BECOME A DISTINCT SUBCULTURE THAT IS UNIQUE IN MODERN HISTORY.

• Students at Bronx Regional High School in the South Bronx are working with a local community organization to restore a building near their school that will then provide housing for homeless people, including some of the students' own families.

• Middle schoolers in Chicopee, Massachusetts, saved their town \$119,500 while helping to solve a sewage problem.

• High school students in Brooks County, Georgia, conducted a needs assessment of their county and determined that day care was a major need. The students and their teacher established a day-care center that is still operating today — 10 years after its founding.<sup>2</sup>

One of us taught a class in an inner-city public school in which 14- to 18-year-old students learned about consumers' rights and responsibilities. The youngsters read a variety of materials and listened to outside speakers. In addition, they worked on real consumer problems referred to them by adults. Over the course of several years, the students successfully resolved more than 75% of the 350 cases adults had turned over to them.

A group of 5- to 9-year-old students at the same school designed, obtained permission to build, gathered materials for,

newspaper. I even thought I might have my picture in the paper. But I never thought that it would be for something good."<sup>3</sup>

The idea that students can learn from community action and from performing a variety of services is not new, as Dan Conrad and Diane Hedin make clear later in this special section on youth service. But in the wake of largely unsuccessful reform proposals and daunting new societal challenges, the political/educational climate has become more open to the kinds of school change demanded by learning that derives from service and social action. We now have the opportunity to expand and improve service/social action projects, to help many more youngsters learn important skills, and to help them realize that they have the power to make changes.

Much recent discussion of school reform has focused on rules, regulations, and decision-making processes. While these are important matters, we think it is also critical to change the way we view young people.

Ernest Boyer recalls a young person's description of his summer job: "Last summer I got a job working at McDonald's. It didn't pay too well, but at least

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Washington State make decisions about how their newly acquired science, social studies, and English skills will be applied in addressing environmental issues in and around Puget Sound. And the students can feel the importance of their new role. Later in this special section, Kate McPherson quotes Roland MacNichol, a teacher at Gig Harbor High, who explains: "For the first time, students become central and valued." Also in this special section, John Briscoe, the director of Pennsylvania's PennSERVE program, describes this shift in our perspective on youth as "profound."

In the best youth service programs, students have a chance to reflect as well as to serve. Their reflections often lead to new attitudes toward school and academics. Seventeen-year-old Quinn Hammond of Waseca, Minnesota, describes the impact of his tutoring third- and fourth-graders: "The little kids look up to you so much. This taught me to have a lot more patience and gave me a real good feeling. Before, I was kind of a class clown. Volunteering gave me a lot of respect for teachers."<sup>9</sup>

**T**HE MOST effective service/social action projects are developed at the local school site, rather than in the district office or in the state education department. This means that real authority to design programs must be vested in the school and its staff. It's no mystery that the teachers most involved in service projects are those who feel personally responsible and empowered to tackle important issues. And teachers derive enormous satisfaction from seeing youngsters become more motivated and eager. As Waseca teacher Don Zwach comments, "This is the most enthusiastic class I've had in 30 years. You hear a lot about the problems of motivating students in the 1990s. But there's absolutely no problem motivating these young people."<sup>10</sup>

The most effective service/social action programs are integrated into a school's curriculum. The entire range of courses — math, English, social studies, home economics, science, art, physical education, and so on — can be modified to include some form of service or social action. Handled correctly, these changes enable youngsters to apply classroom les-

sons to the world beyond the classroom and so make it much more likely that teachers' academic goals for their students will be attained. For example, Eliot Wigginton, founder of the Foxfire project, reports that students become much better writers as they help produce a magazine (originally intended just for a few people in Rabun Gap, Georgia, but now read throughout the world).<sup>11</sup>

A vast array of service/social action learning programs now operate in the nation's schools. However, research and experience lead us to conclude that the most effective programs include certain key elements. The following features of successful programs are drawn from criteria used for the Governor's Youth Service Recognition Program in Minnesota:

- significant, necessary, and measurable service is accomplished;
- youths are directly involved in planning and implementation;
- clear institutional commitment to the service program is reflected in goals or mission statements;
- community support for and involvement in the program are strong;
- learner outcomes for the program are well-articulated;
- a well-designed and articulated curriculum for service exists that includes preparation, supervision, and active reflection on the experience; and
- regular and significant recognition of the youths and adults who participate takes place.<sup>12</sup>

**C**OMBINING classroom work with service and social action means learning by doing and giving. And it's the *giving* that answers the "why" questions students so often raise about school. Students and teachers trained to address issues of environmental quality in Puget Sound have a clear purpose for learning principles and skills in science, sociology, and English. Students in St. Paul who solved consumer problems learned the importance of carefully reading and understanding in advance any paper they are asked to sign; they also learned to value clear writing. Students in Folsom, Pennsylvania, discovered the importance of basic principles of physics as they helped families weigh different options for making their homes more energy efficient. Philadel-

participation, and contributions."<sup>6</sup> The Children's Defense Fund agrees, noting that "the experience gained through service can make a lasting difference, giving young people a sense of purpose and a reason to remain in school, strive to learn, and avoid too-early pregnancy."<sup>7</sup>

Both of us have worked with angry, alienated, and violent students. We readily acknowledge that no single curriculum or strategy will solve every problem, transform every student, regenerate every school. However, each of us has experienced and heard about situations in which acting on a new view of students produced dramatic improvements.

When teachers integrate service and social action into their academic programs, students learn to communicate, solve problems, to think critically, and to exercise other higher-order skills. They learn these things because they are deeply immersed in a consequential activity — not a metaphor, not a simulation, not a vicarious experience mediated by print, sound, or machine. A task force from the Minnesota State Department of Education explained that service-learning occurs when youths, "involved in planning and providing," render "significant and valuable service to meet genuine needs in their community."<sup>8</sup>

The point merits emphasis: learning is enriched when students play an active role in selecting and developing their own service projects. For example, students who attend Gig Harbor High School in

phia high school students who tutor their peers or teach a health lesson in a junior high school see a clear application for their knowledge and a larger purpose for schooling.

We reject the often-stated assertion that the fundamental task of school is to prepare students for the work force. In a democratic society, one of the basic purposes of public schools is to prepare students for active, informed citizenship. Part of being a responsible citizen is knowing how to get and keep a job, but an equally important part of citizenship is working to build a better world. Moreover, a thoughtful citizen will sometimes question what's happening in the workplace. For example, one's employer might be discriminating against certain people or polluting the air or ignoring basic safety principles. Today, more than ever, schools must help youngsters develop the skills and attitudes needed to work for justice — not just the skills needed to pass an examination or to work on a high-tech assembly line.

Unlike most school reform initiatives, the new interest in learning through service is arriving on the scene without the impetus of top-down pronouncements from high-level committees. While the National and Community Service Act of 1990 and parts of the national goals for

education do endorse and provide incentives for youth service, the growing acceptance of this idea is largely a product of successful efforts by small national and state-level organizations that provide networking, materials, and technical assistance to interested educators.

Teacher creativity is central to this effort. Teachers dreamed up and developed the environmental service programs at Philadelphia's Lincoln High School. Teachers in Springfield, Massachusetts, initiated programs that provide services to the elderly — not by replicating someone else's model, but by responding to local needs and interests. Teachers in Ortonville, Minnesota, didn't follow a statewide curriculum when they showed students how to use computers to help their parents run more efficient farms.

Learning through service is an idea that is bubbling up, rather than trickling down. Fueled by a fresh infusion of energy during the 1980s, it rekindles an idea brought to life by John Dewey in the 1930s: that schools should be democratic laboratories of learning, closely linked to community needs. These learning labs create new roles for students and teachers, make use of action-based instructional methods, and lead to the learning of meaningful, real-world content.

