DOCUMENT RESUME

ED 331 038 CS 010 558

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TITLE Adult Literacies: Intersections with Elementary and Secondary Education. Hot Topics Series.
INSTITUTION ERIC Clearinghouse on Reading and Communication Skills, Bloomington, IN.; Phi Delta Kappa, Bloomington, IN. Center on Evaluation, Development, and Research.
SPONS AGENCY Office of Educational Research and Improvement (ED), Washington, DC.
PUB DATE 91
CONTRACT RI88062001
NOTE 302p.
AVAILABLE FROM ERIC Clearinghouse on Reading and Communication Skills, Indiana University, Smith Research Center 150, Bloomington, IN 47408-2698 ($20.00); Phi Delta Kappa, Box 789, Bloomington, IN 47402 ($20.00).
PUB TYPE Collected Works - General (020) -- Information Analyses - ERIC Clearinghouse Products (071)

EDRS PRICE MF01/PC13 Plus Postage.
DESCRIPTORS Adult Basic Education; *Adult Literacy; Elementary Secondary Education; Futures (of Society); *High Risk Students; Instructional Effectiveness; Intergenerational Programs; *Reading Research
IDENTIFIERS Educational Issues; *Family Literacy; *Workplace Literacy

ABSTRACT

Reflecting a holistic approach by introducing many sides of an issue, this anthology of 16 journal articles and conference papers dating from 1985 to 1990 represents a selection of the best research and practice concerning the intersections of adult literacies with elementary and secondary education. The papers and articles are divided among four sections: (1) "Getting Up to Speed in Adult Literacy"; (2) "Review of the Research in Adult Literacy"; (3) "Intergenerational and Family Literacy"; and (4) "Workplace Literacy." A brief final discussion is entitled "Questions Remaining: Directions for Future Inquiry." An annotated list of 15 references for further reading is attached. (RS)

Hot Topics Series

Adult Literacies

Intersections with Elementary and Secondary Education

Center on Evaluation, Development, Research
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The Hot Topics series presents readers with a selection of the best research and practice available. Topics are based on information gathered from a poll of leading educational organizations. Each volume contains articles carefully selected by the CEDR staff from a number of sources to help readers avoid the repetition and irrelevance that characterize the literature gathered from searches of larger databases. Each topic reflects a holistic approach by introducing many sides of an issue, and each year the variety of topics will reflect the spectrum of education concerns.

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The Hot Topics series is prepared
under the direction of
Larry W. Barber, CEDR Director
June 1991

The compilers of this anthology gratefully acknowledge the editorial assistance of Warren Lewis, ERIC/RCS Academic Publications Editor, ERIC Clearinghouse on Reading and Communication Skills, Indiana University, Bloomington, Indiana.

INTRODUCTION

Educators have been called sharply to attention by the upheavals of recent demographic and technological change. These tremors are the signals of a serious mismatch between the present, apparently inadequate, skills and literacies of our citizens and the immediate and future demands for an educated citizenry and workforce. Both the private and public sectors feel the aftershock of an insufficiently literate workforce. Every year business and industry spend billions of dollars to train and retrain employees, while the federal government spends but about $162.2 million per year on adult basic education, English as a second language (ESL), and adult secondary education combined.[1]

One of the immediate implications of these shifts in society is that reeducation has become a parameter of constant need throughout people's lifetimes. Gone are the days when the first specialty, learned early and well, might suffice for a lifetime. People may now expect to engage in several distinct jobs during their working lives. As they set up programs for displaced workers, educators have come to realize that lifelong learning is the new requirement for people who were formerly competent and productive but who have been rendered incompetent and unproductive by the changing workplace. Lifelong learning was once thought of as an educational ideal; it is now an educational necessity.

Education establishments at all levels must not only retool for lifelong learning but also to work with new kinds of learners. Parents of children in school are more likely to be poorer, younger, and less educated than in the past. They are likely to come from a variety of cultures and have varying command of standard, school English. We live with a growing threat – namely, we either educate today's learners of all ages, or we shall witness ongoing cycles of insufficient literacy and endemic poverty.

Lessons from Adult Literacy

Recent research in adult literacy contains lessons applicable to all levels of education. These lessons include insights into the shifting definitions of literacy, the difficulties of assessing literacy, distinctions between the processes and thinking involved in learning to read in contrast to "reading to do," the power of contextualizing literacy learning, and the potential of looking beyond individual learners to families and social networks as sources and environments of literacy.

Research in adult literacy has made clear that literacy for each of us is culturally situated. Our definitions of, and the value we place on, literacy vary greatly from group to group within our pluralistic society. Just as among "highly literate" professionals, one expert may be almost entirely illiterate in the specialty of a colleague, so also with "ordinary people." Literacy of an Hispanic-American in Spanish, of an electrician in circuitry, or of a day-care worker in the needs of small children is not the same as the office and computer literacy that a secretary must possess, or the literacy of IRS forms that intimidate us all. Educators must take into account the many meanings, values, and uses of literacy that their adult students will want to *know* and need to *do* in the future.

Assessment of adult literacy is further complicated by inadequate testing methods. Many of the adult assessment measures were originally designed for children, and results are focused on school-centered literacies. The tests are, at best, a measure of school learning. Comparisons of adult and child performance are questionable.

A series of national assessments of "functional" literacy culminated in 1986 with development of the Young Adult Literacy Study. This test measured literacy through performance of simulated tasks using prose, documents, and basic computations. Irwin Kirsch and Ann Jungblut, the test designers, substituted results on these three scales for the previously accepted single score. They also declined to set cutoff scores for literate/illiterate because they believed that literacy is context-bound and that no single score could represent the many contexts of literacy in this country. They suggested that "The important question facing our society today is not, 'How many illiterates are there?' but rather, 'What are the nature and the levels of literacy skills demonstrated by various groups in the population?' " (Kirsch and Jungblut, p. 2.)[2]

The Young Adult Literacy Study and the proposed National Assessment of Educational Progress reflect the changes in thinking about assessment that are under way. Our understanding is growing that we need better and broader measures of literacies than are provided by testing for school-centered skills.

Researchers in adult education and workplace literacy have found important differences between learning to read in school and "reading to do" in the workplace. In school, students are assigned reading in textbooks and are expected to learn the contents for examinations. By contrast, workers read to solve problems and do their jobs. In most cases, workers are not reading to memorize; they are trying to find specific information that will help them make decisions and take action.

People who use what they learn in the context of their daily lives are more effective learners. We know, for example, that adults learn more and retain more of what they learn if the learning takes place in the context of their work or training for work, and that learners who learn in context are more likely to transfer what they know from one working context to another.

Successful instruction fosters learning as a usable whole while making connections between as many spheres of learners' lives as possible. Connections must be made between the curriculum and the goals, objectives, values, and needs of the learners. A curriculum succeeds when learners apply what they learn in class to their daily lives. For example, an increasingly literate mother is more likely to continue with her own learning when the ability she gains in class can be translated at home into reading to her children. She needs to be able to use what she has learned immediately.

In school, students frequently work alone and are tested on their individual attainments. On the job, workers frequently consult one another, ask for information, compare impressions and interpretations. In the workplace, workers who can consult with others are able to use written materials that would otherwise seem to have impossibly high readability levels. We also know from recent research on communities as wholes that people function cooperatively in social networks to solve the daily problems of living. A curriculum that acknowledges and fosters social support brings a power to learning greater than that of curricula that concentrate solely on the performance of individuals.

The Old Definitions No Longer Serve

Previous definitions of literacy are no longer adequate. We may not speak of "literacy" anymore; we must speak of "literacies." The United States Bureau of the Census abandoned asking people whether they could read and write after the 1930 census because that simple question no longer served to differentiate among people's diverse commu-

nications skills. Nonetheless, simple reading and writing are often what one thinks of at the mention of the word "literacy," and the converse assumption is similarly made – that is, "illiteracy" means merely that people cannot read or write at all.

The many meanings of literacy began to complicate our discussions, especially after the word took on new prominence in the 1980s. The earlier, limited meaning – the ability to read and write – broadened to encompass the ability to read, write, and communicate the specific content of any domain. As a fashionable buzz word, literacy now refers to the knowledge of any given domain. For example, we commonly ask whether someone is "computer literate," meaning, is the person knowledgeable enough about computers and their operation to use them and communicate about them. This expanded use of "literacy" has made any use of the word potentially ambiguous. The user may have either a very limited or a very broad sense of literacy in mind. More significantly, the expanded meaning of literacy reflects an underlying understanding that literacy is not only a set of print-code tools but also an interaction between the reading, writing, background knowledge, and experience of the individual. Meanwhile, the complexities of our information society make effective communication more challenging than ever.

In our print-rich and complicated society, it is no longer appropriate to imagine that literacy is either present in, or missing from, any individual, and that people can either read and write, or they cannot. Anyone who still limits the definition of literacy to the ability to read and write words may be content with instruction in school-based tasks and the testing of literacy on the basis of standardized tests or such other standards as the possession of a high school diploma or GED.

We believe, however, that literacy is not an on/off characteristic like dead or alive. As the new uses of the word imply, literacy is more than the mere ability to read and write a little or a lot. Literacy describes a wide variety of communicative acts, interpersonal strategies, and survival skills. Picture a spectrum of literacies across a variety of specific needs and communities, from barely able to write or recognize one's own name, to highly and multiculturally educated. Rather than ask whether people are literate at all, ask whether they are sufficiently literate to meet their private needs and to perform the tasks that society expects of them. Adequate literacy is relative to the internal and external demands placed on the individual. Internal demands include personal expectations, hopes, choices, and ambitions. External demands involve the expectations of each individual's cultural and social context and the accelerated change of technological demands. Instruction in full-spectrum literacy must concern both the development of reading and writing skills and also the application of these skills in specific contexts. School literacies may be quite different from workplace, home, and civic literacies. Consequently, testing for literacy must follow from the purposes of the adult learners themselves and the specific situations of their lives. Existing standardized literacy examinations are too insensitive to human diversity to take the adequate measure of these nuances. A portfolio, or demonstration of actual reading and writing of material selected for its relevance, would more appropriately represent literacies in actual use.

The Accountability Dilemma

A widespread perception of the collapse of literacy in America is placing new demands on educators for greater accountability. Society demands proof that the schools and other educational institutions are doing the job that the public is paying them to do.

This has led to a greater reliance on teaching what is testable, and then teaching students how to pass the tests. Simultaneously, there are growing demands for reforms to make literacy tests reflect the goals of instruction better. For example, in many states and districts the testing of writing has been changed from multiple-choice questions on points of conventional grammar and usage to holistic writing assessments in which students actually write stories, paragraphs, and essays. Since society now requires more of people than to be able to select the correct answer from four or five choices, it is ironic that many educators and funding agencies continue to rely on standardized tests to demonstrate competencies that are needed in schools, the marketplace, the workplace, and the home.

Education must address the ability of its learners to do the many jobs that they and society perceive as necessary and desirable. Being able in any field requires more than simple reading and writing. Being able also requires specialized knowledge of the field, its background, and context; ability to decode the special characteristics of technical writing within the field; a problem-solving sense of how to gain new information within that particular field; and how to apply this specialized knowledge. We must abandon the idea that a single, well-taught curriculum will suffice for a lifetime. Students at all levels need to know not only what is currently relevant to their present interests and occupations but also how to acquire new expertise within a limited field and how to move on to new fields. Lifelong learning can no longer be a mere alliterative slogan; it has become, instead, the unavoidable requirement of our present and foreseeable future.

Literacy: A Privilege, Right, or Obligation?

The new question about adult literacy strikes directly at the heart of some traditional habits of education in the United States. Both education and literacy can be viewed in a variety of ways: as a privilege, as a right, or as an obligation. Each stance has implications for education and literacy policy on a continuum from optional to required. Consider, for example, the implications of each of these stances for the provision of instruction in English as a second language, and for efforts to recruit the "hard to serve" in adult education.

If one takes the stance that education and literacy are privileges, then one may also believe that students should fit themselves into whatever the school offers – students should make themselves worthy of the education they receive, and if they do not avail themselves of their one chance at education, they have no one to blame but themselves. In the extreme, this position can be articulated as an educational version of the "love it or leave it" posture. Adults who failed to take advantage of their opportunities for education as children would be expected to seek out ESL and literacy classes and make any arrangements necessary in their lives (child care, transportation, financial support, medical insurance) to be able to attend and profit from the instruction.

If one takes the stance that education and literacy are basic rights, then one may adopt the view that schools ought to be fitted to the needs of the students, and ought to provide multiple opportunities for all people, whether children or adults, to become literate and educated. If literacy and education are viewed as rights, the burden is on society and its agencies, the schools, to foster them. Providers of ESL instruction might well provide classes not only in English but also literacy instruction in the learners' first languages. Greater language proficiency in any language supports greater proficiency in a second language. Designers of literacy programs need to make arrange-

ments that take into account adults' responsibilities to their families, jobs, and other pressing demands on those living in poverty. In a democracy, we all bear the responsibility of making our best effort to remove obstacles that bar people from acquiring education.

If one takes the stance that education and literacy are obligations, then learners and schools alike are responsible for making literacy and education effective. The duties of citizenship require that people inform themselves, take part in decision making, work toward construction of the nation's economy, and participate actively in the cultural life of our society. According to this stance, an adult who does not already do so is socially required to learn to read and write English. Social responsibility of an adult receiving public assistance would be to attend basic-skills and job-training programs. In turn, responsibility of the rest of society toward the insufficiently literate would entail providing support to the adult learner, such as child care and transportation, medical attention when it is needed, and financial assistance sufficient to sustain life and human dignity while the education in new literacies proceeds.

Whether one takes the stance that literacy is a privilege, right, or an obligation, literacy instruction remains a central focus of policy, planning, and education.[3] It has been estimated by a variety of people who provide literacy training that only about 2% to 4% of the people in need of literacy training are served each year. Whatever position one takes, this is an enormous shortfall and challenge.

The Elementary-Secondary-Adult Literacy Connections

Educators charged with teaching elementary, secondary, and adult learners face twin challenges: 1) social changes, such as children born to poorer, younger, and less educated parents, and 2) limited educational funding at a time when the schools are expected to do more and more. As the pressures increase, the resources diminish, and we must recognize that adult literacy and children's literacy are not separate issues. As the need for learning increases, the consequences of not meeting our present challenges become more apparent in ongoing cycles of poverty, insufficient literacy, and lost opportunities.

Generations of Literates

Increasing the literacy of adults will help to prevent the next generation from being underliterate for their own and society's needs. National tests have correlated levels of parent education and presence or absence of books in the home with children's reading scores. The historically separate systems of adult and elementary and secondary education may have become a luxury that society can no longer afford. New channels for communicating, cooperating, and collaborating among educational efforts at all levels must be established, not only to improve programs, but also to make the most efficient use of limited education funding.

Intergenerational and family literacy programs are fledgling efforts aimed at increased learning by children and adults alike. Some people allege that early intervention with parents and children will increase the children's long-term learning potentials. One of the most obvious, though difficult, intergenerational connections is the communication between schools and students' parents. Barriers such as language and cultural differences make communication between schools and parents problematic. Some new intergenerational and family literacy programs attempt to bring parents, long alienated from the school system, back into instruction for themselves and for their preschool and school-age children. These efforts are reaffirmations of the family as the primary

education unit, and thus help to involve parents and children together. Recent federal legislation has made this approach explicit in Even Start, including funds for linking parents and children in educational activity. Elementary and secondary schools have a stake in programs that can improve parents' skills and increase the possibilities for communication between school and home. Potential results include increased school attendance, interest in school, and willingness to participate in the life of the school.

At-Risk Students

Another important connection between adult education and middle and secondary schools concerns the many young people who are marginally successful, or even unsuccessful, and will likely move from being unhappy students to being underliterate adults. Dropouts and pushouts garner lots of concern. Their failure at school painfully reminds us that the schools do not succeed with every type of student and that values differ substantially from one subculture to another within our society. When the dropouts are young mothers, their need for literacy for themselves and educational opportunities for their children is particularly acute. Frequently, dropouts are students from marginal groups in our society whose background has not matched well with the schools they have attended. Cultural differences often lead, unfortunately, to cultural distance rather than communication. These out-of-school youth are part of the adult education population because they come to be included with other adults in vocational training programs. What is being learned in programs for out-of-school youth may well have importance for curriculum planning for those who remain, for the moment, in school.

Workplace Demands and the Schools

Research on literacy education in the workplace offers implications for elementary and secondary instruction and the content of curriculum. While preparing students to get a job is by no means the only mission of the schools, an adequately educated workforce is increasingly part of the national agenda and is thus part of the schools' agenda. Research in the workplace suggests that general-skills instruction is soon forgotten and does not transfer well from the school to the worksite. Instruction in basic skills and problem solving presented within the context of what workers are doing on a daily basis is far more effective than school work. The kinds of reading and writing that workers do differ substantially from the kinds of reading and writing that elementary and secondary students are taught in class. America's schools at all levels are being challenged to devise curricula to "prevent" adult illiteracy and joblessness. Research in adult literacy can serve to guide curricula in the public schools. We do not intend to suggest that workplace preparation is the sole charge of the schools. It is, however, one of the competing demands that must be carefully considered.

With this volume, we invite you to join the conversations taking place among educators at all levels of education, literacy experts, and policy makers. We believe that the conversations are the beginning links in the crucial chain of communicating, cooperating, and collaborating that is required to meet the present challenges to education at all levels.

Caroline Beverstock and Anabel P. Newman, Editors

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[1]Fiscal Year 1989 figures from Mary Hanrahan, deputy director, Adult Education, United States Department of Education.

[2]Kirsch, Irwin and Ann Jungblut, *Literacy: Profiles of America's Young Adults*. Princeton: Educational Testing Service, 1986.

[3]The categories of privilege, right, and obligation were first applied to literacy acquisition by Ruth Nickse at the Adult and Adolescent Literacy Conference, January 12-14, 1990 in Washington, D.C.

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Getting Up to Speed in Adult Literacy

OVERVIEW

A considerable list of questions must at least be asked before we can even begin to share a common perspective on what literacy is. What is meant by the term "literacy?" What is the present state of adult literacy in the United States compared to the past? What about the international status of literacy?