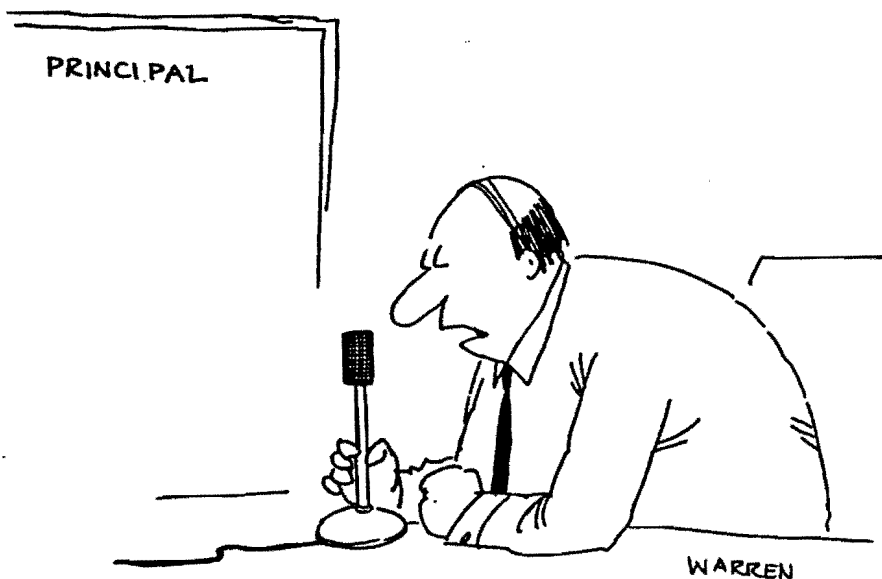
Salt Lake City teacher Barbara Lewis

points out that "the real world is chock-full of real problems to solve: real letters to write, real laws waiting to be made, real surveys to analyze, real streams needing monitoring, scraggly landscapes in need of attention." Writing with youngsters as her audience, she concludes:

Solving social problems will bring excitement and suspense into your life. Instead of reading textbooks and memorizing what other people have done, you'll create your own history with the actions you take. And here's a promise: As you reach out to solve problems in your community, you will not only design a better future. You'll also learn to take charge of your personal life. You'll become more confident in yourself because you'll prove to yourself that you can do almost anything.<sup>13</sup>

What wonderful gifts to pass on to young people. What wonderful gifts to our communities, our country, and our world.

1. Barbara Lewis, *The Kids' Guide to Social Action* (Minneapolis: Free Spirit Publishing, 1991), p. 11.
2. For information on school-based economic development programs, contact Paul DeLargy, Georgia REAL Enterprises, P.O. Box 1643, Athens, GA 30603. DeLargy has worked closely with Jonathan Sher, who originally developed this concept.
3. Joe Nathan, *Free to Teach: Achieving Equity and Excellence in Schools* (New York: Pilgrim Press, 1991), p. 38.
4. Ernest Boyer, "Foreword," in Charles H. Harrison, *Student Service: The New Carnegie Unit* (Princeton, N.J.: Carnegie Foundation for the Advancement of Teaching, 1987), p. vii.
5. Diane Hodin, *Minnesota Youth Poll* (Minneapolis: University of Minnesota Agricultural Station, 1985).
6. Ken Nelson, "Minnesota's Youth Development Initiative: Building on Strengths," *Community Education Journal*, October 1988, p. 5.
7. Children's Defense Fund, *Service Opportunities for Youths* (Washington, D.C.: Adolescent Pregnancy Prevention Clearinghouse of CDF, May 1989), p. 3.
8. *Model Learner Outcomes for Service Learning* (St. Paul: Minnesota Department of Education, September 1990).
9. Joe Nathan, "Youth Service Class Helps Kids and Community," *St. Paul Pioneer Press*, 26 November 1990, p. 5-C.
10. *Ibid.*
11. Eliot Wigginton, *Sometimes a Shining Moment: Twenty Years at Foxfire* (Garden City, N.Y.: Anchor Press/Doubleday, 1985).
12. Jim Kielsmeier and Rich Cairn, "Minnesota Governor's Youth Service Recognition," program guidelines, May 1988.
13. Lewis, p. 2.



"This is the last day of school. All teachers are to refrain from exchanging high fives or otherwise taunting the students."

# School-Based Community Service: What We Know from Research and Theory

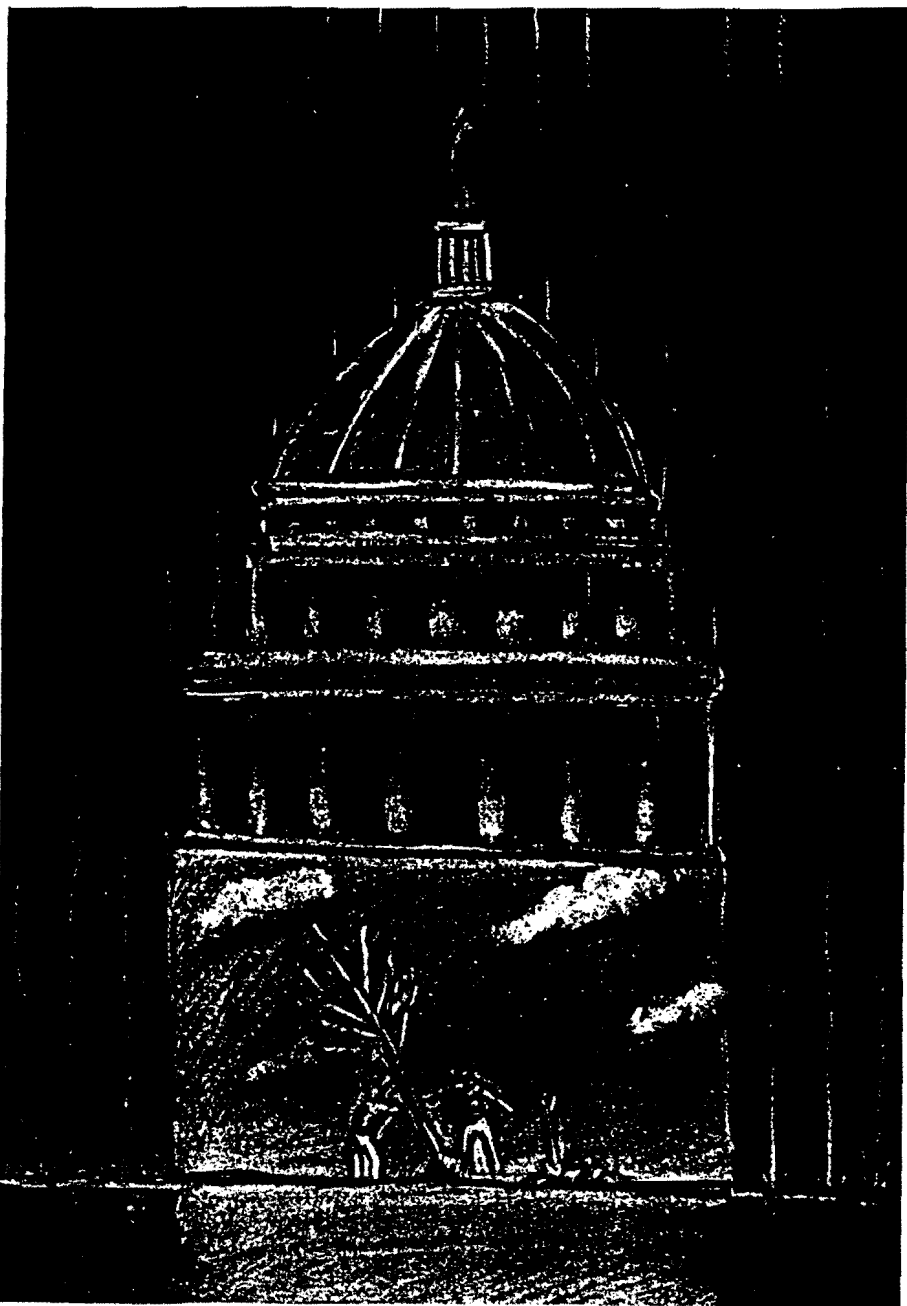
*The authors hope that decisions about whether to make service a regular feature of school practice will be informed by evidence about its value to young people.*

.....  
BY DAN CONRAD AND  
DIANE HEDIN

IN NOVEMBER 1990 President George Bush signed into law the National and Community Service Act of 1990, the most significant community service legislation in many decades. The act provides funding for community service programs in schools and colleges and support for full-time service corps that students can enter after high school. In a period when every issue in education becomes more and more politicized, this legislation stands out as a cause championed by both outspoken liberals and staunch conservatives. Even more remarkable, the law was passed in a time of severe federal budget austerity.

Yet there has been almost no mention of Congress' action in the public media or in education publications. In fact, when the subject of youth service was featured in the press a few weeks after

DAN CONRAD is director of the Community Service Program, Hopkins High School, Hopkins, Minn. DIANE HEDIN is a professor at the Center for Youth Development and Research, University of Minnesota, Minneapolis. This article was adapted from *High School Community Service: A Review of Research and Programs* (National Center on Effective Secondary Schools, University of Wisconsin, December 1989).



the legislation passed, it was in the context of the possible renewal of the military draft in light of events in the Persian Gulf.

Youth service seems to be one of those ideas that many people view as "good" but not of critical importance to education or to the wider society. Only time will tell whether the current interest among politicians and educators in strengthening the service ethic of our nation's youth will be sustained or whether new priorities or the same old pressures for higher test scores and improved basic skills will keep youth service on the fringes of the political and educational agenda. We hope that deci-

what purpose suggest the possibility of stimulating academic and social development through actions directed toward the welfare of others.<sup>1</sup>

Probably the earliest proponent of school-based community service was William Kilpatrick, who, in the waning years of World War I, urged the adoption of the "project method" as the central tool of education.<sup>2</sup> He argued that learning should take place in settings outside the school and involve efforts to meet real community needs. Throughout the 1930s, the idea was echoed by Progressives, who believed that schools should inculcate the values of social re-

community. Reports by the National Committee on Secondary Education, the Panel on Youth of the President's Science Advisory Committee, and the National Panel on High School and Adolescent Education were among those urging that young people be reintegrated into the community, encouraged to interact with a wider range of people, involved in real and meaningful tasks, and afforded more responsibility through a variety of direct experiences that included, but were not limited to, service activities.<sup>4</sup> The National Commission on Resources for Youth worked on many fronts throughout the 1970s to promote youth participation programs, such as those described in the commission's report, *New Roles for Youth*.<sup>5</sup> In *Education for Citizen Action*, Fred Newmann outlined the most comprehensive and sophisticated curriculum proposal we have had to date for using community service as a stimulus for developing in students the attitudes, skills, and knowledge required for influencing social policy.<sup>6</sup>

The value of service experiences for young people has been the topic of more recent educational literature as well. In *Sometimes a Shining Moment*, Eliot Wigginton describes his work with the Foxfire project in a way that offers inspiration, theoretical grounding, and practical assistance to teachers working with youth service programs.<sup>7</sup> In *A Place Called School*, John Goodlad includes community service among suggested practices to improve education.<sup>8</sup> The same is true of *Reconnecting Youth*, a 1985 report of the Education Commission of the States,<sup>9</sup> and of a series of reports sponsored by the Carnegie Foundation, including Ernest Boyer's *High School*, in which he recommends that high schools require 120 hours of community service for graduation.<sup>10</sup> The latter idea was further developed in Charles Harrison's *Student Service: The New Carnegie Unit*<sup>11</sup> and in another Carnegie report, *Turning Points*, which focuses on the educational needs of junior high and middle school students.<sup>12</sup> A report of the William T. Grant Foundation, *The Forgotten Half*, makes a strong plea for non-college-bound youth to perform community service, arguing for the "creation of quality student service opportunities as central to the fundamental educational program of every public school."<sup>13</sup>

## MUCH OF THE INITIATIVE FOR SCHOOL-BASED SERVICE COMES FROM POLICY MAKERS AND POLITICIANS.

sions about whether to make service a regular feature of school practice will be informed by evidence about its value to young people. And in that hope we present the "evidence" — both the arguments for including community service in the educational programs of elementary and secondary schools and the research findings on the impact of service.

### THE IDEA OF SERVICE IN THE EDUCATIONAL LITERATURE

While much of the initiative for school-based service currently comes from policy makers and politicians — not from educators — this has not always been the case. Recommendations that service be a part of the school experience have reappeared in cycles throughout this century and have been a consistent, if less than dominant, feature of educational reports and reform proposals for the last 15 or 20 years.

Proponents of service who stress its power as a tool for teaching and learning typically link their ideas to the educational philosophy of John Dewey. It is not so much that he directly advocated service as an educational method as that his ideas on how learning takes place and for

form and teach the attitudes, knowledge, and skills necessary to accomplish it. Such books as *Dare the Schools Build a New Social Order?* and *Youth Serves the Community* exemplify the passion of that time for using education for social transformation.<sup>3</sup>

Curiously, it was in the more cautious and passive Fifties that the idea re-emerged, most prominently in the Citizenship Education Project initiated by Columbia University's Teachers College. Launched with great fanfare and prestigious endorsement (President Eisenhower was the honorary chair), the project stressed participation and direct community involvement. Its famous "Brown Box" of teaching ideas contained (and still does if you can find one) hundreds of detailed guides to social investigation and social/political action. Suffice it to say, its timing could hardly have been worse. And by the time community activism became the rage, in the Sixties, the project was but a dim and dusty memory.

The next wave of emphasis on school-based community service arose in the 1970s and was propelled by several major reports that bemoaned the passivity of life in the schools and the separation of young people from the life of the com-

## RATIONALE AND POSSIBLE OUTCOMES

Our brief historical review suggests some of the arguments for the role of service in an educational program — as a way to stimulate learning and social development, as a means of reforming society and preserving a democracy, and as an antidote to the separation of youth from the wider community. The term *youth community service* represents a wide array of programs operating under an equally wide array of assumptions about their impact. While advocates of youth service agree at least superficially on a general rationale for its adoption, there are differences in what they emphasize, and these differences carry over to the types of service programs they advocate. At the risk of oversimplification, advocates can be divided into those who stress the reform of youth and those who stress the reform of education.

The heart of the case put forth by those who would reform youth is that there is a crying need for young people to become engaged in democracy. Those making this argument produce statistics showing that youths vote less frequently than any other age group, that they are less likely to volunteer than older citizens (and the rate is dropping steadily), and that their values have shifted dramatically in the past 15 or 20 years in a direction that is dangerous for democracy. Data on participation are commonly accompanied by statistics on crime, pregnancy, suicide, and drug use — and, nearly always, by data from the annual survey of incoming college freshmen conducted by the American Council on Education. These survey results do seem to indicate a change in attitudes of young people over the years: between 1970 and 1987 the percentage of students choosing "being well-off financially" as their most important goal rose from 29% to 76% (the highest percentage accorded any goal). In contrast, "developing a meaningful philosophy of life" moved from being the students' top-ranked goal in 1967 (chosen by 33% of the respondents) to being the 33rd-ranked goal in 1987 (chosen by 9%).<sup>14</sup>

From this base, it is argued that service provides a potent antidote to young people's ills and should be added to their experience through requirements — or

opportunities — for participation: a national service program, state or local youth service corps, a revitalized service ethic in traditional youth organizations,

### ADVOCATES OF YOUTH SERVICE CAN BE DIVIDED INTO THOSE WHO STRESS THE REFORM OF YOUTH AND THOSE WHO STRESS THE REFORM OF EDUCATION.

school-based service clubs, and service requirements for high school and/or college graduation.

The other dominant strain in the advocacy of youth service is a focus on the reform of education. With a longer history but less current fanfare, this approach stresses the power of service to meet the basic objectives of schools: promoting the personal, social, and intellectual development of young people and preparing them to become involved and effective citizens. Those who make education reform their chief concern are more likely to emphasize service as a part of the academic curriculum and to urge its integration into the regular activity of schools.

Since our emphasis in this article is on school-based community service, we shall discuss this second perspective in more detail. Community service as a means of education can be viewed as a particular manifestation of a still broader method labeled "experiential education." Rooted in the developmental theories of John Dewey, Jean Piaget, and others who stress learning as an interaction with the environment, this approach holds that development occurs as individuals strive to come up with more satis-

fying and complex ways to understand and act on their world.

James Coleman contrasts this experiential approach to learning with what he terms the "information-assimilation model" used in most classroom instruction.<sup>15</sup> The latter model consists of receiving information that has been presented through symbolic media, organizing the information into principles, inferring a particular application from the general principle, and applying the principle in a nonclassroom situation. The experiential approach essentially turns this model on its head. Information is not introduced symbolically but is generated and assimilated through an entirely different sequence of steps. First, a student performs an action in a particular situation; then he or she observes its effects, understands these effects in a particular instance, understands the general principle in operation, and applies the principle in new circumstances.

Both approaches have strengths and weaknesses. The strength of the information-assimilation model is that it can impart large amounts of information and systematically develop principles and generalizations from that information. Its concomitant weaknesses are that instruction may bog down in the presentation stage and that the information may never be applied in practice — and thus not really learned.

The strengths and weaknesses of the experiential approach are just the reverse. The weaknesses are the less efficient presentation of information and the danger that students will not draw out principles and generalizations from practice. The strengths are that it counters the distancing abstraction of much classroom instruction by placing information in context, with the real-life nuances and applications that any fact or principle must have if it is to carry genuine and useful meaning; that it motivates the learner by providing connections between academic content and the problems of real life; and that it aids in retention of knowledge, as learning is made personal and applied in action. A 16-year-old member of an ambulance crew put it more succinctly: "In school you learn chemistry and biology and stuff and then forget it as soon as the test is over. Here you've got to remember because somebody's life depends on it."