In the first article of this chapter, H. S. Bhola reviews the global status of literacy. He puts the declaration of International Literacy Year 1990 into perspective in terms of the gains that have been made and the work that remains to be done worldwide. He argues that literacy gives access to the knowledge capital of a society. For Bhola, global literacy is a moral issue and a human right.

During the 1980s, an increasing awareness of the real need for literacy swept over the United States. The Awareness Campaign of the National Coalition for Literacy, and the efforts of Project Literacy United States (PLUS), reminded many Americans that the demand for greater literacy for all citizens must assume its rightful place as one of the urgent items on the national agenda. Advertisements, and even hour-long programs on national television networks, do not have time to discuss in detail the evidence we now have about literacy and the lack of it in the United States.

The second article in this chapter might be captioned "All you ever wanted to know about literacy indicators in the United States, but were afraid to ask." Lawrence Stedman and Carl Kaestle have furnished their readers an extensive review of the U.S. Census literacy estimates, including "then-and-now" studies that compare past performance with present scores on reading achievement tests, achievement-test score trends, tests of "functional" literacy, and factors that must be taken into account when interpreting these sources of information. The discussion is not limited to adult performance only but also includes the reading achievement tests of school-age populations.

Robert Arnove and Harvey Graff discuss the role of literacy campaigns in the transformation of societies, starting with sixteenth-century Europe. In this time of national concern about literacy, it is well to consider other national literacy efforts and the lessons they offer for current endeavors.

Definitions of any term as complicated and multifaceted as "literacy" are important, even if the endless discussion of words may act as a potential distracter from taking action. Ronald Cervero asks whether a common definition of literacy is possible or desirable. He points out that the search for a definition is not merely an exercise for technicians but instead requires analyses of values, ideologies, and power structures.

Policy is the expression of a society's values and a willingness to address those issues. Policy formation is an intricate round dance among those who nominate the issues for consideration and action, the technical advisors who are closest to the issue, elected representatives, paid and volunteer workers in the field, and taxpayers. The first policy statement included here comes from a longer document, *Jump Start: The Federal Role in Adult Literacy*, which was a distillation of commissioned papers and consultations with many literacy professionals across the country. It was also a call for immediate action to accomplish the following:

1) establish a Cabinet Council on Adult Literacy;

2) pass legislation to establish a National Center for Adult Literacy to coordinate research and technical assistance;

3) promote innovation in training and technology;

4) reinforce a federal solution to the problem;

5) enhance the effectiveness of existing federal programs;

6) place greater emphasis on workforce literacy.

In the second policy statement, delivered in 1988 to the National Urban Literacy Conference, Arlene (Hanna) Fingeret emphasizes the political nature of adult literacy education. She traces policy and attitudes from the 1960s to date, and she contrasts literacy for the maintenance of the economic status quo with literacy for improving the quality of life of individuals and communities. She rules out a "quick-fix" approach, urging that real change depends on an understanding of literacy as something more than mere reading and writing skills. Fingeret calls for cooperation rather than competition among providers. She advocates commitment to work both with those whose skills need a minor amount of review and enhancement before employment and those whose skills are the most minimal, requiring substantial time, support, and instruction.

by H. S. Bhola

International Literacy Year: A Summons to Action for Universal Literacy by the Year 2000

Photo courtesy of Unesco/ D. Roger

December 7, 1987, marked an auspicious moment in the history of world literacy as the United Nations General Assembly unanimously passed a resolution proclaiming 1990 International Literacy Year (ILY). The ILY will not be mere ritual and celebration, but a summons to action for the world community to mobilize for the achievement of literacy for all by the year 2000.[1]

It is easy to be cynical about pious declarations made by national governments and international agencies such as UNESCO (the lead agency for ILY), UNICEF, FAO, WHO, and others. Such cynicism is not always warranted, however. Proclamations of special days, years, and decades become historic landmarks and thereby provide visibility to particular social issues and concerns. Hitherto diffused commitments become crystallized and come under the public gaze. Priorities in social agendas of nations are rearranged. Material resources are allocated. Technology and expertise are mobilized. All of this, in concert, can have significant consequences. The ILY-1990, and the International Literacy Decade that is expected to follow, may, in addition, enjoy the numerological advantage. The ILY will be celebrated during 1990, the first year of a decade. The special ring of the year 2000, when the literacy decade will come to a close, and the special aura surrounding the millennium's end will both help in promoting the ideal of universal literacy.

The Context of ILY

What is the status of world literacy as the UN General Assembly proclaims the ILY? The state of affairs is indeed intolerable. There are around one billion illiterates in the world, living in our time, but not our contemporaries. According to UNESCO's statistics for the year 1985 (the latest available), there were 889 million illiterates among those fifteen years and older, which translates into 27.7 percent of the total adult population—20.5 percent male and 34.9 percent female. Fully 98

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The author gratefully acknowledges his debts to the participants of the second meeting of the International Task Force on Literacy (ITFL), established by the International Council for Adult Education (ICAE), held in West Berlin during June 1988. The discussions conducted at the meeting and the documentation provided have both contributed significantly to the writing of this article.

The United Nations General Assembly has named 1990 International Literacy Year. The proclamation is a call to action for the achievement of global literacy by the year 2000.

Photo courtesy of German Foundation for International Development

percent of these adult illiterates live in developing countries: Asia, with an illiteracy ratio of 36.3 percent, accounted for a total of 666 million; Africa, with an illiteracy ratio of 54 percent, had 162 million; and Latin America and the Caribbean, with an illiteracy ratio of 17.3 percent, had 44 million adult illiterates. To make matters worse, 100 million children in the developing countries between the ages of six and eleven years were not enrolled in schools. In the developed industrialized countries, there were 20 million illiterates, but the problems of *functional illiteracy*, the inability to use literacy at a level high enough to deal independently with the demands of the economy, society, and politics, were far more extensive.[2]

The Why, When, and How of Literacy

These numbers were no secret and were quite widely known. An awareness of the situation had not, however, moved everyone into moral consternation to demand an end to illiteracy. Nor was there a chorus of voices heard, on behalf of literacy, on purely practical grounds.[3] On the contrary, literacy skeptics made the argument that literacy was unnecessary because illiterate adults did not consider literacy as a need and were, therefore, not motivated to learn to read and write. Even if these unmotivated adults could be taught, they would not be able to use their newfound skills within the nonliterate environments in which they now lived. In the meantime, the argument went, immediate needs of development communication could be fulfilled through face-to-face communication and by use of mass media. Teaching literacy to the unmotivated and unwilling would be an exercise in "gradualism."[4] Moving the discussion to the socioeconomic level, they argued that adult literacy had failed to show any clear effect on economic development. And those of a radical inclination considered literacy promotion as promotion of industrial interests, leading to "dispossession of speech" of the people.[5] Some aesthetically inclined saw in literacy the "denial of narration" to the new readers.[6]

In the heat of the argument, it seemed to have been forgotten that human needs, other than organic needs, are socially and ideologically determined and have to be learned and internalized before they become felt needs. Motivations are seldom spontaneous; they have to be mobilized through education and leadership. Illiterate adults lack motivation to learn not only literacy, but also family planning, nutrition education, and health education. The challenge, therefore, lies in "fashioning" the need for literacy so that it becomes a

felt need. Once literacy becomes a felt need, it should be delivered to youth who are bypassed by the school systems and to illiterate adults on farms and factory floors all around the world. Environments, local and global, must be created in which these literacy skills learned by new literates can be put to use in all their transactions with economic, social, and political institutions.

For independent access to the knowledge capital of a society, literacy is indispensable. No wonder literacy today has come to be seen as a moral issue and a human right. Fortunately, the mythologics of adult literacy promotion include both moral mythology and sensible logic.[7] The old psychological arguments in favor of literacy as a "technology of intellect" have since been put into perspective.[8,9] The human species today is going through a gene (the basic unit of biology) and meme (the basic unit of culture) co-evolution; and literacy has come to be seen as a profoundly social process and an important instrument of culture.[10] We have already realized that illiteracy marginalizes. As D. H. Hymes reminds us, oracy may be in overall decline from its position of primacy all over the world: "Those without literacy, or with little literacy, are seldom now participants in autonomous cultures, in which oracy skills could flourish as central. More commonly they live in circumstances of cultural marginality or subordination."[11]

Elimination of illiteracy would not by itself bring heaven on earth. Hierarchy, as Hymes points out, is inherent in social structures, and literacy would not eliminate inequality.[12] However, newly literate adults with their new potential may be able to influence the dynamics of relationships and, thereby, the structures of inequality and hierarchy. At the level of collectivities, we know now that there is a beneficial relationship between literacy and economic development. Without literacy neither modernization nor democratization are possible.

Once the question "Why?" has been laid to rest, the question "When?" raises its head. Can literacy, even though essential in the long run, wait as we face the daily crises of hunger and disease? Isn't there something called the historical moment and the priority among needs in the lives of both individuals and nations? Of course, there is timeliness and there is the question of priorities. We must, however, understand the difference between the context of crisis and the framework of policy. In crisis, we must give people what they need—food, water, medicine, clothing, and shelter. We should not send them to a literacy class to read first while they are hungry and thirsty or in bodily pain. But within a policy framework, literacy must be *central* to all developmental initiatives if people have to acquire independence in learning, seeking information, making choices, and acting to invent their own futures. In program development, then, literacy must be conceptually primary, even though pragmatically it may have to wait for its turn. Of course, if program planners are waiting for months and years before integrating literacy in their development programs, they have either failed conceptually to understand the generative role of literacy in all development actions or are inept in program design. It is also naive to think that for literacy to find uses in communities, cultures must be literate first. Such assertions show the failure in recognizing that all cultures today already are operating on the assumptions of literacy. They are not environments of oracy but are literate environments, though segmented, incomplete, poor, and barren. These literacy environments must be extended, reinforced, sustained, and enriched through conducting literacy work and by establishing infrastructures of literate cultures such as rural newspapers, book libraries, and community centers with adequate supplies of printed materials.

As D. H. Hymes reminds us, oracy may be in overall decline from its position of primacy all over the world: "Those without literacy, or with little literacy, are seldom now participants in autonomous cultures, in which oracy skills could flourish as central. More commonly they live in circumstances of cultural marginality or subordination."

Finally, there is the question "How?" Even when the role of literacy in development has been granted, there is the question of the nature of functionality of literacy—literacy for income generation or literacy for liberation? There is also the question of community-based literacy (ideological literacy) versus literacy initiatives on a national level (dominant literacy).[13] How, then, should literacy be delivered? One good answer: By every which way possible! It may be offered in small projects or in national programs or campaigns. First and foremost, people's interests should be served. It should be possible to reconcile national visions with community needs by reinventing national visions within local settings.

Objectives of ILY

The global and theoretical contexts of literacy sketched above should enable us to better understand the objectives of ILY as stated by UNESCO. These are: "(1) Increasing

action by the governments of member states afflicted by illiteracy; (2) increasing public awareness of the scope, nature and implications of illiteracy as well as of the means and conditions for combatting illiteracy, particularly through activities of governmental and non-governmental organizations, voluntary associations and community groups; (3) increasing popular participation, within and among countries, in efforts to combat illiteracy; (4) increasing cooperation and solidarity among member states in the struggle against illiteracy; (5) increasing cooperation within the United Nations System and, more generally, among all inter-governmental and non-governmental organizations in the struggle against illiteracy; and (6) using ILY for launching the plan of action for the eradication of illiteracy by the year 2000 and for addressing issues of critical importance to the progress of literacy such as reducing primary school drop-out and establishing post-literacy programmes to prevent relapse into illiteracy."[14]

Thus, the call goes out to governments of member states and to Non-Governmental Organizations (NGOs) in different countries and to all the affiliated agencies of the United Nations to build a network to create public awareness, to educate local leadership, to promote participation for action, and to establish infrastructures and institutions which can indeed create literacy for all by the year 2000.

Photo courtesy of German Foundation for International Development

Literacy Policies and Performance Around the World: In Retrospect

As theoreticians were debating literacy, a group of educators and development elite were exhorting policy makers and planners in various nations to undertake literacy work. Indeed, practicing educators and development workers have been taking actions: implementing campaigns, programs, and projects of literacy, and teaching adult men and women on factory floors, on farms, in classrooms, in mud huts, and under the trees. The story of literacy is incomplete, but most inspiring. While much remains to be done, much has been achieved. The march toward universal literacy today does seem inevitable.

The history of literacy began almost 5,000 years ago when writing was invented. However, for our purposes, the history of adult literacy promotion does not extend over more than fifty years and is congruent with the period of decolonization in the present century. Once again, the history of literacy in the last half-century can best be stated in terms of initiatives on behalf of literacy taken by UNESCO.

UNESCO's interest in literacy goes back to its very inception in 1946. In order to encourage member states to conduct literacy work among their people, UNESCO has promoted dialogue and discussion among policy makers dealing with development and education; trained planners and practitioners for literacy work; established demonstration projects of "literacy for development" around the world; and conducted reviews and evaluations to systematize experience and sustain commitments for future work. By so doing, UNESCO has been the world's conscience and flag bearer on behalf of literacy.

The four world conferences of adult education convened by UNESCO in Elsinore, Denmark, in 1949, Montreal, Canada, in 1960, Tokyo, Japan, in 1972, and Paris, France, in 1985 provide the milestones on the road of literacy promotion in the postwar years.[15] At the Elsinore conference in 1949, adult literacy was seen as a part of adult education. Conference participants declared that "in areas where education is backward there is no need to wait until people can read before embarking on an effective programme of adult education. While literacy is not indispensable, it does enable people to become independent students capable of educating themselves. It allows them to widen and deepen their knowledge and to share in the great cultural improvements which are disseminated through written texts."[16]

In the years that followed, UNESCO moved toward a position of *indispensability and immediacy* of literacy in education and development. At the Montreal conference in 1960, UNESCO was already talking of eradication of illiteracy from the world through "a resolute, comprehensive

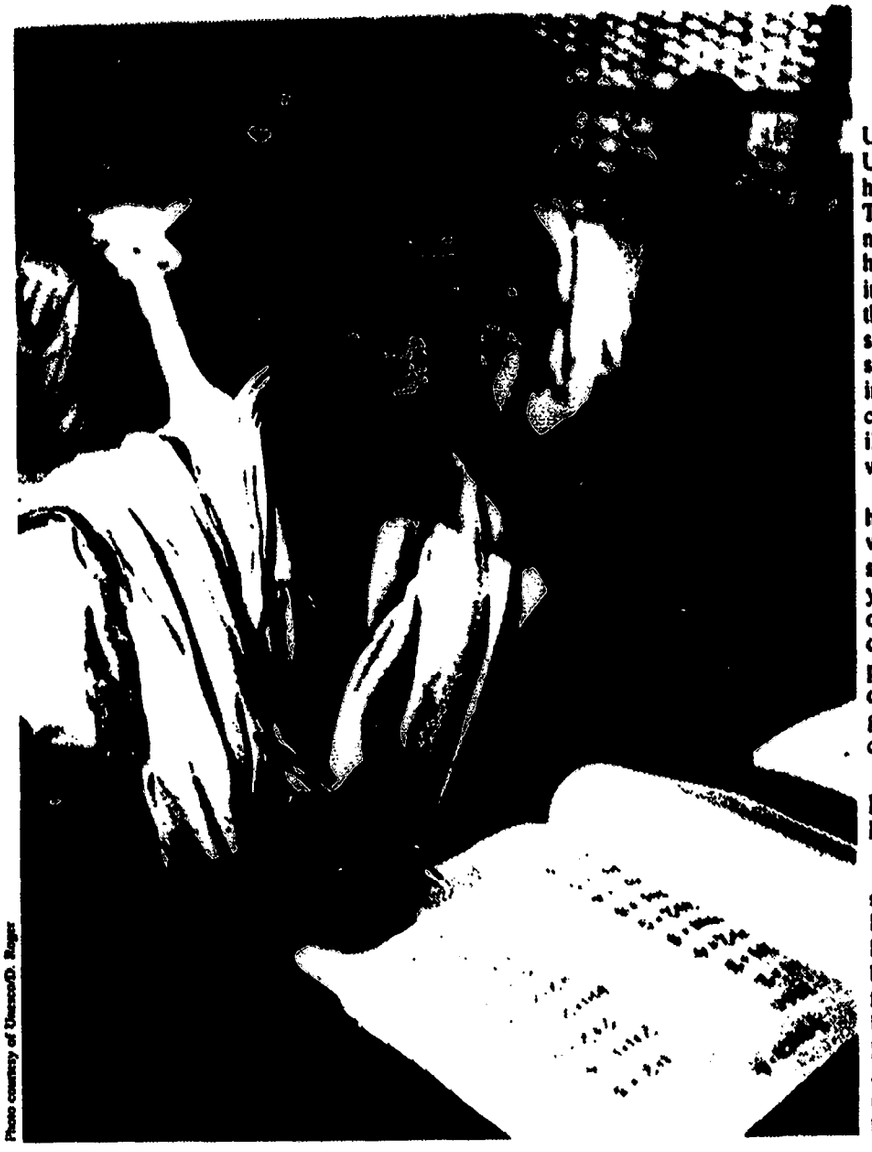

Photo courtesy of Unesco/D. Roger

and soundly planned campaign" drawing on a special fund for literacy which UNESCO invited the rich countries to create as an act of wisdom, justice, and generosity.[17]

UNESCO did not get a fund for literacy or an international campaign. What it got was an experimental functional literacy program comprised of work-oriented adult literacy pilot projects in eleven countries.[18] By the time the conference in Tokyo had been convened in 1972, there was already dissatisfaction with the narrowly conceived functional literacy program emanating from Teheran. At the Tokyo conference, UNESCO asked that members eliminate illiteracy as a priority problem as they "launch wide-scale campaigns" based on functionality that "reconciles the interests of the individual with those of society" and "integrates economic development, personal fulfillment and social progress."[19]

A critical assessment of the experimental functional literacy program and the Persepolis conference changed the meaning of functionality forever.[20,21] At the last of the four UNESCO conferences in Paris in 1985, literacy was an urgent priority: "There was no waiting in relation to the removal of functional illiteracy, being an inability to master the skills and means needed to take one's place in working, social, and family life and to participate actively in the life of society, despite the cultural legacy bequeathed by tradition and experience." Functional literacy became a civilizational concept that covered the economic, technological, social, and cultural life of the adult. The illiterate was to learn to read the word and the world. The effort for the eradication of illiteracy had to involve methods commensurate with the size of the task. That meant literacy by campaign and, yet, reflecting special needs of communities. The deaoline was to be the year 2000.[22]

Member states have responded to UNESCO's moral leadership. Universalization of primary education has already become standard policy. There have been a large number of national adult literacy campaigns that have resulted in significant reductions in illiteracy in many countries. Some of these campaigns have been spectacular successes.[23] There is hardly a member state today that does not show interest in literacy promotion. Industrialized countries have also rediscovered illiteracy and are doing considerable work.[24]

UNESCO concludes: "The second half of the twentieth century has witnessed marked progress in the struggle against illiteracy. In the 35 years between 1950 and 1985, the rate of illiteracy in the adult population has declined from an estimated 44.3 percent to 27.7 percent—and this despite unprecedented population growth. This is the proof that illiteracy can be vanquished."[25]

Literacy Plans and Their Possibilities: In Prospect

What are the prospects for the success of ILY and for universal literacy by the year 2000? Prospects do look good. There is a momentum building. The initiatives are coming to focus worldwide as is evidenced by the United Nations' proclamation of the ILY, with UNESCO as the lead agency, and UNESCO's ideal to lead the world to the eradication of illiteracy by the year 2000. The idealism is being put into operation. UNESCO has established a special secretariat for ILY and is preparing operational plans and strategies that member states could adapt to their own needs and circumstances.[26] To commit nations to global literacy, UNESCO is planning to convene in 1990 the Second World Congress of Ministers of Education on the Eradication of Illiteracy by the Year 2000. There is integration among the agencies affiliated with the United Nations as the World Health Organization plans to integrate literacy with worldwide education for AIDS. The International Council for Adult Education (ICAE), Toronto, Canada, has taken the initiative to mobilize the total sector of NGOs in a network of planning, resource sharing, and action, and has established an International Task Force for Literacy.[27]

The leadership of the developing countries where most of the illiterate live has understood that neither modernization nor democratization is possible without literacy. Media cannot

substitute for literacy. Bypassing literacy through technology is a pipe dream. Developing nations have learned these lessons not only from theoretical discussion but through conducting education and extension at the field lev and experiencing frustration and failure of schemes built on oracy and media.