## THE IMPACT OF SERVICE

Very little, if anything, has been "proved" by educational research. Advocates of almost any practice — be it cooperative learning, team teaching, computer-assisted instruction, or the lecture method — can find research evidence in its favor. Detractors and empirical purists can likewise find reasons for discounting the results of almost any study. Moreover, it is doubtful that substantiation by research is the prime reason for the adoption of any educational method — even those most commonly practiced. Educational research is a difficult and complex business — and particularly so when service is the target of investigation.

The analysis of community service programs presents unique problems to researchers, problems that go beyond the usual assortment of methodological snares. The fundamental difficulty is that service is not a single, easily definable activity like taking notes at a lecture. An act of service may be visiting an elderly person in a nursing home, clearing brush from a mountain trail, conducting a survey of attitudes about recycling, or participating in any of a vast array of other activities — each with different potential effects.

Not only is the independent variable — service — difficult to define, but any service activity has a wide range of plausible outcomes. This situation makes it hard to determine the appropriate dependent variables to study. Newmann laid out nine possible benefits that could accrue to a person from one act of direct civic involvement, and he did not even touch on how that involvement could affect one's political efficacy, later civic participation, factual recall, or self-esteem!<sup>16</sup>

Sound research into the effects of community service is difficult, but not impossible. Many solid and inventive studies have been undertaken, and, while none are without flaws, they provide useful information on the impact of service. Some of these findings are reviewed below.

There are two types of research evidence on the effects of community service. The first is qualitative, drawing on researchers' observations of community service programs, reports from participants, journals, interviews, testimonials, and the like. Often these sources of data

are dismissed as "soft" — not serious or objective enough to count as evidence. In the eyes of some educational evaluators and policy analysts, the only evidence

WE HAVE BOTH  
QUALITATIVE AND  
QUANTITATIVE  
EVIDENCE REGARDING  
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that counts is quantitative — with numbers derived from standardized instruments administered before and after, with control groups, random assignment of participants, sophisticated statistical analysis, and so on.

We have both kinds of evidence regarding the impact of community service, and both can be informative. Evidence from quantitative methodologies is somewhat limited, though a body of research does exist that tends to show that social, personal, and academic development are fostered by community service. Evidence from qualitative, anecdotal studies suggests even more strongly and consistently that community service can be a worthwhile, useful, enjoyable, and powerful learning experience.

## QUANTITATIVE FINDINGS

**Academic learning.** Many proponents have claimed that community service is an effective way to improve academic learning. The evidence for this relationship is strongest for service in the form of peer tutoring or teaching younger students. Using the technique of meta-analysis, researchers have combined the findings of many tutoring studies and

have consistently found increases in reading and math achievement scores for tutors and tutees.<sup>17</sup> The gains in reading and math tend to be modest, but such is the case with most learning and growth. Changes in curriculum and instruction rarely, if ever, produce dramatic results. Yet the gains achieved through tutoring are consistently positive — most particularly for the tutors.

It may be that, when we seek to determine whether community service influences academic outcomes, we find a positive correlation most frequently when we look at tutoring because it is the form of service that is most "school-like" and because the knowledge and skills in question are most like the ones the tutors have already been using. In the few cases when students in other forms of service have been tested for gains in factual knowledge, the results have been less conclusive. When the measuring instrument is a general test of knowledge, there is usually no difference at all between students in service programs and those in conventional classrooms — which may establish that at least nothing is lost by time spent out of school. Consistent gains in factual knowledge have been found, however, when researchers have used tests designed to measure the specific kinds of information that students were likely to encounter in their field experiences.<sup>18</sup>

Some researchers have focused on the effect of service experiences on such basic processes of thinking as solving problems, being open-minded, and thinking critically. Thomas Wilson found that students who participated in political and social action in the school or wider community became more open-minded.<sup>19</sup> In a study that we conducted in 1982, we found that problem-solving ability, as measured by reactions to a series of real-life situations, increased more for students in community service (and other experience-based programs) than for those in comparison groups. Furthermore, students' ability to analyze problems improved the most when they had encountered problems similar to those presented in the test and when the program deliberately focused on problem solving. Students who had neither discussed their experiences with others nor encountered problems similar to those in the test showed no more change than stu-



dents in conventional classrooms.<sup>20</sup> Social/psychological development. Well-run, well-conceptualized community service programs can also influence social development and psychological development. Our study looked at 27 school-sponsored programs featuring direct participation in the community, including programs of community service, community study, career internships, and outdoor adventure. We found that students in participatory programs, including service programs, gained in social and personal responsibility.<sup>21</sup> Stephen Hamilton and Mickey Fenzel reported similar gains in social responsibility with groups of 4-H members engaged in various forms of service: child care, community improvement efforts, and the like.<sup>22</sup> Fred Newmann and Robert Rutter found less dramatic and less consistent differences between service and classroom programs but concluded that community service appeared to affect students' sense of social responsibility and personal competence more positively than did regular classroom instruction.<sup>23</sup>

Researchers have investigated several other dimensions of social development as well. In our work, we found that students in service programs and in other experiential programs developed more favorable attitudes toward adults and also toward the types of organizations and people with whom they were involved.<sup>24</sup> Cathy Luchs reported that students involved in community service gained more positive attitudes toward others, a greater sense of efficacy, and higher self-esteem than nonparticipating comparison students.<sup>25</sup> Raymond Calabrese and Harry Schumer reported that a program that assigned junior high students with behavioral difficulties to service activities resulted in lower levels of alienation and isolation and fewer disciplinary problems.<sup>26</sup> Studies that have examined political efficacy and inclination toward subsequent civic participation as a result of service activities have had mixed results. About an equal number of studies find increases and no increases on these factors.

The effect of community service on self-esteem has been the psychological outcome most commonly investigated. Increases in self-esteem have been found for students who play the role of tutor, who provide for the mentally disabled,

and who fill more general helping roles. Newmann and Rutter reported that students involved in community service projects gained a better sense of social competence in the performance of such tasks as communicating effectively to groups, starting conversations with strangers, persuading adults to take their views seriously, and the like.<sup>27</sup>

A number of studies have used the developmental theories of Lawrence Kohlberg and of Jane Loevinger to frame their assessment of the impact of service experiences (usually those involving work as a peer counselor, interviewer, or teacher) on moral and ego development.

### FINDINGS ARE MIXED REGARDING THE IMPACT OF COMMUNITY SERVICE ON PARTICIPANTS' POLITICAL EFFICACY.

The typical, though not universal, outcome is that students gain in both moral and ego development.<sup>28</sup> Reviewing the research on developmental education, Ralph Mosher concluded that moral and ego development can be enhanced by educational programs, the most powerful of which combine discussion of moral issues with the exercise of empathy and action in behalf of moral and social goals.<sup>29</sup>

The value of combining action and discussion has been noted by other researchers as well. Rutter and Newmann, in examining the potential of service to enhance civic responsibility, concluded that the presence of a reflective seminar was probably the key to achieving that goal.<sup>30</sup> In our own study, we examined the impact of several program variables (e.g., length, intensity, type of community action) on student outcomes and found that the presence of a reflective seminar was the one program feature that made a clear difference — particularly with respect to intellectual and social dimensions of development.<sup>31</sup>

Effect on those served. In assessing the impact of service programs, researchers have mainly been concerned about the effect on the volunteer and have seldom

taken into account what young people accomplish for others. There are two significant exceptions — assessments of tutoring and peer-helping programs. Researchers have consistently found tutoring to be an effective mode of instruction. In one comparative study, for example, tutoring was found to be a more effective tool for raising academic outcomes than computer-assisted instruction.<sup>32</sup> With regard to peer helping, a meta-analysis of studies of 143 drug prevention programs for adolescents concluded that, of five approaches examined, peer programs were the most effective on all outcome measures and stood out most

on the criterion of reducing actual drug use.<sup>33</sup>

In summary, quantitative research on the impact of community service suggests that it can and often does have a positive effect on the intellectual and social/psychological development of participants. Researchers consistently report a heightened sense of personal and social responsibility, more positive attitudes toward adults and others, more active exploration of careers, enhanced self-esteem, growth in moral and ego development, more complex patterns of thought, and greater mastery of skills and content that are directly related to the experiences of participants. Furthermore, when the impact of service on others has been examined, young people have proved to be effective in raising mathematics and reading scores and in reducing drug use among peers.

Findings from quantitative studies are mixed on whether community service increases one's political efficacy and later involvement in civic affairs. Only rarely does participation result in higher scores on tests of general knowledge, with the clear exception of academic achievement scores for students in the role of teacher or tutor.

## QUALITATIVE FINDINGS

While quantitative research yields reasonably consistent evidence on the positive impact of community service, the methodological problems mentioned earlier stand in the way of establishing a clear causal connection. Yet anyone who has worked with or evaluated community service programs cannot help but be struck by the universally high regard in which the programs are held by those associated with them. Students, teachers, community supervisors, parents, and those being served consistently attest to the benefits of community service.

The gap between what quantitative and qualitative methodologies uncover about community service suggests that a practice so varied and complex demands equally complex and varied types of assessment. Sometimes the rigid reliance on paper-and-pencil surveys and tests can obscure the most obvious and meaningful data of all. In an inquiry into the impact of service on social responsibility, for example, the fact that participants are willingly and consistently acting in a socially responsible manner (volunteering in a nursing home or petitioning city hall to crack down on polluters) is at least as relevant to the issue as how they score on a test of attitudes about being socially responsible.

The spontaneous comments of participants in interviews and in journals are a rich source of qualitative data, revealing not only the general effect of a service experience but its particular and peculiar impact on each individual. The more the analysis is grounded in theories of how growth and development take place, the more useful these data can be. Below, we offer an example of how qualitative analysis can reveal the dimensions of learning and intellectual development that can accrue from service experiences.

A qualitative analysis of what is learned from service. A consistent finding of research into service and other kinds of experiential programs is the high degree to which participants report that they have learned a great deal from their experiences. In a nationwide survey we conducted of nearly 4,000 students involved in service and other experiential programs, about 75% reported learning "more" or "much more" in their participation program than in their regular

classes.<sup>34</sup> Similar findings are regularly reported in other studies. When people feel strongly that they have learned a great deal, they probably have done so. But it is not always possible for them or others to articulate just what they have learned.

To probe this issue more deeply, we analyzed the journals of high school students whose social studies curriculum included time spent working as volunteers four days a week in schools and social agencies.<sup>35</sup> The journals were a valuable tool for qualitative analysis in that they revealed what the students learned *specifically* from their service experiences (95% of them had indicated that they learned more or much more from those experiences than from their regular classes).

Many students commented on the power of being in a new role, as in this excerpt from one student's journal:

As I walked through the hallway [of the elementary school on my first day of leading elementary children in theater experiences], I realized what I had gotten myself into . . . a challenge. But as I step through the door I transform from student to person. . . . The first day went extremely well, but I'm glad I don't have to go through it again. Now I return to school and become student again.

In another entry, a student suggests that a relationship with a child is a more compelling incentive to act responsibly than are the demands and sanctions of school authorities.

As I entered St. D's it was my joy to see Adam, wearing a smock covered with paint, washing his hands at the sink. "Hi," I said.

"Did you go to school yesterday?" he replied shortly.

"Yes," I said guiltily [having skipped my service assignment].

"Why didn't you come?" he demanded.

"I didn't have a ride to get back from here," I explained, thinking as fast as I could. When I started to touch his shoulder, he jerked away and said, "Don't." So I left him alone. . . . I felt like a criminal.

Another dimension of the service experience is that it gives students a sense

of connection with a wider range of people, places, and problems. In this report, a student recounts how her world was broadened:

I have come a long way, though. I remember my first few days at Oak Terrace Nursing Home. I was scared to touch people, or the doorknobs even. And I used to wash my hands after I left there every single day! Can you believe it? Now I go and get big hugs and kisses from everyone. Get this — I even eat there! That's a horror story for some people.

Unfamiliar settings, new experiences, and wider associations can lead to new knowledge and understanding, as they did for this girl, who volunteered in a soup kitchen:

I feel bad when they're called burns. I kinda understand why they're there. People end up on the street because of depression mostly. They have a divorce, or they lose the right to see their kids, or lose their job or their housing, and they get depressed. One guy I regularly talked to said suddenly one day, "I don't want to talk to you — you're a kid." I was hurt. But I found out his wife had just denied him the right to see his kids. He was lashing out at me as a kid and as a woman.

Some journal entries reveal insights even more profound than these — something akin to a new way of knowing, a new process of thinking. Consider the words of a young woman volunteering in a nursing home who discovers a new pathway to knowledge and understanding:

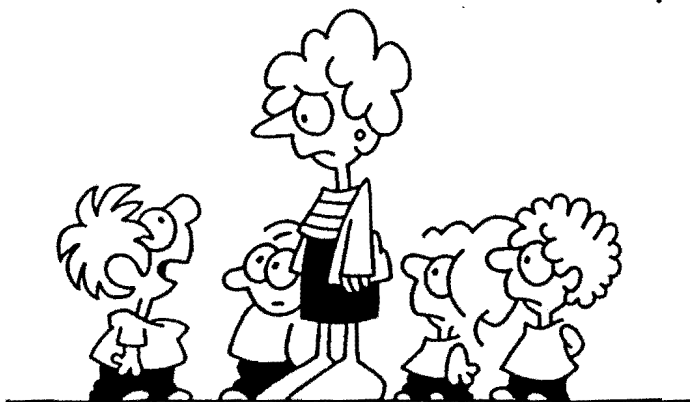
As the [first] morning came to an end I began to deeply ponder the reason for my parents telling me to respect my elders. Honestly, I thought, I doubt if I can respect these people that wear diapers, drool gallons of saliva a day, speak totally incoherently and [are] totally dependent on a youth. But finally the first week passed. I became very attached to the residents. I think those insecurities you feel when you start working with elderly people disappear when you begin to really *love* them.

The writer of the journal went on to describe the beauty of the residents as she

came to really "know" and relate to them. Her observations about them — especially about what they knew and could do — changed dramatically. But the turning point, the new perspective, was her insight that love precedes knowledge — not the other way around. It is precisely the point that the philosopher George Santayana made in 1925 about knowing the truth about another person.<sup>36</sup>

Through comments such as these, the "more" or "much more" that these students had said they learned from their service experience began to take on meaning. The "more" turned out to be a reference not so much to *amount* as to *significance*, not so much to new information as to more important and more personal knowledge and understanding. The students were probing the fundamental questions of life: Who am I? Where am I going? Is there any point to it all? They were thinking and writing about the basic issues of adolescence and beyond: relationships, significance, connection, suffering, meaning, hope, love, and attachment.

In summary, the case for community service as a legitimate educational practice receives provisional support from quantitative, quasi-experimental studies and even more consistent affirmation from the reports and testimony of participants and practitioners. Whether the current interest in youth service represents the wave of the future or a passing fancy cannot, of course, be known. Whether service as a school practice merits the serious consideration of practitioners and policy makers seems to be beyond question.



GLASBERGEN

"I'd be happy to play duck-duck-goose if you can show me how it would benefit me in later life."

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Experience-Based Career Education		LIFE SCIENCE PACKAGE GOAL CHECKLIST	
STUDENT'S NAME		DATE	
PROJECT TITLE			
GOAL	GOAL REQUIREMENTS		
	REQUIRED	ELEMENT OR TECHNIQUE	
1. BASIC SKILLS	One element from each group	<p style="text-align: center;"><u>Acquiring Information</u></p> <input type="checkbox"/> reading <input type="checkbox"/> listening <input type="checkbox"/> observing  <p style="text-align: center;"><u>Communicating Information</u></p> <input type="checkbox"/> writing <input type="checkbox"/> speaking <input type="checkbox"/> innovating	
2. PROBLEM-SOLVING	All elements	<input type="checkbox"/> identify problem or question <input type="checkbox"/> analyze existing information <input type="checkbox"/> make your own observations <input type="checkbox"/> formulate an hypothesis <input type="checkbox"/> test hypothesis <input type="checkbox"/> organize and evaluate information	
3. CAREER DEVELOPMENT	Choose all of a OR two elements from b	<input type="checkbox"/> a. investigate two careers in terms of: <input type="checkbox"/> roles and function of employee <input type="checkbox"/> relation of career to other careers <input type="checkbox"/> qualifications for entry <input type="checkbox"/> working conditions, rewards, benefits <input type="checkbox"/> current and projected demand <input type="checkbox"/> union or professional affiliations <input type="checkbox"/> effects of job on lifestyle <input type="checkbox"/> your own evaluation of the career  <input type="checkbox"/> b. develop career entrance skills in two of the following areas: <input type="checkbox"/> obtaining and evaluating information about current job openings, training or educational opportunities, and entry requirements <input type="checkbox"/> preparing letters of inquiry, applications and resumés <input type="checkbox"/> preparing for and performing in interviews <input type="checkbox"/> acquiring job-entry skills and career-related experience	

LIFE SCIENCE PACKAGE GOAL CHECKLIST (Continued)

*You may select five elements from either Goal 4 or Goal 5, or you can combine elements from each as long as you select five altogether. For laboratory science credit, you must select five from Goal 4 and Goal 5 (for a total of ten).*