Are enough resources available? Resources are, of course, both absolute and relative. At the barest essential level, one can teach literacy to another with no more than a stick to scratch words on the ground. Relative resources are few but can be reallocated. Finally, with the recent thaw in East-West relations, there may be some dividends of peace. Today the world spends a staggering $2.75 billion each day on weapons; this money could work wonders if invested in literacy and development.[28]

The world's intellectuals need to throw their weight on the side of literacy. The "dispossession of speech" and "denial of narration" supposedly brought about by literacy make colorful language and may even be significant social-scientific insights, but they are misunderstood by many. They are read as invitations to do no literacy work of any kind. They are not read as invitations to do sensitive literacy work on people's behalf. They are used to rationalize the existence of a world divided in two—a world of the literate and a world of the illiterate, separate and unequal. University academics particularly should help in the role of theoretical clarification and research on implementation, without wanting to stop the world so that they can first have dependable figures, absolute definitions, and positive truth about consequences of literacy.

New Year's Day 2001: Some Concluding Remarks

If the ILY rallies international support, if governments and voluntary associations mobilize their will as well as their resources, and if integrated literacy campaigns, programs, and community-based projects are planned and successfully implemented, will we have eradicated illiteracy once and for all from the face of the earth by New Year's Day 2001? Nothing could be more naive than a scenario such as this!

Literacy and illiteracy are processes that live in the people, and as long as there are people in this world, there will be literacy work to do. There will be some illiterates yet to contend with who would not have been served in spite of the best intentions of literacy workers. There will be semi-literates and insufficiently literate. There will be youth and adults who would want to go from their basic literacy levels to functional levels of literacy. New functions will have emerged both in the developed and the developing world requiring new functional literacies.

We should consider ILY and the literacy decade to have been successful if almost all of the world's illiterate will have participated, with adequate success, in literacy programs relevant to their lives, both in individual and social terms, thereby removing the paper curtain separating them from the culture of print. We should be able to claim success if all those crossing the threshold of "symbolic transformations in the print code" will, with confidence and competence, begin to use literacy in all their transactions with their environment, moving freely between their inner and outer frontiers. Finally, success could be claimed if the barely literate and the highly literate, each on his or her own, will have invented their own special models of oracy *and* literacy to fit their particular language codes, their different channels, and their special roles.[29]

1. International Council for Adult Education, Toronto, Canada, "1990 Declared International Year of Literacy," *ICAE News*, Double Issue 4 (1987) and (1988): 21.

2 UNESCO Office of Statistics, *The Current Literacy Situation in the World* (Paris: UNESCO, July 1985).

3. The argument "Why?, When? and How?" in this section is built on H.S. Bhola, "Why Literacy Can't Wait: Issues for the 1980s," *Convergence* 14 (1981): 6-23; idem, "A Policy Analysis of Adult Literacy Promotion in the Third World," *International Review of Education* 30 (1984): 249-264; and idem, "Destined for Literacy," *educational HORIZONS* (Fall 1987): 9-12. Additional references are provided wherever necessary

4 Neil Postman, "The Politics of Reading," *Harvard Educational Review* (May 1970): 244-252.

5. E. Verne, "Literacy and Industrialization: The Dispossession of Speech," in Leon Bataille (ed.), *A Turning Point for Literacy: Proceedings of the International Symposium for Literacy, Persepolis, Iran* (Oxford, U.K.: Pergamon Press, 1976).

6 Hans Magnus Enzensberger, "In Praise of the Illiterate," *Adult Education and Development* (March 1987): 96-105

7 The concept of mythologics is borrowed from David E. Apter, *Rethinking Development: Modernization, Dependency, and Postmodern Politics* (Beverly Hills: Sage, 1987). Apter also shows the connection between democracy and access to information which is clearly limited without literacy

8 Jack Goody, ed., *Literacy in Traditional Societies* (Cambridge, MA: Cambridge University Press, 1968).

9 Sylvia Scribner and Michael Cole, *The Psychology of Literacy* (Cambridge, MA: The Harvard University Press, 1981)

10. Charles J. Lumsden and Edward O. Wilson, *Genes, Mind and Culture: The Coevolutionary Process* (Cambridge, MA: The Harvard University Press, 1981).

11. D.H. Hymes, "Preface," *The Future of Literacy in a Changing World*, Daniel Wagner, ed. (New York: Pergamon Press, 1987).

12. Ibid.

13. Brian V. Street, *Literacy in Theory and Practice* (Cambridge, MA: Cambridge University Press, 1984).

14. UNESCO, *Report of the Director-General on the Draft Programme for International Literacy Year and the Results of the Work Carried out for its Preparation*, Item. 16.7 of the provisional agenda for General Conference Twenty-fourth Session, Paris, 1987, 24, C/67 (Paris: UNESCO, September 1987), p. 13.

15. H.S. Bhola, *World Trends and Issues in Adult Education* (Geneva, Switzerland: UNESCO International Bureau of Education, in press).

16. *Summary Report of the International Conference on Adult Education, Elsinore, Denmark, 19-25 June 1949* (Paris: UNESCO, 1949), p. 15.

17. *Second World Conference on Adult Education, Montreal, Canada, 22-31 August 1960* (Paris: UNESCO, 1963).

18. *World Conference of Ministers of Education on the Eradication of Illiteracy, Teheran, 8-19 September 1965. Final Report* (Paris: UNESCO, 1965).

19. *Third International Conference on Adult Education Convened by UNESCO, Tokyo, Japan, 25 July-7 August 1972. Final Report* (Paris: UNESCO, 1972).

20. *The Experimental World Literacy Programme: A Critical Assessment* (Paris: UNESCO, 1976).

21. Leon Bataille, ed., *A Turning Point for Literacy*.

22. *Fourth International Conference on Adult Education, Paris, 19-22 March 1985. Final Report* (Paris: UNESCO, 1985).

23. See, for example, H.S. Bhola, with Josef Mueller and Piet Dijkstra, *The Promise of Literacy Campaigns, Programs and Projects* (Baden-Baden, FRG: Nomos Verlagsgesellschaft, 1983). Also, H.S. Bhola, *Campaigning for Literacy: Eight National Experiences of the Twentieth Century, with a Memorandum to Decision-Makers* (Paris: UNESCO, 1984).

24. Leslie J. Limage, "Adult Literacy Policy in Industrialized Countries," in *National Literacy Campaigns: Historical and Comparative Perspectives*, Robert F. Arnove and Harvey J. Graff, eds. (New York: Plenum Press, 1987).

25. UNESCO, *Report of the Director-General on the Draft Programme for International Literacy Year*.

26. *International Literacy Year: A Practical Guide to Some Possible Activities for Non-Governmental Organizations, UNESCO Clubs, Associated Schools, and Other Interested Groups*, First Draft (Paris: UNESCO, July 1987).

27. *International Literacy Year: Beginning to Act. Report of the First Meeting of the International Task Force on Literacy* (Toronto, Canada: International Council for Adult Education, 1987). Also, *Second Meeting of the International Task Force on Literacy, 5-10 June 1988, Berlin (West), Project Description* (Bonn, FRG: German Foundation for International Development, 1988).

28. Paul Horvitz, "Time to Wake Up and Join the Dream," *International Herald Tribune* (10 June 1988)

29 D H Hymes, "Preface "

From Reading Research Quarterly, vol. 22, no. 1, Winter 1987, pp. 8-46. Reprinted with permission of Lawrence C. Stedman and the International Reading Association.

Literacy and reading performance in the United States, from 1880 to the present

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THE AUTHORS review literacy and reading achievement trends over the past century and place current debates in a historical perspective. Although then-and-now studies are methodologically weak, they suggest that students' reading performance at a given age remained stable until the 1970s. The test score decline that then occurred was not as great as many educators think, and much of it can be explained by the changing demographics of test-takers. The decline pales when compared to the tremendous increase in the population's educational attainment over the past 40 years. However, the strategy of ever-increasing schooling to meet ever-increasing literacy demands may have run its course. High school dropout rates are increasing, and educational attainment has leveled off. Researchers have identified substantial mismatches between workers' skills and job demands, and between job and school literacy skills. In spite of their flaws, functional literacy tests suggest that 20 percent of the adult population, or 30 million people, have serious difficulties with common reading tasks. Upgrading literacy skills now requires new initiatives by coalitions of educators, community groups, employers, and government agencies.

Le degré d'alphabétisation et les performances en lecture aux Etats-Unis, de 1880 à nos jours

LES AUTEURS couvrent les tendances observées en alphabétisation et pour les performances en lecture pour le siècle dernier et situent les débats actuels dans une perspective historique. Bien que les recherches d'hier et d'aujourd'hui soient plutôt faibles du point de vue méthodologique, elles suggèrent que la performance en lecture est demeurée constante jusque dans les années '70. La baisse des résultats aux tests qu'on a alors observée n'était pas aussi importante que l'ont cru plusieurs enseignants et on peut l'attribuer pour une grande part aux changements démographiques chez ceux à qui était administré le test. Cette baisse perd de son importance si on la compare à la hausse exceptionnelle du niveau de réussite scolaire de la population au cours des quarante dernières années. Toutefois, la stratégie de scolarisation sans cesse croissante pour rencontrer la demande sans cesse croissante d'alphabétisation a pu suivre son cours. Les taux d'abandon au secondaire augmentent et le taux de réussite scolaire s'est stabilisé. Les chercheurs ont identifié de très mauvaises associations entre les qualifications des travailleurs et les exigences de l'emploi, de même qu'entre l'emploi et les habiletés de lecture et d'écriture enseignées dans les écoles. Malgré leurs imperfections, les tests fonctionnels de lecture et d'écriture suggèrent que 20 pour cent de la population adulte, soit trente millions de personnes, éprouvent de sérieuses difficultés avec des simples exercices de lecture. La revalorisation des capacités de lecture et d'écriture exige dorénavant de nouvelles initiatives par les coalitions entre enseignants, groupes sociaux, employeurs et agences gouvernementales.

Alfabetismo y desempeño de lectura en los Estados Unidos desde 1880 hasta el presente

LOS AUTORES revisaron los logros en alfabetismo y lectura en el último siglo y sitúan a los debates actuales en una perspectiva histórica. A pesar de que los estudios de ayer comparado con hoy día son metodológicamente débiles, sugieren que el desempeño de lectura permaneció estable hasta los 1970s. La baja de los resultados en las pruebas que entonces ocurrió no fue tan grave como muchos educadores pensaron, y mucho de esto puede ser explicado por el cambio en la demografía de los sujetos que tomaron estas pruebas. Este declive palidece cuando se compara con el tremendo aumento en el alcance educativo de la población en los últimos cuarenta años. De cualquier manera, la estrategia de una carrera constante por aumentar la escolaridad para cubrir la siempre creciente demanda de alfabetismo puede haber finalizado. Los niveles de estudiantes que abandonan la escuela media han ido en aumento, y el logro educativo ha llegado a su nivel de estabilidad. Los investigadores han identificado desbalances substanciales entre los trabajos y las habilidades adquiridas en la escuela. A pesar de sus fallas, las pruebas de alfabetismo funcional sugieren que el 20 por ciento de la poblacion adulta, o 30 millones de personas, tienen serias dificultades con tareas comunes de lectura. Mejorar las habilidades para alfabetizar requiere ahora nuevas iniciativas de parte de coaliciones de educadores, grupos comunitarios, patrones y agencias gubernamentales.

Buchwissen und Lese-Leistung in den Vereinigten Staaten von 1880 bis zur Gegenwart

DIE AUTOREN blicken zurück auf Buchwissen- und Leseleistungs-Richtungen während des verflossenen Jahrhunderts und setzen aktuelle Diskussionen in eine historische Perspektive. Obwohl Heute-und-damals-Studien methodologisch schwach sind, zeigen sie auf, daß die Lesefähigkeit beständig verblieb bis in die 1970iger Jahre. Die Prüfungsergebnis-Verschlechterung, die sich zu diesem Zeitpunkt einstellte, war jedoch nicht so arg, wie manche Erzieher annahmen, und zumindest zum Teil ist sie durch die wechselnde Bevölkerungsstatistik der Prüfer zu erklären. Die Verschlechterung tritt zurück, wenn man sie im Verhältnis sieht zu dem gewaltigen Fortschritt im Bildungsstand der Bevölkerung im Laufe der letzten vierzig Jahre. Nichtsdestoweniger ist wohl die Maß nahme, stets wachsendes Buchwissen-Bedürfnis mit stets wachsender Schulbildung zu begegnen, in etwa überholt. Immer mehr Mittelschüler verlassen vorzeitig die Schule, und die erzieherische Leistung ist nicht mehr zu steigern. Nachforschungen haben festgelegt, daß zwischen Arbeitskönnen und Arbeitsnachfrage, ebenso wie zwischen Arbeit und Schulwissen, ein ungleiches Verhältnis besteht. Amtliche Tests haben, obwohl sie fehlerhaft sind, festgelegt, daß 20 Prozent der Erwachsenen-Bevölkerung, also 30 Millionen Menschen, große Schwierigkeiten haben mit ganz gewöhnlichen Lese-Aufgaben. Um Buchwissen in unserer Zeit zu fördern, werden neue Initiativen gesucht, z.B. durch Zusammenschliessen von Erziehern, Gemeinschaftsgruppen, Angestellten und behördlichen Aemtern.

On September 21, 1982, Congressman Paul Simon of Illinois opened a congressional hearing on literacy by declaring that "10 to 25 million Americans are unable to read and write." Furthermore, he reported that "an additional 35 million Americans can read only at the fifth-grade level" (U.S. Congress, House, 1984, p. 1). Concurring, Secretary of Education Terrel Bell testified that "in 1975, you have 63 million Americans that aren't proficient in meeting the educational requirements of everyday adult life" (p. 5). By 1982, he noted, this had risen to 72 million, which amounted to half of the adult population.

The public and many scholars have blamed the schools, arguing that test scores have been in decline for nearly 20 years, writing skills have atrophied, and permissive schooling and

electronic media have dulled the reading abilities of our nation's youth. After reviewing the evidence, the President's National Commission on Excellence in Education concluded in 1983 that the very security of the nation was "at risk." In March 1986, Senator Edward Zorinsky charged that "the schools are creating illiterates" and concluded, "we cannot leave reform up to the educators" (U.S. Congress, House, 1986, p. 3).

Findings by other experts suggest that these claims may have been wildly exaggerated. According to the U.S. Bureau of the Census (1982), for example, in 1979 less than one percent of the population reported themselves illiterate. In a reexamination of functional literacy studies for the National Institute of Education, Fisher concluded that "few if any functional illiterates were actually awarded high school diplomas" (1978, p. 7).[1] Some scholars emphasize that educational attainment has risen steadily during this century in response to the rising literacy demands of a highly technological, information-laden society (Bormuth, 1978; Resnick & Resnick, 1977). Research by Farr and colleagues seems to confirm that each succeeding generation has been better educated than the last. After administering the same tests that had been given in the 1940s, they found that Indiana students in 1976 outperformed those of 1944-1945 (Farr, Fay, & Negley, 1978). A comprehensive review of then-and-now studies (Farr, Tuinman, & Rowls, 1974) also suggests that students' reading skills have improved over the course of the century. The authors comment that "anyone who says that *he knows* that literacy is decreasing is . . . at best unscholarly and at worst dishonest" (p. 140).

What is an interested nonexpert to believe? Is illiteracy a serious problem or a relatively minor one? Are the trends up or down? Are the people with the apocalyptic visions and the rose-colored glasses looking at the same information differently, or is each commentator mustering the data selectively?