GOAL	GOAL REQUIREMENTS	
	REQUIRED	ELEMENT OR TECHNIQUE
4. LIFE SCIENCE INQUIRY	Choose five elements	<input type="checkbox"/> characteristics of life <input type="checkbox"/> chemical structure of life <input type="checkbox"/> law of conservation of energy <input type="checkbox"/> classification system <input type="checkbox"/> plants <input type="checkbox"/> plant life functions <input type="checkbox"/> animals <input type="checkbox"/> animal life functions <input type="checkbox"/> group structures <input type="checkbox"/> ecosystem <input type="checkbox"/> pollution <input type="checkbox"/> environment <input type="checkbox"/> heredity <input type="checkbox"/> theories of evolution <input type="checkbox"/> human physiology <input type="checkbox"/> animal behavior <input type="checkbox"/> other (specify) _____ _____
5. LIFE SCIENCE TECHNIQUES	Choose five elements	<input type="checkbox"/> dissect plants or animals <input type="checkbox"/> set up and safely use standard laboratory equipment <input type="checkbox"/> set up and use field equipment <input type="checkbox"/> collect and classify specimens <input type="checkbox"/> use statistical methods <input type="checkbox"/> understand and use the metric system <input type="checkbox"/> perform mathematical computations <input type="checkbox"/> safely culture microorganisms <input type="checkbox"/> breed plants or animals <input type="checkbox"/> observe and record animal behavior <input type="checkbox"/> conduct environmental field studies <input type="checkbox"/> collect and preserve specimens <input type="checkbox"/> make drawings of observations <input type="checkbox"/> properly care for laboratory animals and specimens <input type="checkbox"/> other (specify) _____ _____

# Resource Person Guide

195 Jasper  
*Career family:* III, IV

*Subject area:* Art, English  
Economics, Business

*Package:* Communications  
and Media, Commerce

"The greatest weakness in business, whether large or small, is its inability to communicate with its particular market," says David L. Jasper, public relations manager for Popular Chemical Company. Dave Jasper's interest in communications stems from his long experience in the advertising field. Prior to his present position, he was head of the advertising department of Popular Chemical. Public relations, advertising, sales promotion, merchandising, publicity, and the techniques involved -- ranging from market studies, budgeting, media selection, ad preparation, community relations, presentations, copy writing, illustration, layout, feature articles and releases, to job-hunting skills -- are possible areas for learning activities.

*RP Name:* David L. Jasper

*Company:* Popular Chemical Company

*Address:* 200 Bush Street, 10th Floor, San Francisco, California 94104

*Transportation:* Take a B bus to San Francisco from the northwest corner of Broadway and Grand Avenue. (The buses run every half hour at 20 minutes after and 10 minutes before the hour.) Walk from the Transbay Terminal to Market Street. Cross Market to the intersection of Bush and Front Streets. Turn up Bush Street and walk one block to Sansome Street. 200 Bush is at the corner of Sansome and Bush.

*Phone:* 894-4519

*Hours:* 9:00 a.m. to 4:00 p.m., Monday through Friday

During the ORIENTATION you can meet with David Jasper to discuss your interests and possible project topics. You can also tour the chemical company to learn what departments there are and what goes on in each. If you wish to continue working with Mr. Jasper on a project, a schedule of activities and meetings can be arranged.

In the EXPLORATION you can work on current Popular Chemical public relations projects; accompany Dave Jasper to meetings and luncheons with freelance artists, writers, and photographers; observe meetings with community educators, newspeople, and other persons with whom David Jasper has contact; or learn how to make motion pictures and slide presentations, conduct surveys, interview people, and write advertising copy.

The INVESTIGATION is an opportunity to develop some of the skills used in the fields of communications, advertising, or public relations. You can learn

acquired through library research, compose a slide-tape presentation which answers the following or similar questions:

EXPLORATION

- a. What is the purpose of advertisement?
  - b. How do advertisement methods and styles differ and why?
  - c. What makes an ad effective?
  - d. How do advertisements reflect or distort social values, behaviors, and goals?
10. Discuss your needs, interests, goals, and values in relation to a career in public relations, communications, advertising, or a related field.
  11. Use descriptive statistics to organize and present the results of an advertising survey.
  12. From your own observations and from discussions with Dave Jasper, compare the audiences reached by: a local radio station, a local TV station, and a local newspaper. Do different advertisers use different media? Analyze the advantages and disadvantages of each of the above three media for advertising. Make this analysis for at least two different products or services.
  13. Compare the fields of public relations and advertising. List ten titles of jobs in each area. Describe two of the ten in detail, including advantages and disadvantages, to you, of each.
  14. Describe 5 ways of communicating the same message. Explain which would be the method of choice for each of three audiences.
  15. Describe and give examples of ten different types of appeal (such as sex, power, and status) used in advertising.
  16. Distinguish between metaphors, analogies, symbols and cliches. Present examples of the use of each in advertising.
  17. Analyze Popular Chemical's annual report as a public relations device.
  18. Observe the steps required in the production of an advertising display.
  19. Compare the organization and functions of the advertising and public relations department at a company such as Popular Chemical to those of an advertising agency (see the Resource Guide for the Gester, Brown and Taylor advertising firm).
  20. In response to a real or hypothetical public relations problem described to you by Dave Jasper, state what you would do, including what information you would need (actually get it if it is obtainable) and what actions you would take.
  21. Set up an advertising program for a real or fictitious business, including:

## Appendix 4

### Instructions for Writing Resource Guides

RESOURCE  
GUIDE

(log number)      (resource name)

Career family: \_\_\_\_\_

Package: \_\_\_\_\_

Subject area: \_\_\_\_\_

Briefly describe the resource and the major activities of the person or organization which students can learn about and participate in. The purpose of the paragraph is to stimulate student interest in finding out more about the resource and what they can do and learn at the site. Opening with a provocative question or a quote from the resource can be effective. In Resource Person Guides, include and underscore the RP's name, title, and organization. For all other guides, underscore the name of the organization and the contact's name. Any special prerequisites (such as a negative tuberculosis test or reading skill at a particular level) should be given at the end of the paragraph.

RP name: (or RO coordinator)

Organization:

Address:

Transportation: Give directions to the resource site via public transportation.

Phone:

Hours: State times when the resource can be contacted.

*For explanations of the following levels of involvement with resources, review pages 3 through 6 of the handbook.*

The ORIENTATION: Briefly describe what students can expect on an Orientation visit, including activities available (informal discussions, formal presentations, films, tours of the site, and any activities prescribed by the resource), content (the purpose and functions of the work or organization, significant issues or problems related to the field, possible topics for projects, discussion of student interests, and what students can do and learn at the site), and the time required. Also state the number of students who can participate at one time and any special instructions necessary.



Resource: Gastroenterology - Medicine  
Location: Martin Luther King Hospital  
12021 S. Wilmington Avenue  
Los Angeles, Ca.  
Room 4021  
Phone: 603-4584  
Contact Person: Henry Paul, M.D.  
Hours: 9:40 - 12:20 P.M. - Tuesday

Overview: You will have the opportunity to learn about the function of the Division of Gastroenterology and the responsibilities of staff. You will learn about diseases and treatment of the digestive tract.

Day 1: You will receive an orientation to the division and the Endoscopic Clinic.

Day 2-8: You will observe treatment of patients and assist, where possible, in the delivery of patient care. You will be given demonstrations and specific assignments to complete.

Your experiences in the Division of Gastroenterology should help you to answer the following questions and perform the following tasks:

1. What is the function of the Division of Gastroenterology?
2. Describe what a Gastroenterologist does.  
What education and training is needed for this job?
3. Identify at least two major parts of the stomach and explain the functions. Draw a chart of the digestive system, label the major parts, and describe the function of each section.
4. Explain the use of a fiberscope. Draw a diagram and label parts.
5. Why are biopsies performed? How are the results used?
- \*6. Observe what takes place on Grand Rounds and explain the purpose of rounds. How do Grand Rounds relate to problem cases?
7. Interpret and read at least three endoscopic films and describe body parts involved. Explain projected diagnosis for each film.
8. Explain gastric analysis and the purpose of performing this procedure.
9. Define the following procedures and explain the major purpose for each:
  - a) esophagogastroduodenoscopy
  - b) colonoscopy
  - c) Procto sigmoidoscopy
10. Attend a faculty conference on Endoscopic Film and describe what it was about.

\*If possible to arrange.

You will be expected to take notes and to write a brief summary of what you have learned each day (due at the end of the week).