The purpose of this review is to set recent debates on adult literacy and school reading performance in the longer-range perspective of the past hundred years. Writers engaged in policy debates rarely project literacy trends back more than 20 years. Some imply that before the test-score decline of the 1960s and 1970s there was a golden age of literacy, a high plateau of impressive test scores, rigorous standards, and old-fashioned academic schooling. Most have focused on an alleged decline of standards in the rebellious 1960s and the supposed deleterious effects of television.

Historians, on the other hand, have been little help in providing perspective on this issue. Although much recent and exciting work has been done on the history of literacy, the story is rarely brought into the twentieth century. The focal points have been the advent of printing in sixteenth-century Europe and the expansion of literacy in late eighteenth- and nineteenth-century industrial societies, including the United States (see, e.g., Eisenstein, 1980; Soltow & Stevens, 1981). For the twentieth century, only a few summary articles exist on U.S. literacy trends, based either on U.S. Census reports or reading achievement scores (Farr, Tuinman, & Rowls, 1974; Folger & Nam, 1967; Selden, 1978). This article is therefore a first step toward a comprehensive history of literacy in the United States since 1880, as well as a perspective on the contemporary test score debate (see also Kaestle, 1985). For the entire period, we take a hard look at the quality of the data and the arguments of previous scholars. Many of the available data are unreliable, unrepresentative, or noncomparable over time. The attempt to determine trends is therefore perilous. Much skepticism is in order.

The distinction between a literate person and an illiterate person sounds simple. It is not. Literacy is not a single skill, but a set of skills that people have to varying degrees. Some people can read well in one context but not in another. Literacy is thus elusive, complex. Its study requires careful definitions. Because in this article we are reviewing previous measurement efforts, we are to some degree prisoners of previous definitions. But we can clarify literacy trends by categorizing earlier measurement efforts under different concepts of literacy.

First we distinguish between literacy skills as taught and measured in schools (usually

called "reading achievement") and literacy skills as practiced outside of schools (usually called "functional literacy"). The relationship between these sets of skills is unclear. Some commentators assume that there is an obvious, direct relationship: If the schools don't teach students how to read effectively, the students will not be able to read well as adults. Other writers, however, have argued that school literacy and out-of-school literacy are quite different. School reading is taught in a sequential curriculum. Children are tested frequently as they move up through a hierarchy of graded skills and content. At the lowest level, which we shall call *crude literacy*, the student learns to read and understand simple words already in his or her speaking vocabulary. At higher levels, the school reader learns not only more vocabulary and concepts but more complex inferential and interpretive skills. *Functional literacy* outside the school is less structured, less hierarchical (Guthrie & Kirsch, 1984; Heath, 1980; Mikulecky & Ehlinger, 1986; Olson, 1977). It involves a greater variety of materials and settings and is often used to accomplish practical tasks.

Still, there is much overlap between reading tasks required in school and reading tasks presented in everyday life. Thus, reading achievement has an important bearing on the functional literacy of adults. In this article we discuss both, and we use a spatial metaphor to organize the discussion. We treat the acquisition of initial literacy and subsequent grade-level achievement—the focus of the school—as the *vertical* dimension, and we treat the measurement of diverse reading tasks from everyday life—functional literacy—as the *horizontal* dimension. The metaphor is useful because the two dimensions penetrate each other: At any given grade-level ability of reading achievement, one can think of extending those skills horizontally out into non-school situations. Conversely, in any real-world setting, one can ask how demanding the reading tasks are, on a vertical scale.

In what follows we do not deal with racial, regional, sexual, social class, or national origin differences in literacy. As might be expected, blacks, other minorities, the poor, Southerners, and the foreign-born have been less literate on average than native-born, middle-class whites. Although in terms of crude literacy these gaps have narrowed substantially during the past century, some large gaps remain in the more complex skills. We decided to forego an analysis of literacy by groups, not because the differences are unimportant, but because the conceptual and measurement problems involved in rating anyone's literacy are so complicated that they demand first consideration. (For a discussion of black/white performance differences, see Stedman & Kaestle, 1986, p. 5 and Appendix A.)

The Entry Level: Crude Literacy

Attempts to study literacy rates in the United States began with the Census Bureau. In each decennial census from 1840 through 1930 and in sampling surveys since, individuals were asked whether they could read and write in any language. The Bureau generally classified as illiterate those who said they were "not able both to read and to write a simple message either in English or any other language" (U.S. Bureau of the Census, 1971, p. 5). The record shows a tremendous reduction in self-reported illiteracy over the past century. In 1870, 20 percent of the population reported themselves illiterate, whereas in 1979, only .6 percent did. Among youths aged 14 to 24, the self-reported illiteracy rate in 1979 was only .19 percent (U.S. Bureau of the Census, 1982b. p. 17). Self-reported illiteracy, then, has declined to very low percentages, although the absolute number of self-reported illiterates remains large—822,000 of those 14 or older (U.S. Bureau of the Census, 1982, p. 5).

What are we to make of the validity of this record? For over a hundred years, the Census Bureau never administered a literacy test. It relied upon having people describe their own literacy status, and never defined for them precisely what was meant by literacy (see Census instructions, Folger & Nam, 1967, pp. 249-

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252; U.S. Bureau of the Census, 1948, 1960, 1971, 1982b). This self-reporting is the fundamental weakness of the U.S. Census literacy data. As a 1919 *New York Times* editorial stated, "Nothing could be more inexact or humorous" (Editorial, p. 12, column 4). Writing for the Census Bureau, however, Folger and Nam (1967) cited two studies that purportedly demonstrated that a person's self-reporting mirrors his or her performance on literacy tests. They concluded that Census reports of literacy are "generally accurate" (p. 129, fn. 1). On the other hand, both studies were conducted in foreign countries, which raises questions of generalizability to the United States, and as Coles (1976) pointed out, one of the two studies actually demonstrated the inaccuracy of self-reporting (p. 51).

Part of the problem is deliberate misreporting. Illiterates have great difficulty admitting their inability to read and write. They have developed elaborate methods of concealment and will even hide their illiteracy from other illiterates (Freeman & Kassenbaum, 1956, pp. 372-373; Kozol, 1985). Given that reading levels and demands have increased greatly during this century, the stigma attached to illiteracy must also have increased, making it much more likely that false reporting would occur.

Nevertheless, findings from some recent tests of functional literacy suggest that outright, utter illiteracy is now very low (Stedman & Kaestle, 1986). Educational improvements of the past hundred years support this finding. There were major gains in educational attainment, extensive basic literacy training through New Deal agencies and the military, and expanded state and federal programs in adult basic education. These efforts have helped to eliminate much of the nation's illiteracy, as the Census record shows. But the number of self-reported illiterates is still high, and as we will discuss, millions of people still have trouble with simple reading tasks. So what are the trends in reading performance? Our information comes from then-and-now studies and standardized test score trends.

THE VERTICAL DIMENSION

Then-and-Now Studies

Then-and-now studies aim to satisfy our curiosity as to whether students today are performing better than students of yesterday. They involve giving a group of students the same test that was given to a comparable group of students years before. This is not a new idea; one of the first then-and-now studies was performed in 1906. Riley gave all ninth-grade students in Springfield, Massachusetts, the same tests that had been given in 1846. 1906 students did much better on these tests, which covered spelling, arithmetic, and geography (Farr, Tuinman, & Rowls, 1974).

Previous reviewers have used then-and-now studies as evidence for their claim that reading performance steadily improved from the early part of the century through the mid-1960s (Copperman, 1978, pp. 32-34; Farr, Tuinman, & Rowls, 1974). The historical record, however, is ambiguous. Of the 13 local then-and-now studies that have dealt with reading during this period, 7 did not show a clear-cut improvement. Of the 7, 2 showed declines, 3 found no difference, and 2 had mixed results (see Table 1). The 8 state and national then-and-now studies have provided more support, but 3 still showed no improvement (see Table 2). One had declines (Sligo), one showed mixed results (Tyler), and one lacked comparable data (our Yerkes-Gray comparison, Table 2).

Researchers have also used then-and-now studies to argue the seriousness of the test score decline of the late 1960s and 1970s. Some have claimed that, in spite of the decline, 1970s students were still doing as well as those of the 1940s and 1950s, whereas others have argued the decline was so great that 1970s students had fallen well behind. One study supported the more optimistic viewpoint (Farr, Fay, & Negley, 1978); two studies, the more pessimistic view (Elligett & Tocco, 1980; Eurich & Kraetsch, 1982).

Even if we take their results at face value, therefore, then-and-now studies provide weak evidence for sweeping claims about changes in national performance. More important, their execution has been so poor that conclusions about rises or declines are unwarranted. There have been several problems.

Not comparable. First, then-and-now studies have been riddled with problems of comparability. Because few researchers have investigated the social composition of their tested groups, we cannot rule out the possibility that the higher achievement of one group was due to a higher social class background. This problem has been particularly acute in local then-and-now studies, which have usually focused on reading achievement in only one city. With 10 to 20 years between testings, the chances that a city's social composition has changed have been great. In only two local studies have researchers ensured that the two groups had similar socioeconomic status, but both of these involved such small groups that generalizations were unjustified (Burke & Anderson and Finch & Gillenwater: see Table 1).

State studies, with one exception, spanned even more time than the local studies, from 20 to 32 years, yet none of the researchers have compared the performance of groups matched on social class. Given the population migrations and economic transformations during the century, this longer time span virtually ensured that a state's composition had changed. Farr, Fay, and Negley (1978), for example, found that from 1944 to 1976 Indiana's population had become more urban, workers held fewer laboring and more service jobs, adults were better educated, and the proportion of blacks and Hispanics had doubled (p. 81). Even national then-and-now studies may have involved noncomparable groups. Immigration could have increased the number of linguistic minority students, for example, which might have lowered scores. None of the researchers, however, checked the nativity or language statuses of the groups they compared.

Comparability has also been affected by changing educational policies. Fluctuations in institutionalization versus mainstreaming, for example, have periodically changed the number of mentally retarded and handicapped students in the schools, yet few researchers have accounted for the effects of such changes. As states have raised the legal school-leaving age, the proportion of teenagers attending and graduating from high school has steadily increased. The presumption has been that this increased the proportion of lower-achieving students, and thus made the maintenance of or increase in scores more impressive. On the other hand, dropping out of school used to be more acceptable, and many who did so were *not* low-achieving students. Rather, they left because they wanted to help support their families, join the military, or get jobs and be independent (Farr, Fay, & Negley, 1978). Researchers who have conducted high school then-and-now studies should have worried about the net effects of these patterns.

Not representative. The second major problem with then-and-now studies has been their failure to be nationally representative. Fridan, for example, studied one parochial elementary school in Indiana. Partlow studied schools in one Canadian city; Bradfield studied a fifth grade in a rural California town (Farr, Tuinman, & Rowls, 1974; see Table 1). Nor have the state studies been nationally representative, coming mostly from Midwestern rural or semirural states with few minorities and no major cities.

Even the national studies have not been completely representative. Bloom (1956), for example, gave the General Educational Development (GED) test to 1943 and 1955 high school seniors during their final two months. Given that the graduation rate among 17-year-olds in 1944 was only 43 percent, over half of the nation's students weren't included (U.S. Bureau of the Census, 1975, p. 379). Nor did Bloom sample technical, vocational, private, or black high schools (Bloom, 1956, p. 111). His report of a slight increase in achievement from 1943 to 1955 must be seen as applying to whites who attended public schools and who, because of family income or ability, were able to remain in school through their senior year. Elligett and Tocco (1980) and Gates (1961) derived national results using equating studies, but tested only

Table 2 Statewide and national then-and-now studies

Study	Then	Now	Grade	Location	Number of Students: Then	Number of Students: Now	Academic Areas	Results
Statewide								
Tyler (1930)	1924	1930	HS	OH	Selected High Schools	Same	Physics, Math, English	Mixed
In Witty & Coomer (1951)	1915	1947	HS	NY	Statewide	Same	NY Regents	+: 71% pass rate to 84%
Sligo, in Armbruster (1977)	1934	1954	HS	IA	Selected High Schools	Same	Algebra, General Science, English, History	–
In Farr, Tuinman, & Rawls (1974)	1940	1965	3-8	IA	38,000	Similar	Reading	+.2 to > 1 grade
Farr, Fay & Negley (1978)	1944	1976	6, 10	IN	Volunteer Schools 15,206 11,424	Stratified Sample 8,000 7,000	Reading (Average of Various Subtests)	6th: – 2 months 10th: – 2 Percentile pts After age adjustment: +8 months, +10 pts
Eurich & Kraetsch (1982)	1928	1978	College Freshmen	Univ. of MN	1,313 Freshmen 4,191 HS Seniors	865 Incoming Students	Paragraph Comprehension Subtest; Vocabulary, Reading Comprehension, Rate	
National								
Gates (1961)	1937	1957	1-6	Natl	107,000	31,000 EQ: 12 School Districts	Reading (Average of Various Subtests)	–.1 to –.3 grades; After age adjustment, 4th-6th: +4 to +6.7 months

Table 2 Statewide and national then-and-now studies (continued)

Tuddenham (1948)	1918	1943	Young Men	Natl	WWI Large Sample of White Recruits	WWII Representative Draftee Sample	Army Alpha		+.33 Percentile Pts.
Yerkes (1921), Gray (1956)	WWI	WWII	Young Men	Natl	Millions of Draftees	Millions of Draftees	Rejection Rates, Illiteracy, Years of Schooling		Noncomparable
Bloom (1956)	1943	1955	12	Natl	See Text	EQ	English Composition, Social Studies, Natural Science, Literature, Math		+2 to +8 Percentile Pts
Elligett & Tocco (1980)	1950s	1979	6	Pinellas Co., FL		18 6th-grade Classrooms EQ 1 School District	Reading		−5 to −10 months

Note. − = decrease, + = increase; EQ = Equating Study.

one school district and twelve school districts, respectively.

Despite these limitations, can we not estimate national trends by putting all these studies together? Unfortunately, for any given time period, there have been too few studies, and these have been too geographically scattered, to produce a nationally representative sample.

Skills other than reading. A third limitation of then-and-now studies, for our purposes, is that they have often measured skills other than reading comprehension. Although the final six local studies listed in Table 1 included grammar and spelling, their emphases were on subjects such as arithmetic and geography. The Indiana study (Farr, Fay, & Negley, 1978) included speed-reading tests, "comprehension" tests better described as short-term memory tests (students had to answer 10 questions in 2 minutes about reading passages they could no longer see), and sentence meaning tests that included questions testing prior knowledge or requiring a moral judgment. Among these questions were the following: "Is treason to one's country punishable by death?" "Is it necessary for the President of the United States to be a citizen?" "Does allegiance to one's country imply loyalty?" (Farr, Fay, & Negley, 1978, pp. 31, 35-36).[1] Such unusual tests make overall results from that study suspect. Tuddenham's (1948) comparisons of World War I and II draftees were based on the Army Alpha test, which also measured more than literacy skills. It included mathematical word problems, number pattern guessing, and questions testing general knowledge and common sense (Yoakum & Yerkes, 1920, pp. 16, 206). The test's cultural and class biases are apparent even to a casual reader (see Gould, 1981).

Age vs. grade. A fourth major problem in then-and-now research is whether to present results by age or by grade. We illustrate this problem by discussing one of the better known studies: Gates' (1961) renorming of his reading test comparing 1937 and 1957 students. A renorming or *equating study*, as it is better described, differs from a traditional then-and-now study in that two different tests are involved. In equating, a researcher administers both the old

and the new versions of a test to a group of present-day students. Their performance on the tests establishes a scale for converting scores from one test to the other. Using this scale, the researcher can convert the nation's average score on the current test to its equivalent score on the old one and then see whether it is higher or lower than the old national average.

Using such a procedure, Gates converted 1957 norms for Grades 3 through 8 to their 1937 equivalents. He found that the 1937 students outperformed those in 1957 by as much as 4.5 months, with larger margins the higher the grade. These results suggested that reading performance was better back in the 1930s. But Gates noted that students in 1937 were older at each grade level, due to stricter promotion policies. When he compared students of the same age, he found the 1957 students outperformed those of 1937. Gates argued that the proper comparison is by age, not grade, because a student's grade is an artifact of the time period's educational policies, particularly those relating to school-entering age and retention. We agree. By this standard, then, reading performance was better in 1957 than in 1937, at least for the elementary grades. But no sweeping conclusions should be reached. Even after age adjustments, first- and second-grade students showed no difference in performance, and third-grade students differed by only 1 to 1½ months. Furthermore, there could have been dips or peaks in the scores between the two testings, so any assertion of steady improvement was unwarranted. Finally, we have reservations, which we describe in a later section, about using equating studies to determine national trends.

Farr, Fay, & Negley (1978) also explored the age issue. They found that in Indiana, 6th- and 10th-grade students scored about the same in 1944 and 1976, yet their analysis of census data showed that the 1970 6th-grade students were 10 months younger and the 10th-graders 14 months younger than their 1940 counterparts. After adjusting scores for the age difference, Farr, Fay, and Negley concluded that reading performance was better in 1976. Their age adjustment, however, was arbitrary. Because 1976 6th-grade students were 10 months younger, they simply added 10 months to the students' scores. In making such an adjustment, they presumed that the 1976 students would have gained one extra month for every additional month in school. This was unlikely. Sixth-grade students in 1976 were already near the top of the performance spectrum, so such large improvements were probably not possible. Furthermore, the 6th-grade students scored above the 11th-grade level, which is so far out of the tested grade range that differences in scores lose their significance. Finally, on the one test that measured what most educators now think of as reading comprehension, the paragraph comprehension subtest, 10th-grade students in 1976 showed no gain even after Farr, Fay, and Negley made their age adjustment (p. 27). The best that can be concluded from this study is that Indiana students in the 1970s were probably scoring about the same as Indiana students did in the 1940s.

Conclusions about then-and-now studies. Given all of these difficulties, what can one conclude from then-and-now studies about reading trends? If one takes age into account, more of the tests show gains than declines, whereas many others show approximately equal performance rates. But few of the studies have been nationally representative. And the magnitude of the changes, up or down, has usually been half a school year or less, which is well within the margin of error caused by the problems we have described.

Our educated guess is that school children of the same age and socioeconomic status have been performing at similar levels throughout most of the twentieth century (we consider the 1970s in detail below). But we also caution that then-and-now studies are fraught with design and interpretation problems; relying upon them to support arguments about literacy trends is unjustified.

Achievement Test Score Trends

Six major reviews of test score trends were published in the mid- to late 1970s (Armbruster,

1977; Cleary & McCandless, 1976; Copperman, 1978, 1979; Farr, Tuinman, & Rowls, 1974; Harnischfeger & Wiley, 1975). Most of these reviewers concluded that reading performance had steadily improved during the course of the century, but that since the mid-1960s, for all grades above the third or fourth, it had been declining dramatically (Armbruster, 1977, p. 4; Copperman, 1978, p. 29). The declines were considered greater at higher grade levels (Armbruster, 1977, p. 40; Cleary & McCandless, 1976, p. 1; Copperman, 1978, p. 44, 49; Harnischfeger & Wiley, 1975, p. 115). There were two exceptions to these conclusions. Armbruster (1977) believed there had been drops in the early 1920s and 1940s as well as the steep decline after 1965. Farr, Tuinman, and Rowls (1974) suggested that the post-1965 decline was slight (p. 139).

The first claim of most of these reviewers, that of a steady improvement up to the mid-1960s, was based on uncritical acceptance of then-and-now studies, test renormings (equating studies) of the early 1960s, and state trends in achievement tests. As we have seen, the quality of the then-and-now studies was poor and cannot substantiate these reviewers' claim of a general rise in U.S. achievement.

Furthermore, Schrader's comprehensive study of the early 1960s renorming data provided only equivocal support for a mid-1950s to mid-1960s rise in achievement (1968). For Grades 5 through 8 he found there had been an increase of 8 percentile points. He noted, however, that the test publishers had excluded private schools in their 1950s testing, but included them in the 1960s. Given the selectivity and higher achievement of private schools, their inclusion may have accounted for as much as half of the apparent improvement (p. 22). At the high school level, Schrader found mixed results. On the School and College Ability Tests (SCAT), between 1957 and 1967, he found a 9 percentile point improvement, but private schools had again been added to the second norming group. By contrast, the renormings of the Preliminary Scholastic Aptitude Test (PSAT), 1960 and 1966, and the Iowa Tests of Educational Development, 1957 and 1962, which covered the same types of schools in both years, showed scores as remaining stable.

Finally, the reviewers' statewide data were too sketchy to have supported any firm conclusions. Copperman (1978), for example, cited only three states to demonstrate that achievement rose from the mid-1950s to the early 1960s. Idaho and New Hampshire provided data for only one grade, and most of West Virginia's data didn't begin until 1964 or 1965. Harnischfeger and Wiley (1975) cited references on only two states, Minnesota and Iowa, with only one grade apiece.

The case for a major decline beginning in the mid-1960s is also problematic. The handling of state data was particularly sloppy (see Stedman & Kaestle, 1986), and too much was made of the Scholastic Aptitude Test (SAT) decline. The most thorough analysis of the SAT decline found that compositional changes in test takers accounted for between two thirds and three quarters of the 1960s decline (College Entrance Examination Board, 1977). Because of expanded opportunities in the 1960s, more minority, low-ability, and low-income students were taking the SAT and going to college. Furthermore, tests with self-selected, changing compositions, such as the SAT, are not nationally representative. As Schrader (1968) noted, "High school seniors taking the Scholastic Aptitude Test are not representative either of high school seniors generally or of high school seniors planning to enter college" (p. 5).[3] Trends from college entrance testing programs, therefore, can tell us little about the average national trends in reading.

Finally, contrary to the impression created by most of the 1970s reviewers, there was a substantial amount of evidence that test scores remained stable or improved in the 1960s, particularly at the high school level. Although scores on the Comprehensive Tests of Basic Skills and the Stanford Achievement Tests showed declines (Copperman, 1978, p. 43; Harnischfeger & Wiley, 1975, pp. 58-59), the Iowa Tests of Educational Development, the SCAT tests, the Science Research Associates tests, and the Metropolitan Achievement Tests all showed general improvement from 1957 to

1971 (Cleary & McCandless, 1976; Harcourt Brace Jovanovich, 1971; Iowa Tests of Educational Development, 1971; Schrader, 1968). PSAT renorming scores were roughly stable from 1960 to 1974, and Project Talent data showed high school juniors had "slight gains" in reading comprehension from 1960 to 1970 (Breland, 1976; Flanagan, 1976, pp. 9-12). The evidence for a major decline during the 1960s is mixed at best.

In the period from 1970 to 1978, however, there was a dramatic downturn in junior high and high school scores on most major tests. The 1970 to 1978 renorming of the Sequential Tests of Educational Progress (STEP) showed 8th-grade students dropped 20 percentile points and 12th-grade students 13 points in reading (Educational Testing Service, n.d., p. 101). Seventh- through 12th-grade students' total reading scores on the Comprehensive Tests of Basic Skills dropped from one-third to a full year depending on the grade (CTB/McGraw-Hill, 1982a, p. 59ff; 1982b). Scores on the Iowa Tests of Educational Development for 10th- to 12th-grade students dropped in 1978 to slightly below 1962 levels (Science Research Associates, 1978). Yet, as we shall discuss, several important tests showed no declines during the 1970s, and much of the decline can be explained by changing demographics.

Since the late 1970s, scores have been rising on most tests, in most subjects, and for most grades.

The Magnitude and Causes of the Decline

A popular interpretation of the test score decline goes like this: In the face of the disruptions of the late 1960s, kids lost their motivation, and teachers lost their nerve. Schools across the country abandoned their academic standards, and the low standards undermined achievement. The recovery of the late 1970s, according to this interpretation, was the result of renewed standards. We have analyzed this argument in detail elsewhere (Stedman & Kaestle, 1985).

One problem we have found with this "permissive sixties" interpretation is that the timing is off. The height of the Vietnam-era protests was during the late 1960s, but the test score decline occurred between 1971 and 1978. The high school students who attained lower scores in the 1978 testings were in elementary school during the years of protest. By the time they reached high school in the middle to late 1970s, reform was in retreat, competency testing was spreading, and the open campus was closed. Perhaps some lag theory could explain this timing problem; if so, it has yet to be argued.

Furthermore, we question how widespread permissive education was. School critics argue that students stopped taking academic courses, but they have little solid evidence. The President's National Commission on Excellence (1983), for example, cited a study of high school transcripts as evidence that elective-taking had run wild, but the late 1960s sample involved only 27 high schools. A more recent study with nationally representative samples showed enrollments in academic subjects had actually increased, not decreased, during the 1970s (West, Diodato, & Sandberg, 1984). As for the open classroom movement, there is no evidence that it was ever very widespread (Holt, 1976, p. 140). Even if it had been, the test scores of elementary school children were rising during the 1970s, not declining (see, e.g., National Assessment of Educational Progress, 1981, 1985).

We also argue that critics exaggerated the magnitude of the decline. Five points can be made here. First, compositional changes in test-takers caused much of the decline, even in the 1970s. The College Board's panel estimated, for example, that such changes caused 20 to 30 percent of the 1970s SAT decline (College Entrance Examination Board, 1977, p. 18). Birth-order effects also contributed. On average, first- or second-born children outperform later-born children, so the trend toward larger families lowered SAT scores by perhaps another 4 to 9 percent (Zajonc & Bargh, 1980). Achievement scores were lowered even more by compositional changes: There were fewer dropouts in the early 1970s, immigration from low-scoring groups increased, families were bigger, and children at a given grade level were younger. In sum, compositional effects probably accounted

for between 24 and 40 percent of the 1970s decline in SAT scores, and for between 30 and 50 percent of the decline in achievement test scores.

Critics, however, have tended to assume that virtually all of the test score decline was caused by instructional failure (Brimelow, 1983; Copperman, 1979; Ravitch, 1985). Copperman (1979), for example, presumed that the skill decline began in the mid-1960s and continued steadily thereafter, thus ignoring a huge compositional effect. Instead of a drop to the 39th percentile as he claimed, the actual drop was only to the 44th or 46th percentile level. On tests that showed as much as a whole year's decline, the adjusted score might be half a year. The apparent decline must also be adjusted for possible changes during the 1970s in students' test-taking skills and motivation. What remains after subtracting such effects is the actual skill decline, but this should not be attributed solely to changes in the schools. Nonschool factors, including those that disrupted family life, such as the major recession of the 1970s and the rising divorce rate, probably contributed to this skill decline.

A second problem has been that critics have rarely related test score declines to actual changes in academic skills. What was the difference in skills between students who scored one-half a grade level lower than another, earlier group? What specific tasks could students no longer do? Standardized tests are imperfect measures of academic performance. Their validity is limited by many factors, including their multiple-choice format and the time pressures they impose on test-takers. They are constructed in such a way that small shifts in test performance produce large changes in percentile and grade-equivalent rankings. The decline thus sounds large when described in these terms, even though the actual performance drop could be quite small. On the Science Research Associates (SRA) tests, for example, 12th-grade students had dropped a whole grade level in reading between 1971 and 1978, but this was only from 72 to 68 percent correct, or a 4 percentage point drop. Mathematics declines were similar (Bode, 1981a, p. 33; 1981b, p. 4). Furthermore, these figures were unadjusted for compositional changes, so the actual skill decline among similar students was smaller yet. Several tests given by the National Assessment of Educational Progress (NAEP) showed only small drops in performance. Between 1970 and 1980, for example, in inferential reading comprehension, 17-year-olds went from 64 to 62 percent, a 2 percent drop; 13-year-olds went from 56.1 to 55.5 percent, or only a .6 percent drop (NAEP, 1981).

Another way of assessing the decline is to ask at what percentage of their former skill levels students in the 1970s were performing. On the NAEP tests, for example, students were performing at 97 percent of their former levels in inferential comprehension, 92 percent in mathematics. High school students who took the SRA tests were reading at about 95 percent of their former levels, according to our calculations from the above figures.

Third, some critics have decried the effects of the test score decline on our economy, imagining that poor academic performance has translated into losses in productivity. The authors of the *Nation at Risk* report (National Commission on Excellence in Education, 1983) argue that the skill decline threatens our very economic security as a nation. In fact, the statistical links between academic and economic performance are relatively weak: The correlation between achievement test scores and job proficiency has been estimated at only .25 (Olneck, 1984). Furthermore, workforce turnover is gradual: In the whole decade of the 1970s, perhaps one fourth of the workforce changed. This slow rate would have further diluted any economic impact of an educational decline. Economic productivity problems, particularly recent ones, lie largely outside the classroom.

Fourth, critics have not acknowledged that standardized test scores can be an unreliable measure of national trends. Trends are derived from the equating studies publishers perform when they introduce redesigned tests (generally, every 5 to 7 years). Current national performance is compared to the old by giving both the new and the old test to samples of contemporary

students. Problems with equating abound. Often two different groups are given the two different tests; sometimes only portions of the tests are administered. The equating samples are usually not nationally representative, involving only a few school districts or a fraction of the norming sample. Even some test publishers warn against the use of renorming data to infer national trends. The publishers of the Metropolitan Achievement Test have counseled that "such data are not appropriate for making generalizations concerning changes over time in relative achievement of American students in the basic skills areas" (The Psychological Corporation, 1978, p. 1). Publishers cite changes in the national samples of students and the changing relevance of test content as factors that confound generalizations (Harcourt Brace Jovanovich, 1983, pp. 1, 2).

Fifth, critics have paid little attention to the contradictory evidence of the 1970s. According to the National Assessment of Educational Progress, 13- and 17-year-old students maintained their reading scores, and 9-year-olds improved theirs, in the 1970, 1975, and 1980 testings (NAEP, 1981). NAEP results also show that 17-year-olds' overall writing skill remained the same between 1969 and 1979 (NAEP, 1982). A comparison of Metropolitan and Stanford Achievement Test results showed a 5- to 12-month gain in reading and math from 1973 to 1978 (The Psychological Corporation, 1978). Natural science scores on the American College Test (ACT) have remained stable over the past two decades (American College Test, 1985; College Entrance Examination Board, 1977, p. 21). More strikingly, scores on the College Board's achievement tests, taken by the same students whose SAT scores were declining, displayed improved scores in many subjects, including English composition, sciences, and foreign languages (College Entrance Examination Board, 1977, p. 22). The evidence for a massive, consistent skill decline, then, is much more mixed than the school critics have claimed, and the contradictory evidence is not easily explained.

We must also put the decline into its historical context. When interpreted in terms of the tremendous gains in educational attainment during the past several decades, the decline seems much less substantial. The median educational level of the adult population (25 years and older) rose 2 full years between 1960 and 1980, from 10.5 to 12.5. Between 1940 and 1980, the median level rose nearly 4 full years, from 8.6 to 12.5 (Grant & Eiden, 1982, Table 10, p. 16). A skill decline of half a year and only in certain subjects and on certain tests is minor compared to these tremendous gains in educational attainment.

In any case, the test score decline has now ended, according to most recent renormings of the major standardized tests. On the 1982 Stanford Achievement Tests, for example, 11th-grade students scored 4 percentile points higher in mathematics and 10 percentile points higher in reading than their 1973 counterparts (Harcourt Brace Jovanovich, 1983). Students in other grades have shown similar improvements. Scores on the Iowa Tests of Basic Skills rose dramatically between 1977 and 1984 (Hieronymus, 1985; Iowa Testing Program, n.d.). Preliminary analyses of the 1984 results, for example, indicate that composite scores are at an all-time high for most grades (Hieronymus, 1985). Scores have also leveled off or been rising since about 1978 on NAEP reading and math tests and on college entrance exams, such as the SAT and ACT (American College Test, 1985; College Entrance Examination Board, 1983; NAEP, 1979, 1981, 1985).

The achievement test score decline of the 1970s, then, was not as drastic as many believe and is best explained by a combination of factors, not simply by educators' failure of nerve and drop in standards. (For an interesting "cohort effect" explanation, see Koretz, 1986.) Yet, in spite of rising test scores, there is still a pressing need to improve the basic reading skills of many children and the critical reading skills of all students. We are concerned that the recent increases in test scores were partly brought about by "teaching-to-the-test." In many school systems, this practice has narrowed the curriculum and harmed the development of good reading skills (Cuban, 1983; Meier, 1981, 1984; Resnick & Resnick, 1985). Before educa-

tors compliment themselves on rising test scores, they must also examine how these reading skills—taught and measured in schools—translate into performance on tasks outside of school. Are the failure rates on real-world reading performance tests more alarming than those on school achievement tests? Have society's demands for literacy skills overwhelmed the schools' ability to produce readers who can be effective workers and citizens?

THE HORIZONTAL DIMENSION

Functional literacy outside the school has been estimated in four ways: by using school attainment as a proxy, by administering tests of applied reading skills, by comparing a population's reading grade level to that required to read common materials, and by investigating job literacy requirements. In describing these four approaches, we pay attention to how functional literacy has been defined and how accurately it has been measured. We are interested in answering two major questions: How extensive is functional illiteracy in the United States today, and how has this changed over time?

By *functional literacy* we mean the reading and writing skills necessary to understand and use the printed material one normally encounters in work, leisure, and citizenship. We distinguish functional literacy from *functional competency*, which also includes the problem-solving and mathematical skills needed to complete everyday societal tasks.

Educational Attainment as a Proxy for Functional Literacy

The Civilian Conservation Corps seems to have coined the term *functional literacy* in the 1930s (Folger & Nam, 1967, p. 126). They defined it as three or more years of schooling, reasoning that a person with that much schooling could read the essential printed material of daily life. The level of education considered necessary to be functionally literate has been steadily rising since then. During World War II, the Army used the term to refer to a fourth-grade educational level and, until manpower demands became overwhelming, rejected recruits who had less schooling (Ginzberg & Bray, 1953; U.S. Bureau of the Census, 1948). In 1947, the Census Bureau applied the term *functional illiterates* to those with fewer than five years of schooling and ceased asking their questions about crude literacy to those with more schooling (U.S. Bureau of the Census, 1948, p. 3). In 1952, the Bureau raised the functional literacy level to the sixth grade (U.S. Bureau of the Census, 1953, pp. 6, 9, 10). By 1960, the U.S. Office of Education was using eighth grade as the standard (Fisher, 1978, p. 38; Harman, 1970, pp. 226-243). Finally, by the late 1970s, some noted authorities were describing functional literacy in terms of high school completion (Carroll & Chall, 1975, p. 8; Hunter & Harman, 1979, p. 27).

For each of these successively steeper criteria, the assumption has been that people who reach a certain grade have acquired enough reading skills to function in society. This is a shaky generalization when applied to individual cases, but it seems reasonable to assume that a substantial increase in school attainment would raise the average reading ability of a population. And indeed, school attainment rates have risen continually. In 1910, for example, 23.8 percent of the population over 25 years old had completed fewer than five years of schooling, whereas in 1980, only 3.3 percent had (Folger & Nam, 1967, p. 133; Grant & Eiden, 1982, Table 10, p. 16). Among those aged 25 to 29 in 1980, the rate was only .7 percent, indicating that functional illiteracy by this 1910 standard has been virtually eliminated among the younger generation.

However, following the same grade-level standard over the course of the century makes little sense. The literacy skills demanded in 1980 are more complex than they were in 1910. If we accept the government's changing grade-level definitions of functional literacy, we discover that school attainment levels may not have risen fast enough to keep up with rising functional literacy demands. In 1930, about 88 percent of the adult population had a third-grade

education or more: in 1950, 88.9 percent had a fifth-grade education or more; but by 1960, only 78 percent had at least an eighth-grade education; and by 1980, only 68.7 percent had completed high school (Folger & Nam, 1967, p. 133; Grant & Eiden, 1982, Table 10, p. 16). If we use a more conservative standard for 1980—an eighth-grade education—functional literacy has increased slightly in the past 50 years—from 88 percent who had completed third grade in 1930 to 90.3 percent who had completed eighth grade in 1980.