Robert Shumer

### Integrating Service-Learning With Minnesota Graduation Outcomes

It is proposed that the graduation outcomes established by the State of Minnesota be fulfilled through a project which deals with a significant community problem. The project format, as recommended by Mary Kohler in Model Outcomes for Youth Community Service (1992), allows students to use creative strategies to engage real community issues. This process, when thoughtfully constructed and formulated, covers all six proposed "Minnesota Graduation Outcomes." In fact, by concentrating on community issues, the project itself becomes a model of Goal 5 and demonstrates "leadership skills on behalf of the common good."

The project design is monitored by school staff through checklists of process and content to verify the completeness and quality of the effort. Students attend seminars to discuss the process, and depending on the academic content, also attend seminars which relate the community-based activities with district level content outcomes. The sample projects included are designed for programs where students spend significant time in the community. They can be scaled back for programs where students spend less time on the community project or modified to accommodate any kind of project format.

Students, working in groups, are required to do the following:

- 1) identify a problem which is significant to the community through a survey, interview, or other information collecting process
- 2) produce an analysis of the problem, including its local and national history, the dimensions of the problem, and the community, government, and private initiatives which have been tried to deal with the problem
- 3) propose at least two possible solutions to the problem, describing in detail how such solutions can be accomplished

Once the problem and solutions have been described, students set in to motion an action plan which deals directly with the problem. While implementing this plan, students:

- 4) demonstrate use of basic skills of reading, writing, listening, speaking, computing, and innovating (drawing, using media, etc.); use at least three basic skills

- 5) identify two careers associated with the solution to the problem and explore those careers through library research and shadow or apprentice with an adult mentor in at least one career
- 6) acquire at least two work related skills associated with either of the careers identified and demonstrate them satisfactorily to the community mentor responsible for the shadow/apprenticeship activities
- 7) describe the criteria by which to evaluate the success of the effort, including at least one qualitative and one quantitative measure
- 8) produce an evaluation schedule whereby the implementation plan is periodically examined as to its effectiveness, with modifications made to the action plan based on the assessment results
- 9) identify at least three academic subject-matter areas which are appropriate for the effort and write learning objectives for the content to be learned and explain how the learning will be demonstrated (written reports, oral presentations, etc.)
- 10) produce a final evaluation describing what effort took place and what outcomes resulted. Each individual student submits a learning plan which must be approved by an advising teacher. Parent/guardian approval is also required.

Anticipated project areas include:

Social problems of Minnesota, such as education, employment, diversity of population, rural and urban issues, homelessness

Scientific problems such as health, information processing, public safety, environmental/ecological issues

Economic problems such as income distribution, job training, job stability, business forecasting, consumer issues

Personal problems such alcohol and drug abuse, suicide, low self esteem, issues of youth development

Family problems such as child abuse, battered spouses, battered parents, family relations

Problems of the future, such as planning for growth, providing required services

## SAMPLE PROJECTS

It is suggested that the project planning process and design follow the format produced by the Far West Laboratories for Educational Research and Development developed for community-based learning programs (sample forms in Appendix B). Such a process requires written descriptions of the issues, strategies, and demonstrated learning necessary for issuance of academic credit. If one does not choose the Far West model, then some formalized, documented process is advised. This can be developed by district level staff to meet local preferences and requirements.

The first sample is designed as an interdisciplinary investigation of water quality in Minnesota rivers. Completion of the project should help students earn credit in Social Studies (History), Science, and English. Typically students would work with the Department of Natural Resources (DNR) or other governmental agencies involved with monitoring the impact of modern civilization on the environment.

### I. Community Issue: Maintaining the quality of Minnesota rivers

Questions: What are the causes of river pollution?  
Nationally? Locally?  
What government and private initiatives have been tried to contain pollution and return rivers to clean conditions?  
What short term and long term solutions are there to the problem?

Solutions: 1) Determine the causes of river pollution of a Minnesota river and describe local governmental plans for ending pollution  
2) Develop a plan, describing two different approaches, to improve river quality in the next five years

### ACTION PLAN

1. Bi-weekly monitor river quality by performing sediment and benthic macroinvertebrate sampling, toxicity, pH, and water clarity tests. Submit written reports covering the results of each of these tests to local authorities on a monthly basis. Prepare statistical reports each month indicating the percentage of change in each category and the estimated time it will take to achieve the desired goals for water improvement.
2. Monitor fish and plant life on bi-weekly bases

describing species found and changes in number, physical condition, and quality of habitat for a defined area of the river

3. Describe historical conditions of the river, from 1930 to the present, indicating how the river has changed in terms of fish life, plant life, water quality, impact of business and industry
4. Produce research paper on historical use of rivers in American life from colonial times to the present. Focus on use of rivers for commercial and personal purposes.
5. Produce video program of 15 minutes on problems of rivers in Minnesota, including causes, methods of monitoring, and what needs to be done to improve them.
6. Describe current federal, state, and local agency responsibilities for maintaining river quality in the U.S. and in Minnesota (written).
7. Shadow a Minnesota DNR worker or scientist who monitors the river of your study and explain what they do. Describe (written) and demonstrate at least two skills which they use in their job.
8. Read Mark Twain's Huck Finn and describe the use of the river in the story. How do you think the river has changed since Twain's day?
9. Select two additional books which deal with river themes (subject to teacher approval) and discuss the symbolism of the river used in each. Choose books from the District list of recommended titles, available from the librarian.
10. Write an evaluation of the monitoring effort and explain how conditions of the river have changed over the period of your study. Describe what you feel are the major barriers to improving river quality in Minnesota, based on your experience and investigation. Explain what you think is the best way to improve the quality of the river you studied over the next five years.

This second example is an interdisciplinary project focusing on older Americans. Typically, students work at a senior citizen facility or nursing home, providing service to residents and learning about the issues related to aging. It is expected that students would earn credit in areas of English, social studies (history and sociology), biology, physiology, home economics, and media production.

## II. Community Issue: Older Americans in the United States

Questions: How is the distribution of the age of Americans changing in the next 30 years?

What problems will we face meeting the needs of older citizens in the next several decades?

What specific things need to be done to maintain good quality of life for senior citizens in special care facilities?

- Solutions:
- 1) Survey local senior citizen programs and nursing home facilities in the community to determine service needs and recommend two programs which will meet these requirements
  - 2) Develop action plan, with at least two different strategies, which actually implement programs that provide necessary services

### ACTION PLAN

1. Select a community agency to work with and to develop an action plan for servicing residents
2. Describe the basic needs of the residents of the agency. Explain how others, specifically high school students, could provide such services
3. From recommended readings on the sociology of older citizens, describe the needs of senior citizens and contrast them with the needs of other age groups, such as adolescents and pre-teens.
4. Based on this information, develop a training program for high school students to work in the nursing home. Train at least three (3) high school students to work in your nursing home
5. Monitor the dietary habits of three residents,

following their caloric and nutritional needs. Compare the food preferences and dietary habits of these residents with the previous groups studied, adolescents and pre-teens, by performing surveys of each group. Evaluate the results of your survey including statistical analysis of the data.

6. Discuss common physical ailments of seniors, focusing on causes, symptoms, and methods of treatment. With permission of administrators, survey residents of this home to determine whether or not common diseases/ailments are found in normal distributions compared to the U.S. senior population, ages 55-90.
7. Do case studies on three residents of the nursing home. Include information about family background, life history, occupational history, and critical incidents in their lives. With appropriate permission from residents and family, produce a videotape which captures the life history of the individual. Make copies for the families, as well as the school.
8. Select three literature books (with teacher's approval) which deal with topics or issues of senior citizens. Discuss the accuracy of the portrayal of senior citizens in the books compared to those observed through your study.
9. Using library materials, trace the historical roles of senior citizens in American history from 1776 to the present. Develop a chart which shows demographic changes, each decade, in the U.S. population from 1860 to the present.
10. Using materials on biology and physiology, explain the process of aging. Include what happens to various cells, systems, and processes. Discuss whether or not the aging process can be slowed or reversed.
11. Describe the job responsibilities of two staff members at the nursing home. Apprentice with one and demonstrate at least two job skills required of the work.
12. Write a final analysis, based on your research and observations in the nursing home, of what needs to be done to provide adequate care for senior citizens in special care facilities (such as nursing homes).

The third example is an examination of housing for low income residents. The project involves students in actually planning, building, and marketing low income housing. The activities are done in conjunction with governmental agencies responsible for providing and monitoring housing in Minnesota. Students are expected to earn credit in English, social studies (history and government), math, media, and vocational areas of construction.

III. Community Issue: Providing Adequate Housing for Low Income Residents

Questions: Why is there an apparent shortage of low income housing in the U.S.?  
How can communities provide housing for people of all income levels?  
How do you actually build a house?