There are three limitations to this approach to estimating functional literacy. First, the line between functional literacy and illiteracy is drawn somewhat arbitrarily, and authorities often do not justify their cutoffs. Second, drawing a line means establishing a dichotomy: A person is either functionally literate or illiterate. This makes little sense. A person who has completed eighth grade does not suddenly become able to function effectively in the society, whereas the person with only seven years of schooling is unable to cope. There are gradations in the ability to function, and a person's performance varies by setting and task. Finally, using educational attainment as a measure of functional literacy equates schooling with learning. Many people, however, perform well below grade level, so the number who are functionally illiterate may be considerably greater than the school attainment figures suggest. A proper assessment of functional literacy requires testing the population on functional literacy tasks.

Direct Tests of Functional Literacy

The pioneering effort in testing functional literacy was made by Guy Buswell at the University of Chicago in 1937. He tested 897 Chicago-area adult residents on tasks such as finding prices in a mail-order catalog and phone numbers in a directory. He found that their performance varied by education and reading habits. After Buswell's effort, no similar work was done until the 1970s, when five major studies were conducted (Adult Performance Level Project, 1977; Gadway & Wilson, 1976; Harris, 1970, 1971; Murphy, 1973). Investigators tested skills such as map-reading, dictionary use, deciphering help-wanted ads, using train schedules, and reading product labels. The functional illiteracy rates from these studies ranged from 3 percent to 54 percent and prompted a decade of debate about the magnitude of America's literacy problems. The variations were due to differences in what tasks were tested and where the functional literacy cutoff was set.

The seriousness of the functional illiteracy problem obviously depends upon which findings one accepts. Some critics have argued that the 1970s estimates were greatly exaggerated; others, that they were too low. Since then, two other national assessments have been conducted. The U.S. Department of Education (1986) has recently reported results of the 1982 study, and the National Assessment of Educational Progress (NAEP) has just completed an investigation of the literacy skills of young adults (Kirsch & Jungeblut, 1986). In what follows, we describe the tests and their results, explore the major criticisms, and review evidence concerning historical trends.

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Descriptions of the Functional Literacy Tests

The first study was conducted in 1970 by Harris and Associates for the National Reading Council, a group appointed by President Nixon (Harris, 1970). It was called the **Survival Literacy Study.** It tested the ability of those 16 years of age and older to read, understand, and fill out application forms. Of the five forms, one requested personal identification information, and the others were for a bank loan, a Social Security number, Medicaid, and a driver's license (see Table 3). The researchers established three criterion levels. Those who answered correctly less than 70 percent of the items, the "low survival" group, were considered functionally illiterate. Those who answered correctly 90 percent or more, the "likely survival" group, were considered functionally literate. In between were the "questionable survival" (70%-80% correct) and "marginal survival" (80%-90% correct) groups. The intermediate categories partially solved the problem of an arbitrary and dichotomous definition.

The Survival Literacy Study showed that, on average, 3 percent of the population were functionally illiterate on a given form—that is, scored below 70 percent correct. The percentages ranged from less than .5 percent on the public assistance form to 9 percent on the Medicaid form. In absolute numbers, this meant that 4.3 million people 16 years of age and older were functionally illiterate. Many more people didn't reach the functional literacy level of 90 percent correct. On average, 13 percent fell short of this level, for a total of 18.5 million people who were in the low, questionable, or marginal survival categories.

The second study, also conducted by Harris for the National Reading Council, was called the **National Reading Difficulty Index** (Harris, 1971) and was similar to the Survival Literacy Study. Researchers asked a national sample of people 16 years of age and older to fill out an application form derived from various official forms such as passport, driver's license, and credit card applications. Researchers also tested the populatic. 's ability to read three types of materials: telephone dialing and rate information, classified housing ads, and classified employment ads (see Table 4 for examples).

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After weighting the items for difficulty, researchers found that 4 percent of the sample answered correctly less than 80 percent of the test. They concluded that these people "suffer from serious deficiencies in functional reading ability" (p. 57). This amounted to 5.7 million people aged 16 years and over. Another 11 percent (15.5 million) scored below 90 percent correct,

and the researchers concluded that these individuals would need to make a "serious effort" to handle real-life reading situations.

The third study was conducted by the National Assessment of Educational Progress (NAEP) for the U.S. Office of Education's National Right-to-Read Effort (Gadway & Wilson, 1976). Their test, the **Mini-Assessment of Functional Literacy**, assessed the ability of 17-year-old students in 1971, 1974, and 1975 to read word passages, reference materials, and graphic materials, including charts, maps, pictures, coupons, and forms. Mini-Assessment researchers chose the 75 percent correct level as the functional literacy threshold. They found that 12.6 percent of the nation's 17-year-old students did not reach this level and thus considered these students functionally illiterate. In the spring of 1983, the President's National Commission on Excellence in Education used this 13 percent teenage illiteracy rate as one of its indicators that the future of the nation was at risk.

The **Adult Functional Reading Study**, the fourth test, was organized by the Educational Testing Service (Murphy, 1973, 1975b). It tested the ability of the population aged 16 and older to deal with advertisements, legal documents, instructions, and listings, such as telephone directories and train schedules. Rather than determining an illiteracy rate, researchers reported the average percentage correct on each item. They were leery of choosing an arbitrary criterion and recognized the widespread disagreement over what constitutes functional literacy (Murphy, 1975a, 1975b). Kirsch and Guthrie (1977-1978, p. 501), however, reanalyzed the Adult Functional Reading Study data for two groups of tasks. They found that the average "maintenance" item (such as a table of contents or a train schedule) was answered incorrectly by 18 percent of the population. An average of one out of four could not handle occupational items, which dealt with sick leave, discrimination information, and employment application.

The fifth study, the **Adult Performance Level Project** (APL, 1977) was conducted by researchers at the University of Texas under sponsorship of the U.S. Office of Education. It differed from the other studies in three major ways. First, it was a study of functional competency rather than functional literacy. Thus, it assessed writing, computation, and problem-solving as well as reading. Second, the test designers conceived of competency partly in terms of knowledge, and thus tested information as well as skills. Third, the test was deliberately designed to distinguish between those who were successful in the society—that is, those who had completed high school and were in white-collar or professional jobs—and those who were unsuccessful—those who had less than eight years of schooling, were unskilled or unemployed, and lived in poverty. Researchers used three competency groupings to report scores. Adult Performance Level 1 was the group of adults who were "by and large, 'functionally incompetent' "; those in APL 2 were described as "marginally competent"; and those in APL 3 were "most competent" (p. 17). Researchers reported that they had determined the proportion of the population in each category by using Bayesian analysis, but never gave the full details. They found that 19.7 percent of the adult population, ages 18 to 65, were in the APL 1 category and concluded that "approximately one-fifth of the U.S. adults are 'functionally incompetent' " (p. 18). This was about 23 million people (Northcutt, 1975, p. 48). An additional 33.9 percent of the adult population were in the APL 2 or marginally incompetent category. Considering both groups, one would estimate that 53.6 percent of the adult population have difficulty functioning—or, as Secretary Bell estimated for 1982, 72 million adults.

The sixth test of functional literacy, the **English Language Proficiency Survey**, was conducted in 1982 by the U.S. Bureau of the Census at the behest of the Department of Education (U.S. Department of Education, 1986). The test, administered to 3,400 persons 20 years of age or older, was designed to judge how well they could read official notices and applications for public assistance written in English. Twenty-six items were given in two formats. Eight multiple-choice items asked individuals to pick a synonym or an equivalent phrase for an underlined word or phrase. Eight-

een items required choosing the best word or phrase to complete a sentence (see Table 5). Using a cutoff of 20 correct answers for literacy, researchers found that 13 percent of the adult population were illiterate. The illiteracy rate for those whose native language was English was 9 percent, whereas for those with a non-English home language, it was 48 percent (Werner, 1986).

The seventh study, the **Young Adult Literacy Study**, was conducted by the National Assessment of Educational Progress (Kirsch & Jungeblut, 1986). Researchers tested the performance of English-speaking young adults, 21 to 25 years old, on three types of materials: prose materials of the sort found at home and at school, documents such as manuals and forms found at work or in civil life, and quantitative literacy materials such as menus and checkbooks, which can require both reading and mathematical skills. Researchers deliberately did not set a literacy cutoff or report an overall illiteracy rate. Using item response theory, they constructed proficiency scales for each type of material and reported the percentages of young adults at various points along each scale. They found that nearly all young adults, 95 percent or more, were proficient at the simplest tasks, those associated with the 200 level on each of the three scales. These tasks included locating information in a sports article (prose comprehension), entering personal information on job applications (document literacy), and totaling two entries on a bank deposit slip (quantitative literacy). Literacy proficiency falls off rapidly, however, as one goes up the scale. Forty-four percent of young adults failed to reach the 300 proficiency level, which was associated with the ability to locate information in an almanac, read a map, and balance a checkbook. Eighty percent failed to reach the 350 level, which was associated with proficiency at paraphrasing an editorial argument, reading a bus schedule, and determining a tip as a percentage of the bill. These findings indicate that although only a small percentage of people are utterly illiterate, literacy problems pervade the society.

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The Major Criticisms

The functional illiteracy rates computed in these studies (see Table 6) are generally much higher than the self-reported illiteracy rates of the U.S. Census or the functional illiteracy rates based on years of educational attainment. At first glance, they suggest that functional illiteracy is a major educational problem. However, serious criticisms have been leveled against these tests.

Selection of tasks. To begin with, several critics have questioned whether it is even possible to identify a set of tasks that could be called

Table 6 Functional illiteracy rates

Study	Year	Sample Ages	Tasks	Criteria	Lower Criterion	Higher Criterion
Survival Literacy	1970	16 +	Application Forms	70%, 90% correct	3 %	13%
Reading Difficulty Index	1971	16 +	Application Forms Telephone: Ads	80%, 90% of weighted items	4 %	15%
Mini-Assessment	1975	17	Everyday Reading	75% correct	12.6%	–
Adult Functional Reading	1973	16 +	Everyday Reading	None set	–	–
Adult Performance Level	1974	18-65	Functional Competency	APL 1, APL 1 & 2	19.7%	53.6%
English Language Proficiency	1982	20 +	Multiple Choice from Applications, Official Notices	20 of 26 correct	13 %	–
Young Adult Literacy	1985	21-25	Prose Comprehension, Documents, Quantitative, Oral Language	None set	–	–

Note. All studies were of nationally representative samples.

"functional literacy" or "functional competency." As Fisher (1978) wrote, "one must question the adequacy of a general assessment instrument." Functional literacy, he argued, is "relative to a given subpopulation. The literacy demands on one subpopulation may include only some of the demands on other subpopulations" (p. 57).[3] Acland (1976) made much the same point, arguing that the requisite skills vary with a person's social group, and thus it is impossible to identify a single set of tasks that can be used to test functional literacy.

Griffith and Cervero (1977) took this argument one step further, claiming that whatever tasks are included on the test reflect the "value-orientation" of the test designers. They compared the Adult Performance Level project to previous efforts in life-adjustment education, arguing that it was simply one more attempt to force the individual to adjust to mainstream values.

This line of argument overlooks the fact that some skills are generally needed. Acland talked about "rich people's problems" and "poor people's problems," as if map reading, schedule reading, and check writing are the province of the well-to-do and are not needed by the poor. Although some of the Adult Performance Level objectives were culturally and politically loaded (see Stedman & Kaestle, 1986), most of the items on this test, as on the other functional literacy tests, did not show any particular bias. For example, individuals were asked to address an envelope, follow directions on a medicine bottle, and determine change from a twenty dollar bill (APL, 1977, pp. 28, 22; Thompson, 1983, p. 480). It is hard to see what "value-orientation" was being advanced by these tasks.

With more merit, critics have questioned the basis for item selection on the Adult Performance Level test (Cervero, 1980; Fisher, 1978; Heller et al., cited in Fischer, Haney, & David, 1980). After creating a large pool of items that measured literacy and problem-solving competencies, APL designers eliminated those that did not favor people with advanced education and job status. But identifying the skills and knowledge associated with success is quite different from identifying the skills necessary for coping. The APL's selection method is

reminiscent of that of the World War I psychological testing program. The Army Alpha tests were field-tested on graduate students and officer training school candidates, and items that did not favor them were discarded. Later, the psychologists "proved" their tests' validity by showing that scores were highly correlated with education and income. In the same way, in their final report, APL researchers emphasized that functional incompetence varied with education and income, yet the test had been designed to produce these very results.

Still, the correlations between APL scores and socioeconomic indices are not very high, .31 to .56 (Cervero, 1980, p. 158), so the selection of items by social class was not that systematic. Because the original pool of items generally measured basic competencies, performance on specific APL items can still illuminate the nature and extent of functional competency.

Causes of poor performance. Using evidence from the Adult Functional Reading study, Fisher (1981) argued persuasively that poor performance on functional literacy tests was the result of breakdowns at one stage or another in information processing. We disagree, however, with his conclusion that the typical error was "more or less mechanical" (p. 443). Fisher's model described what we consider important elements of literacy, such as the ability to "encode passages," "identify target and locator propositions," and "derive search clues"; people who repeatedly make errors in such processing stages have functional reading problems. Young Adult Literacy researchers found that the difficulty of an item was related directly to its processing demands, such as the number of features to be matched (Kirsch & Jungeblut, 1986). After interviewing 100 students in adult learning centers who had taken the Adult Functional Reading tests, Murphy (1975a) found two basic causes of errors: students' unfamiliarity with everyday words and their difficulties with everyday formats (p. 14). These findings suggest that errors on functional literacy tests represent serious literacy deficits rather than lapses in routine, mechanical processing.

Critics have also attributed poor performance to fatigue and to poorly constructed test items (Caughran & Lindlof, 1972; Cervero, 1980, p. 168; Fischer, Haney, & David, 1980; Fisher, 1978). However, several tests were too short or too varied to have produced much fatigue. The Adult Functional Reading test, for example, consisted of only 17 questions and took less than half an hour to complete (Murphy, 1975b, pp. 5, 14). The Reading Difficulty Index test comprised one written application form and a series of short oral questions about telephone dialing instructions and newspaper ads. Furthermore, researchers had already accounted for errors due to fatigue or poorly constructed items by setting literacy cutoffs that were far short of perfect performance. On the Survival Literacy Study, for example, an individual could miss up to 30 percent of the test and still be labeled functionally literate. On the English Language Proficiency Survey, individuals could miss 6 out of 26 items.

Validity. Acland (1976) made perhaps the most significant criticism of the tests when he observed that, in real-life settings, people solve many of the problems posed by the tests by relying upon environmental cues and getting help from others. He presented several examples from the Adult Performance Level test to illustrate his point. Although 26 percent of the sample could not determine which of the three cereal products was the cheapest per unit weight, Acland noted that some supermarkets now provide unit pricing labels that make this skill unnecessary. Twenty-seven percent of the sample did not know the normal human body temperature, but as Acland pointed out, every thermometer clearly marks this point, making it unnecessary to remember this particular piece of information. Sixty-one percent had trouble determining the right tax from a tax table, but as Acland discovered from the Internal Revenue Service, only six percent of taxpayers make any kind of arithmetic error in their returns. The reason is that in real-life situations, people get assistance.

This line of reasoning is problematic, however, because all functional tasks could be solved if you got someone else to help you or to do them for you. Being functionally literate, however, implies self-reliance. Many supermarkets do not have unit pricing. Filling out forms

incorrectly the first time often causes delays and frustration. Getting help may work, but a person should not have to depend upon others to solve the basic tasks of daily living.

Fisher (1978) questioned the validity of the tests for another reason: A surprising number of professionals and managers were categorized as functional illiterates. The Reading Difficulty Index study, Fisher said, showed a 5 percent rate, the Adult Performance Level, 11 percent, and the Adult Functional Reading Study, 14 percent. Fisher argued that because professionals and managers have clearly succeeded, the tests must be mislabeling these people. However, the Reading Difficulty Index study actually showed only 2 percent of professionals and managers as functionally illiterate (Harris, 1971, pp. 52, 56), and the Adult Functional Reading Study never produced functional illiteracy rates. More importantly, people with such status may nevertheless lack functional literacy skills. The professional and managerial job classification includes many small-business proprietors and others who assumed positions in earlier decades and consequently may have little education (U.S. Department of Labor, Bureau of Labor Statistics, 1974). It also includes dancers, musicians, and professional athletes, some of whom may have trouble with everyday reading tasks. Furthermore, job literacy tasks can be quite different from those tasks that were tested, and many people who do their jobs competently might not be able to negotiate airline schedules, Medicaid applications, or miles-per-gallon calculations.

Cutoff scores. To report an illiteracy rate, each researcher sets a *cutoff*—the test score that separates the "functional literates" from the "illiterates." By choosing a higher or lower cutoff score, a researcher could arbitrarily control functional illiteracy rates. Yet, with one exception, researchers have failed to explain how they have chosen their cutoffs.

A look at the Mini-Assessment shows how much rates depended on cutoffs. Mini-Assessment researchers chose a 75 percent cutoff and, as a consequence, found that 12.6 percent of the nation's 17-year-old students were functional illiterates. Had they chosen instead a 60 percent cutoff, only 2.9 percent would have been found illiterate. Although they failed to justify their choice, one suspects that they would have judged a 60 percent cutoff as too low because the Mini-Assessment had been designed so that all students could answer all items correctly (Gadway & Wilson, 1976, p. vii).

Most of the cutoffs seem reasonable given that the tests involved simple tasks and that a large margin was provided for errors due to fatigue, carelessness, and poorly constructed items. For the English Language Proficiency Survey, researchers chose 20 correct answers out of 26 questions because it was the best discriminator between low- and high-risk groups (Department of Education, 1986). With this cutoff, the illiteracy rate for native speakers of English with college degrees was less than 1 percent, whereas for those with fewer than six years of schooling it was more than 50 percent (p. 2). Even the Adult Performance Level rates may be reasonable. Although researchers never reported a cutoff, the bottom quartile apparently scored below 70 percent correct (APL, 1977, Appendix B, p. BII). This bottom quartile corresponds roughly to the 20 percent of the population in APL 1.

The problem with cutoffs, of course, is that they impose an artificial boundary. They can create the impression that those who are labeled illiterate are entirely without skills when, in fact, they may be able to handle many literacy tasks. Ranking individuals on a single scale also can imply that literacy is one-dimensional, when it is best thought of as a rich set of skills which people process to varying degrees. For such reasons, some researchers have chosen not to report an overall functional illiteracy rate (Kirsch & Jungeblut, 1986; Murphy, 1973), whereas others have reported rates for intermediate categories, such as "marginally competent" (APL, 1977; Harris, 1970).

The most informative method of reporting results has been to publish score distributions showing the proportions of the population at various proficiency levels. This method clearly shows that many "functional illiterates" have many functional skills, and that others have few functional skills. In each task area on the Read-

ing Difficulty Index test, for example, many people got only one answer wrong, whereas others got only one right (see top portion of Table 7). The problems of these two groups differ, as does the remedial help that should be provided. In their sophisticated version of this method using item response theory, Young Adult Literacy researchers reported proficiency rates on different literacy scales. This had the advantage of showing that literacy is multidimensional and that performance varies with the type of literacy being considered.

Factors that Raise the Estimates

One can argue on several grounds that the reported rates actually underestimate the extent of functional illiteracy in U.S. society. The samples have not been completely representative. The Mini-Assessment involved only 17-year-old *students*. Given the fact that almost 20 percent of high school students drop out and that their average performance is worse than that of those who stay in school, we estimate that the Mini-Assessment's 12.6 percent overall functional illiteracy rate may need to be raised by around 4 percentage points (20% of the students who are dropouts x 20% estimated illiteracy rate for dropouts = 4 percent). Furthermore, non-English-speaking 17-year-old students were excluded, so the rate may be another percentage point higher (1.4 percent of persons aged 5 to 17 speak English not well or not at all, U.S. Bureau of the Census, 1982). This estimate would raise the Mini-Assessment illiteracy rate to about 18 percent. Similarly, results on the Survival Literacy Study and the Reading Difficulty Index Study would have to be raised 2 to 3 percentage points (Stedman & Kaestle, 1986).

Second, in some cases the tasks used on the tests were easier than those encountered in real life. Caughran and Lindlof (1972), for example, compared the Survival Literacy Study's Application for Public Assistance (Form IV) with the original government form upon which it was based. The Survival Literacy test form was easier in three important respects: The format had been simplified, it had fewer "difficult" words, and its readability level was Grade 5 to

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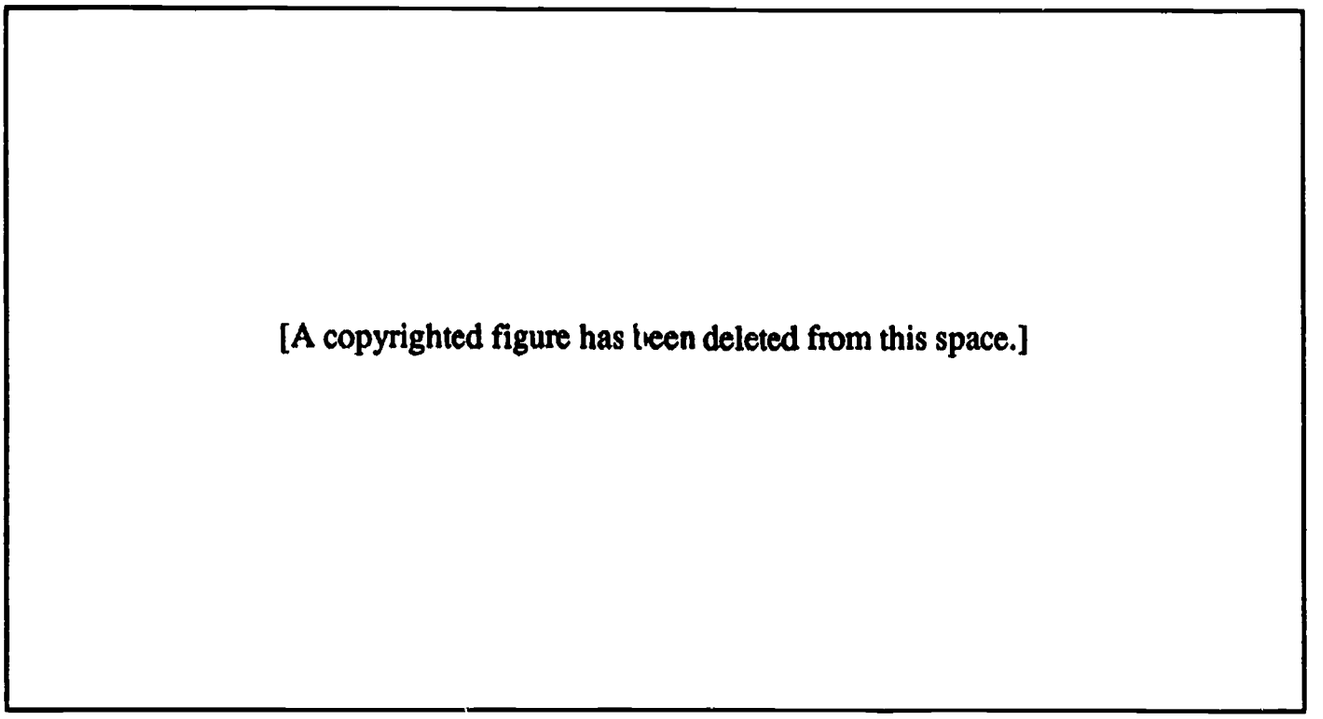


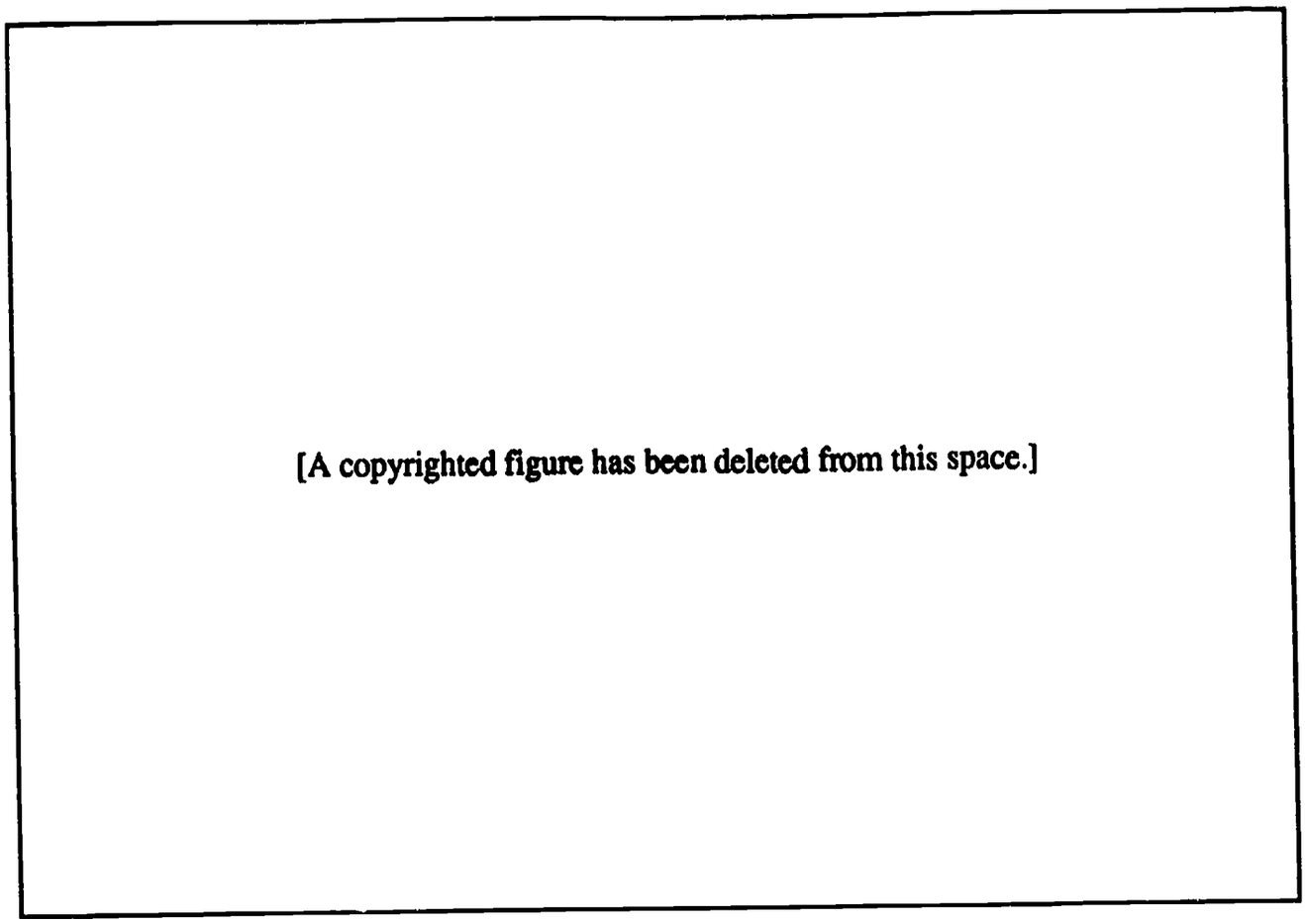
6, compared to Grade 7 to 8 for the original. If the other forms were similarly simplified, a percentage point or more would have to be added to its functional illiteracy estimates. If these changes are coupled with corrections for exclusion of non-English-speakers, the Survival Literacy results would increase from a 3 percent illiteracy rate to about 7 percent. For the Reading Difficulty Index Study, researchers simplified the housing and employment ads by removing the abbreviations typically found in newspaper classifieds. Thus its results, too, probably underestimated illiteracy rates.

Third, because only 17-year-olds were tested on the Mini-Assessment and only 21- to 25-year-olds on the Young Adult Literacy study, the results did not reflect the functional illiteracy rate of the general population. We can extrapolate them, however, based upon the results of the other surveys. In those, the general population had an illiteracy rate about 2 to 3 percentage points higher than that of 16- to 24-year-olds (Stedman & Kaestle, 1986). Thus for Mini-Assessment-type items, for example, we would estimate that about 21 percent of the population would be functionally illiterate (including adjustments for dropouts and foreign language speakers). This is remarkably similar to the 21.7 percent Adult Performance Level rate for functional incompetence in reading.

Understanding the Estimates

Looking at the population's performance on individual items provides a better understanding of the nature of functional illiteracy than arguing over summary estimates of how many people are illiterate. Item results are necessarily an approximation, however, because the tasks were not identical to their real-world counterparts and the testing populations underrepresented functional illiterates.

What are the functional tasks that most U.S. adults (age 16 and over) can handle? On the item depicted in Figure 1 from the Adult Functional Reading Study, only .1 percent of the subjects had difficulty recognizing the word *milk* on a bottle (Murphy, 1975b). From this result one may conclude that virtually all adults can recognize simple words encountered on familiar objects. On the Reading Difficulty Index test, only 2 percent of the subjects made more than one error in understanding telephone dialing instructions. Five percent of the population had similar trouble with housing ads (see Tables 4 and 7). According to these results, nearly everyone—95 percent to 98 percent—can read



simple advertisements and find area code information in a phone book. This still means that 3 to 7 million people have problems with very simple tasks.

The next set of tasks involved filling out application forms. Performance on the item depicted in Figure 2, an example from the Adult Functional Reading Study, suggests the depth of the problem. About 7 percent were unable to mark the spot where the name of their emergency contact should be entered (directions had been given orally). On the driver's license form of the Survival Literacy Study, 8 percent scored below 90 percent correct, yet the test asked only for simple information such as height, weight, name, and color of eyes (see Table 3). Scores on these items suggest that 5 to 8 percent of the population would have trouble filling out job, loan, and license applications.

About one seventh or 14 percent of adults could not handle map reading, addressing an envelope (the zip code was not required), or writing out a check properly (APL, 1977). Twenty-one percent could not follow directions on a medicine bottle which stated, "Take two pills twice a day," (APL, 1977, p. 22) or determine how often houses should be inspected for termites when presented with a government brochure that read, "Periodic inspections should be made at least every six months if you live where termites are common" (Thompson, 1983, p. 481).

About one third of the subjects failed on items involving airline and train schedules, figuring out how much change should come from a purchase, and determining which grades had improved on a report card (APL, 1977; Gadway & Wilson, 1976; Kirsch & Jungeblut, 1986; Murphy, 1975b). On the Adult Functional Reading Study, 40 percent could not read two short paragraphs describing a blood donation program and identify the person they should contact (see Table 8).

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Finally, a majority of subjects had trouble determining when money was due for a parking ticket, locating the tax for a given income on a tax table, determining total purchase price for a mail order, reading and filling out a wage-withholding (W-4) form, calculating miles per gallon, and putting a return address on a business letter (Acland, 1976; APL, 1977; Gadway & Wilson, 1976; Northcutt, 1975).

We find it reasonable to estimate that about 20 percent of the adult population, or around 35 million people, have serious difficulties with common reading tasks. Another 10 percent or so are probably marginal in their functional literacy skills.

What are the consequences of low functional literacy skills for day-to-day living? Among the lowest fifth in functional literacy skills are many who are unable to read product labels and have to depend upon brand-name logos for selection of items in a grocery store. Many are unable to determine whether they are getting the correct change. Many cannot read recipes very well and cannot follow the directions on frozen food packages. Their ability simply to get around may be hampered by their difficulties with traffic signs, street names, and bus and subway schedules. Parents' roles as guardians of their children could be seriously undermined by a lack of functional reading skills. Many cannot read letters or report cards from the school or help their children with homework. Some may have trouble finding emergency phone numbers for police and fire stations. Such low literacy skills can be crippling, and a target group of 20 percent of our population is alarming. Is functional illiteracy increasing, or have we just rediscovered a long-standing problem?

Historical Trends in Tested Functional Literacy

Nationwide testing of functional literacy did not happen until the 1970s, so there is no direct way of establishing long-term trends. Nevertheless, the 1970s tests provide some hints about such trends. Sixty-four of the 1975 Mini-Assessment items were taken from the 1971 NAEP reading test, and researchers compared scores on those items (Gadway & Wilson, 1976). They found that the average student's functional literacy performance rose from 83.7 percent correct in 1971 to 85.9 percent in 1975. We thus know that during the early 1970s, 17-year-old students somewhat improved their functional literacy.

Analysts often infer historical trends by comparing the literacy rates of different age groups surveyed at the same time. On the crude literacy and educational attainment measures of the Census, for example, each younger age group has a lower illiteracy rate. On the functional literacy tests, however, we do not see this consistent pattern. As Copperman (1978, p. 47) pointed out for the 1974 Adult Performance Level test, the highest competency rate was for those 30-39 years old. Because this group was in school during the 1950s, such a pattern suggested that that period was a heyday for U.S. schools and the training of functional compe-

tency skills. Because subjects 18-29 years old performed similarly to those 40-49 years old, who graduated at the latest in 1952, Copperman concluded that students' performance in the 1970s had deteriorated to the levels of the early 1950s (p. 48). The Adult Functional Reading Study, given in 1973, showed a similar pattern (Murphy, 1973).

APL researchers (1977) also noticed this pattern, but reached a different conclusion. They argued that the youngest adults scored more poorly because they had less experience with functional literacy tasks (p. 37). Fisher (1978) argued that the youngest groups scored more poorly because they had less education (p. 9). On the Adult Functional Reading Study, for example, subjects 16-19 years old had only 11.3 years of schooling, compared to 12.6 years for those aged 20-29. When these differences were taken into account, the youngest cohorts were actually doing better than would be expected. According to Fisher, then, schools had become better at literacy training. Copperman's argument was also contradicted by the results of the other functional literacy tests. The Survival Literacy Study and the Reading Difficulty Index showed that the youngest cohort, those aged 16-24, was the most literate. These results suggest that the population's functional literacy skills have improved during the past few decades.

Other evidence about historical trends in functional literacy comes from the portions of standardized tests labeled "work-study" skills. These academic skills are similar to many of those used on the functional literacy tests: using indexes, alphabetizing, deciphering maps and graphs, and so forth. We have national renorming results for work-study skills covering the past thirty years. The general pattern parallels the one we found for standardized test scores in reading—improvements up to 1970, a small decline from 1970 to 1977, and recent improvements (see Stedman & Kaestle, 1986). However, as previously discussed, the use of achievement test renorming results to infer literacy trends is questionable.

The longitudinal evidence, though of dubious quality, thus suggests that from the 1940s to the middle 1970s the population's general functional literacy skills probably improved somewhat, and that although students' academic functional skills may have weakened in the 1970s, they have recently improved.

Reading Grade Levels as a Measure of Functional Literacy

Researchers have also measured the extent of functional literacy by comparing the population's reading grade level to that of common materials. We describe four major efforts. The **Brief Test of Literacy** accompanied the Health Examination Survey of the National Center for Health Statistics (Vogt, 1975). Administered to a representative sample of subjects 12 to 17 years old, the test involved seven simple reading passages (see Table 9). The literacy cutoff was a beginning fourth-grade reading performance. Of the nation's youth, ages 12-17, 4.8 percent were found to be illiterate.

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Corder produced the second set of estimates (cited by Fisher, 1978, p. 36). After reviewing data from several standardized test publishers, he determined the reading levels of students in various grades. Thirteen percent of 12th-grade students, for example, read below an 8th-grade level, and 14 percent of those in 8th grade read below a 5th-grade level. Extrapolating these figures to the general population on the basis of educational attainment, Fisher (1978, p. 36) reported that, of those 14 years and older, about 7 percent were reading below a 5th-grade level, and about 30 percent below an 8th-grade level.

The third estimate came from the Defense Department's **Armed Services Vocational Aptitude Battery**, which was administered to a representative sample of 18- to 23-year-olds in 1980 (Kirsch, 1985; Sum, Harrington, & Goedicke, 1986). The tests were developed so the military could identify qualified recruits and make assignments to occupations and training programs (U.S. Department of Defense, 1984, p. 3). The median reading grade level for those aged 18 to 23 was 9.6, with 18 percent falling below the 7th-grade level (Kirsch, 1985).