Solutions: 1) Explain how housing patterns are established in American communities and how low income housing is provided through governmental and private initiatives  
2) Develop a plan for a local community to provide low income housing, including an actual plan to build a housing unit and sell it to low income residents

ACTION PLAN

1. Through interviews and reading, explain how housing patterns are determined in communities in Minnesota.
2. Do a housing survey in your local community, describing where low income housing could be built. Ask local residents how they feel about low income housing and where they would like it to be placed.
3. With assistance from a planning agency, describe the process for actually constructing a low income residence. Explain by telling which governmental and private agencies must be involved and what responsibilities each has in the process.
4. With assistance from a builder, develop plans to actually build a low income family residence. Work out the cost sheets on materials, labor, and miscellaneous materials. Graph the cost for each category expected. Complete the construction project, working in at least three (3) different job categories.



5. As you build the house, demonstrate the ability to:
  - a) read blueprints
  - b) use power and hand operated equipment, such  
hammers, drills,  
saws,
  - c) measuring devices such as tapes, rulers,  
squares, angles,
  - d) calculate area, volume, percent,
  - e) calculate number of squares (roof),  
pitch (roof), angles (roof, frame),  
quantity of materials required for a  
specific job, cost of labor for a  
specific job, and other calculations  
required of the construction industry
6. Review the history of construction in the United States from colonial times to the present, focusing on the types of housing built for average people and the methods of construction. Discuss the emergence of building codes as a public concern. Also include the types of material used in construction, explaining how materials were selected for different locales and purposes.
7. Maintain a visual history of the progress of the construction either on videotape or through still pictures. Learn to operate the appropriate equipment and explain the functions and principles of the media to an advisor.
8. Develop a video presentation on five techniques/processes used in the construction of the house. Your purpose is to explain to others how to perform these tasks. Write the narrative portion of the video prior to editing the video.
9. Select two books, fiction or biography, which deal with themes of construction or low income housing, and explain how they relate to your project. Focus on the social experience of living in low income housing. Discuss the value to society of developing low income housing initiatives.

The fourth example is an interdisciplinary investigation of the learning process in young children. The problem focuses on how to help young students to learn. The academic focus is in areas of English (language development), social studies, psychology, and home economics (youth development).

IV. Community Issue: Educating all the children who go to school

Questions: What happens in school that prevents some children from doing as well as others?

How do children learn?

How do you learn to teach?

Solutions: 1) Observe children in classrooms and provide two explanations as to how they learn

2) Test one of the theories of learning by working as a tutor in a classroom and teach several children various subjects

#### ACTION PLAN

1. Select an elementary school classroom to work with and observe children learning. From detailed written notes, explain how children learn to do specific tasks or activities. Read materials on naturalistic observation to assist in preparation of field notes.
2. Read two books on child development and describe common behaviors of children similar to those in the classroom where you are working. Observe the behaviors of your students for a period of one month and compare what you find to be normal with that of the books you read. If there are discrepancies, explain why you think they exist.
3. Do case studies on three students, observing how they learn in school. Discuss how they learn, what motivates them, and what they are interested in learning. Explain what they say motivates them to learn.
4. Develop lessons in three academic areas and explain what you are doing to teach children in these areas. Describe the principles of learning and teaching you are using as you construct the lessons.
5. Select two fiction or biographical books which deal

with teaching (teacher approved) and discuss the role of the teacher as presented by the books. Compare this presentation of teaching and teachers with the characters and situations in your books. Are there similarities or differences between the two? If so, explain what they are and why you think they are different.

6. Observe three teachers in the school where you work and describe their general approaches to teaching. Interview about how they got into teaching and what they like about the profession. Identify what it is you like/dislike about teaching and compare it with the three teachers you interviewed. Are there similarities or differences? If so, explain?
7. Observe the children in your classroom and construct chart showing the social relationships among the students. Note who in the groups exercises influence and describe how they obtain their power (i.e. through good grades, physical appearance, outside relations, etc.)
8. From books on reading and language development, plus your own experience in learning to read, explain how people learn to read. Observe children reading in the classroom and explain how this confirms or disproves your theory.
9. Construct five reading lessons, implement them, and then analyze them in terms of their success and their demonstration of your own theory of reading.
10. Evaluate your role as a tutor in the classroom. Explain how you function most effectively and how students learn best from your assistance.

# Starting a Community Service-Learning Program: What Resources are Needed?

## Administrative Leadership

*All programs benefit from clear, visible administrative leadership in implementing service-learning.*

Becoming a Knowledgeable Spokesperson...  
Supporting Staff Development Activities.  
Brokering, managing funds/ resources.  
Ties to Other School Reform Efforts.  
Models Service in Own Life.

## Staff Time

*People will need time to develop new programs. Release time will be needed for both teachers and administrators to meet the following needs:*

EDUCATION: To learn about service-learning  
through attending conferences  
receiving staff training  
meet and discuss with other staff; peer coaching

ADMINISTRATION: To develop new procedures, policies, and means of evaluation to support new programs.

CURRICULUM DEVELOPMENT : To develop or locate new curricula; to pilot these curricula.

RESOLVING NEW ORGANIZATIONAL QUESTIONS: Transportation, liability, dealing with the existing school schedule; graduation requirements which limit elective options.

BUILDING COMMUNITY PARTNERSHIPS: To learn about and establish new links with community-based organizations. There is a strong start-up need to invest time in coordinating development of community service projects and sites. School staff must be able to visit, meet one another, and develop working relationships.

## Coordinator's Position

*Someone will need to coordinate the new program effort.*

### **Teacher/Leader or Project Leader**

Many programs cite the designation and funding of a full or part-time service-learning coordinator as *the* key ingredient to program implementation. Such a position will vary widely depending on the size and scope and nature of the program. This may involve as little as a teacher receiving one period of release time to a full-time district coordinator. There is evidence in college mentoring programs that after initial outside funding, universities have been commonly willing to continue such staffing on their own.

## Staff Development

*People will need training to appropriately and effectively implement service-learning programs.*

For school staffs.

For agency and other community-based organizations.

to learn about service-learning

to attend conferences

to receive training on how to work with students/ youth

## Materials/ Resources

*People will need access to new materials and resources:*

To purchase existing background and curricular materials

Means of transportation

Supporting Local Service Projects

## Information/ Awareness

*Effective program implementation necessitates an informational/awareness campaign so that other staff members, the public and the community are aware of the existence, purposes, needs and benefits of the program.*

National Youth Leadership Council, 1991

*What support do you ideally want/need from each of the role groups listed below to help you implement service-learning?*

**From Teachers**

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**From Principals**

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**From Superintendents**

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**From Teacher Educators, Colleges**

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**From State Policy Makers**

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**From Students**

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# **Service-Learning District or School Action Plan**

District/ School: \_\_\_\_\_

Date: \_\_\_\_\_

*This form should serve as a guide. Feel free to adapt it to suit your specific situation.*

**GENERAL IDEAS:** What kind or model of service program would you like to initially implement? If you already have a program in place, in which new directions would you like to move or expand?

**VISION/RATIONALE:** In which ways do you hope youth, your school and community would be different as a result of your service program?

**ACADEMIC OUTCOMES:** What will students learn through your project/ program?

**PLANNING/ ORGANIZATION FOR PROGRAM EFFECTIVENESS:** What kind of pre-planning and organization will be necessary to make your service-learning program a success?



**RESOURCES:** What resources will you need to be successful? Where can you get that information, money, or other assistance?

**ALLIES:** Who will provide support, leadership and/or resources for your project?

**TIMELINE:** What will be the first steps that you will need to accomplish in implementation?

**WHAT?**

**WHEN?**

**WHO?**

**EVALUATION:** How will you assess whethert your program has been a success?

# **Service-Learning Individual Teacher Action Plan**

**GENERAL IDEAS:** In which ways will you try to combine service and learning in your classroom?

**VISION/RATIONALE:** How will this enrich your instructional program?

**ACADEMIC OUTCOMES:** What specific learner outcomes in your subject area will students learn through their service work?

**PLANNING/ ORGANIZATION FOR PROGRAM EFFECTIVENESS:** What kind of pre-planning and organization will be necessary to make student service work a success?

**STUDENT PREPARATION:** How will you prepare students so they have the skills and information they need to provide a valued service?

**STUDENT OWNERSHIP:** How will you involve students in planning and implementation so that students have a strong commitment to the project and so that the service is meaningful?

**REFLECTION:** How will you encourage individual and group reflection so that participants learn from their experience?

**PRODUCT:** What kind of product or synthesis would enable students to integrate significant learnings?

**CELEBRATION/ RENEWAL:** How will you celebrate your success? How will you provide for program and professional renewal?

**EVALUATION:** How will you assess whether you have accomplished your program outcomes?