The **Young Adult Literacy Study** provided the fourth set of estimates (Kirsch & Jungeblut, 1986). By including items from the 1983-1984 NAEP reading test, which had been administered to students, researchers were able to express the reading performance of young adults in terms of grade levels. They found that 6 percent of young adults read below the 4th-grade level, and 25 percent read below the 8th-grade level.

These four estimates are roughly consistent, giving them face validity. When compared to the reading levels of everyday home and work materials, they suggest a serious problem. Thirty percent of the adult population reads below the 8th-grade level, yet common materials exceed this level by several years. Sticht (1975), for example, reported that lead articles in such well-known magazines as *Reader's Digest*, *Saturday Evening Post*, *Popular Mechanics*, *Ladies Home Journal*, and *Harper's* average around the level of 12th- to 13th-grade, and that this has been true for the past 40 years. Monteith (1980) reported that the typical magazine article averages around 11th-grade. Newspaper articles vary between 9th- and 12th-grade. Newspaper election coverage tends to be at the college level. Of popular materials, only best-sellers have a reading level close to that of the bottom 30 percent of the population in reading ability. Ranging from 6th-grade level to 9th-, they have averaged 7.3 for the past 50 years (Monteith, 1980). Still, as we have noted, 18 percent of those aged 18 to 23 read below the 7th-grade level.

Many job materials also appear to be beyond those whose reading skills are in the bottom 30 percent. More than one half of the materials in seven U.S. Army occupational manuals were at the 11th-grade to college level in difficulty. The reading level of materials for cooks, for example, was estimated at Grade 9, those for repairmen at 14.5, and those for supply clerks at 16.0 (Sticht, 1975, p. 51).

According to recent reports, many societal tasks involve materials of great reading difficulty (Kozol, 1985, pp. 10, 228; Wellborn, 1982). An apartment lease and food stamp notices, for example, are at the college level, an insurance policy is at the 12th-grade level, and an aspirin bottle label is at the 10th-grade level. Antidote instructions on a bottle of corrosive kitchen lye are at the 9th-grade level, and tax forms and directions on how to prepare a TV dinner at the 8th-grade level. Only a driver's license manual, with a 6th-grade reading level, falls within the ready grasp of some within the bottom 30 percent.

There are questions about the validity of these measures, however. Estimates of the population's reading level are fraught with problems. The level depends upon the particular reading test used, the types of skills tested, and the difficulty of the items. Furthermore, we must be careful in interpreting the relationship between the population's reading level and that of everyday materials. Individuals can read and understand much of the material which is supposedly above their reading grade level. Sticht and his colleagues found, for example, that the reading level assigned to a job on the basis of its materials was much higher—often 3 to 4 grades

higher—than the reading level workers needed to perform their jobs satisfactorily (Sticht, 1975, pp. 85, 86). On the major standardized tests, the average 6th-grade student comprehends about 80 percent of what the average 8th-grade student does. This suggests that people who read at a 6th-grade level will still be able to understand much of the material written at an 8th-grade level.

On the other hand, we must not think that just because materials are assigned an 8th-grade reading level, they are fully understood by a person with 8th-grade reading skills. The reading level of materials has a technical definition—that grade at which the average student can understand 75 percent of what is presented. Thus, even a person whose grade level matches that of the material will fail to comprehend about one fourth of it. For certain materials, such as antidote instructions and warning labels, 100 percent comprehension is essential; for other materials, complete understanding is not as crucial.

There are also a variety of technical reasons for caution in using reading grade-level findings. Researchers have used readability formulas to determine the difficulty of material, but different formulas yield different results (Sticht, 1975, p. 73). Few have demonstrated that the passages they tested were representative of the document in question, yet different parts of a document usually differ in complexity (Sticht, 1975, p. 31). The readability formulas themselves are flawed. They were derived not from nationally representative samples, but usually from single communities. Some researchers who have developed readability formulas have used the cloze procedure in lieu of a comprehension test, but many studies suggest that it is an inadequate substitute (Stedman & Kaestle, 1986). Thus, we do not have much confidence in literacy assessments based on the reading grade level of materials.

Given the limitations of readability formulas, it makes little sense to explore in great detail the historical patterns. The available evidence is, in any case, scant. Readability formulas weren't popularized until the 1940s, and few studies followed the same materials over time. The reading difficulty of military training manuals has remained roughly the same for the past three decades, but these were not on-the-job materials, and researchers did not trace the military's average reading level over the same period (Sticht, 1975, p. 170). As noted, the reading grade level of magazines and best-sellers has remained constant over time, but we have no corresponding data on the population's reading level with which to compare them. Therefore, we can conclude little about functional literacy trends as measured by reading grade levels.

Literacy and Job Performance

Designed to meet the personnel needs of large organizations, job literacy research was pioneered for the Army during World War I (Yoakum & Yerkes, 1920). For many decades, researchers tested workers' skills and created Occupational Ability Patterns, which supposedly portrayed the skill levels required for particular jobs (see review of early research in Dodge, 1935; also Dvorak, 1935). The U.S. Employment Service and the U.S. Department of Defense have continued similar research to the present day (U.S. Department of Defense, 1984; U.S. Department of Labor, 1979).

In a newer approach, researchers have interviewed workers and observed them on the job to determine how much they read, for what purposes, and with what reading strategies (Diehl & Mikulecky, 1980; Guthrie, Seifert, & Kirsch, 1986; Kirsch & Guthrie, 1984; Mikulecky, 1981, 1982; Mikulecky & Ehlinger, 1986; Mikulecky & Winchester, 1983).

In this section, we discuss the concern that there is a growing discrepancy between the population's literacy level and the skills required to perform most of society's jobs. We evaluate various efforts to estimate the *job literacy gap*.

The history of job assessment efforts demonstrates how difficult it is to determine which level of reading skills is associated with satisfactory job performance. The correlations between test scores and job proficiency have generally

been too low to make an assigned reading level credible. World War I results showed a mixture of high and low correlations (Yoakum & Yerkes, 1920). Job performance rankings of 765 men by infantry company commanders were nearly identical to those from the Army skills test (p. 32). But officer ratings of 374 men in 12 other companies correlated only .536 with test scores (p. 30), and Army rank, excluding medical officers, was unrelated (p. 40). And outside the Army, in the 1920s and 1930s, most industries stopped testing employees' entry-level skills—except clerical skills—because the tests were not good predictors of on-the-job success (Hale, 1982, pp. 18-20).

In the post-World War II period, the most comprehensive job testing program has been that of the U.S. Employment Service. Its **General Aptitude Test Battery** has been validated in over 550 studies, covering a representative sample from 12,000 jobs. Depending upon the job, however, the correlations between General Aptitude Test scores and civilian job performance have ranged from only .23 to .58 (U.S. Department of Defense, 1984, p. 19). The **Armed Services Vocational Aptitude Battery** has produced similar outcomes, with correlations of .36 to .52 for jobs within the communications area, .39 to .77 for data processing specialties, and .53 to .73 for clerical and supply specialties (U.S. Department of Defense, 1984). Contemporary sociological research has also found only a very weak correlation of .3 between test scores and job success (Jencks et al., 1972, pp. 186-187).

These results demonstrate a number of things about predicting job success from reading skill and hence assigning a reading level to a job. First, the ability to predict success varies greatly by the type of occupation. Second, within a given occupational category, it varies greatly by the particular job. Third, the ability to predict success is often very poor.

These facts hamper assessments of the workplace literacy gap. The military's experience is illustrative of the difficulties. In response to training problems during the Vietnam War, military officials embarked on a functional literacy research program. They were concerned that many draftees were not sufficiently literate to handle military jobs and wanted to determine how best to close the gap between personnel and their tasks. Sticht (1975) and his colleagues determined the reading levels required for four different jobs. Depending upon which job proficiency measure they used, the reading grade levels were 7th through 9th for cooks, 8th through 12th for repairmen, and 9th through 13th for supply clerks. At the time, 12 percent of the new recruits read below the 6th-grade level, and the Army's average reading level was 9th-grade (pp. 170-171). Sticht and his colleagues concluded that ". . . the reading demands of Army jobs, even the less complex ones, far exceed the reading ability of many personnel" (p. 120).

The correlations between personnel's reading grade level and score on job proficiency measures, however, were quite low. Depending upon the job, reading grade level correlated only from .40 to .57 with the job knowledge measure and from .26 to .40 with the score on the job sample test, and was unrelated to supervisor rating (Sticht, 1975, p. 67). The correlation with the job reading task measure (.65 to .80) was relatively higher because the measure was a reading test (Sticht, 1975, pp. 43, 59). Subsequent military research also shows lower correlations as one moves away from paper-and-pencil tests towards actual job performance (Sticht, 1982, p. 17). Workers' basic skills scores have accounted for only from 3% to at most 26% of the variance in hands-on job performance measures (p. 17).

Such low correlations mean two things for job assessment. First, a job's reading grade level is particularly sensitive to the criterion used. For the job-reading performance measure, for example, Sticht and his colleagues (1975) chose an 80/70 criterion—that is, jobs were assigned the reading grade level at which 80 percent of the individuals answered 70 percent of the job reading items correctly. Thus, they rated the repairman's job at a 9th- to 10th-grade reading level. The military, however, usually uses a 70/70 rule, which would have

lowered the reading level of the repairman job to 8th-grade, 1.5 grades lower (p. 113). Given that the test required more reading than the job, an 80/60 criterion may be even more reasonable. With that criterion, the reading level of the repairman job drops close to 7th-grade—over 2 grades less than the 80/70 results (p. 58). For the supply clerk, the results are more dramatic: The reading level drops three grades, from 13th- to 10th-grade (p. 58). The job literacy gap clearly appears less serious with the more liberal criteria. Nevertheless, the jobs' reading levels still remain above those of a substantial proportion of military personnel.

Second, and more importantly, the low correlations indicate that large percentages of workers with low basic skills can perform jobs competently, even when the jobs are assigned higher levels. On the basis of the job sample test, for example, the armor crewman job was assigned an 8th-grade level. Yet 27 percent of those with a 9th- to 10th-grade reading level were in the bottom quartile in job performance, whereas 35 percent of those reading at only a 4th- to 6th-grade level were in the top half (p. 69). In a later review of military research, Sticht (1982) concluded that "many of the least competent in the basic skills became above-average job performers, while many highly skilled in the basic skills perform job tasks in a below-average manner" (p. 18).

In spite of such difficulties, several researchers have attempted a national assessment of the job literacy gap. Lerner (1981), focusing on the bottom of the job pyramid, argued that unskilled people considerably outnumbered unskilled jobs (p. 1060). She based her claim on the results from the Mini-Assessment of Functional Literacy, which showed 12.6 percent of 17-year-olds to be functional illiterates, twice the Department of Labor's estimate of 6.1 percent of jobs as unskilled in 1970. However, the comparison was misleading. As previously discussed, most of the "illiterates" scored above 60 percent and thus had many functional skills. Furthermore, the Mini-Assessment focused on general skills such as reading maps and using the dictionary, so poor performance did not necessarily mean an individual lacked job reading skills.

A variety of research suggests that many individuals with limited reading skills can still hold jobs. Nearly half the military personnel Sticht and his colleagues tested read below the 8th-grade level and nonetheless performed their skilled jobs satisfactorily (Sticht, 1975, pp. 63-64). Contrary to the "literacy gap" perspective, low reading-achievement scores (5th- through 8th-grade) were not a barrier to job competence among these subjects. Vineberg and Taylor found that one third of Army personnel with the lowest basic skills scores were above-average job performers (in Sticht, 1982, p. 17). In a study of workers in diverse occupations, Mikulecky (1981) found that some workers (5 percent) were severely limited in their ability to read a 9th-grade passage. Mikulecky commented, "It is possible, it seems, to hold a job if one can barely read" (p. 179). Obviously, severe reading deficiencies would interfere with the ability to acquire and hold many jobs, but above a certain threshold, reading level as measured by standardized tests has little to do with job performance.

As noted earlier, 7 percent of the adult population reads below the 5th-grade level. This percentage is somewhat larger than the percentage of unskilled jobs (6.1 percent), but even semiskilled jobs seem to require little reading. In a study of a black, working-class community, Heath (1980) examined reading demands at home, play, school, and work. She found that workers in semiskilled jobs were not often called on to read (p. 129). Their job applications were filled out by a personnel officer. Employees were instructed orally about their new jobs. Insurance information and new regulations were posted, but because these were usually explained orally, employees "did not find it necessary to read the bulletin board notices" (p. 130). Kirsch and Guthrie (1984), on the other hand, found that reading was a regular part of semiskilled jobs. However, they studied the Analytical Instrumentation Division of a Fortune 500 company, a technical environment where reading demands are likely to be greater than in

the typical semiskilled job. If indeed many semiskilled jobs require little reading, a very large percentage of low-literacy jobs would be available. The literacy gap at the lowest job levels might vanish.

In another attempt to assess the job literacy gap, Berg and Gorelick (1971) used the Department of Labor's *Dictionary of Occupational Titles*. Each of the 13,800 jobs in the dictionary has an index of General Educational Development (GED), a measure of the verbal, reasoning, and mathematical skills necessary to perform the job. By comparing the distribution of these job GEDs to the population's educational levels, researchers can estimate the job literacy gap. But GEDs have several limitations. They are based upon job descriptions rather than actual reading demands, and the scores are often assigned subjectively (see, e.g., Fine, 1968, p. 367; Spenner, 1980, p. 247; Sticht & McFann, 1975). There is also no fixed relationship between GED scores and years of schooling. Depending upon which assumptions were made, Berg and Gorelick (1971) found that a worker preparation gap emerged or disappeared (p. 58). They could not determine which assumptions were the most reasonable.

It is important to distinguish the alleged job literacy gap from the unemployment problem. Although some individuals may be unable to secure employment because they lack skills (see, e.g., Sum, Harrington, & Goedicke, 1986), unemployment is caused primarily by economic conditions and a general lack of jobs. The recession of the 1970s, for example, threw millions out of work, yet there had been no change in workers' literacy skills. Even if we could make all citizens functionally literate, jobs to employ them all would not suddenly be created.

Given how hard it is to assess the current situation, we find projections of the future workplace literacy gap hardly credible. Well-informed scholars have propounded quite different visions. The authors of the recent educational reform reports, including *A Nation At Risk* (National Commission on Excellence in Education, 1983), have argued that the nation is moving rapidly towards a high-technology future which would require far more advanced skills than those currently possessed. Kirsch and Guthrie (1984) have argued that jobs requiring little or no literacy are disappearing and that the changing workplace will require more literate people. By contrast, Bowles and Gintis (1976) and Bowles (1979) have argued that white-collar work has been proletarianized and that jobs are being "dumbed down." They believe that most work requires only limited skills compared to those that individuals have, those that schools could produce, and those that could be learned in restructured jobs. Like Bowles and Gintis, the federal commission that produced *Work in America* (O'Toole et al., 1973) found that workers were better educated than their jobs. They recommended a vast expansion in worker control over their jobs and working conditions. Probably both trends—dumbing-down and rising literacy demands—are happening at different levels in the occupational pyramid and in different sectors. Department of Labor projections, for example, suggest that most new jobs will not be in engineering and the computer fields but in retail and clerical work (U.S. Department of Labor, 1982). Nor will the expanded use of computers necessarily require a more skilled workforce (Levin & Rumberger, 1983). Much of the work associated with computers, such as data entry, is routine, and certain software programs, such as grammar and spelling checkers, decrease the need for literacy. If the *Work in America* report (O'Toole et al., 1973) were correct, any increase in the skills demanded by jobs would be welcome, for it would mean that the skills demanded were finally beginning to catch up with the skills of an "overeducated" workforce. On the other hand, the military and major corporations continue to spend vast sums of money on remedial training, which suggests that many entry-level workers continue to lack basic job skills (U.S. Congress [Joint], 1986, pp. 15-18; Kirsch & Guthrie, 1984; Sticht, 1982).

We do not call for further research on this issue, however, because the methodological problems inherent in the research and the limitations of the existing data bases make a valid, national assessment of the job literacy gap unlikely. Whether functional literacy is 15 percent

or 35 percent, whether the population's reading level is 7th- or 9th-grade, and whether the job literacy gap is growing smaller or larger are not as crucial as recognizing that serious literacy problems do exist. Workers need both greater autonomy in their jobs and better literacy training if they are to develop their skills fully. We answer the question "What kind of literacy training?" in the next section.

Job Literacy vs. School Literacy

Recent research suggests that schools may develop a set of literacy skills unlike those typically needed on the job (Diehl & Mikulecky, 1980, pp. 224-225; Kirsch & Guthrie, 1984, p. 231; Sticht, 1975, pp. 183-186; Venezky, 1982). These findings support our distinction between a vertical and a horizontal dimension of literacy. High school English teachers, for example, focus on the reading and interpretation of literature and on general composition. They usually ignore technical writing and editing, and rarely use job materials such as technical manuals, advertising copy, and memoranda. Some of the new research suggests that job reading skills are more integrated with other tasks and more immediately applied. Workers use a greater variety of reading materials than students. Workplace literacy has been described as a "social phenomenon": Workers often accomplish job tasks by talking with and observing others (Mikulecky & Ehlinger, 1986, p. 43; see also Sticht, 1975, p. 59). Partly as a consequence of such behavior, workers are able to perform jobs competently even when they involve reading materials well above their tested reading levels (Sticht, 1975, pp. 85-86). The weak relationship reported earlier between standardized reading scores and job performance also suggests that school reading skills differ from job literacy ones.

Diehl and Mikulecky (1980) distinguished "reading-to-do" from "reading-to-learn" and hypothesized major differences in information processing between the two (p. 225). Interestingly, measures of workers' job reading strategies, particularly metacognitive ones, *have* been shown to be related to job performance. Mikulecky and Winchester (1983) found that, although general reading ability did not relate to job performance, "reading to assess while performing a task" did. Mikulecky and Ehlinger (1986) determined that workers who performed better had better metacognitive skills. Such workers knew how to focus their attention on reading materials and job tasks, had systems for organizing information, could explain how their activities related to their overall purposes, and could monitor their own performance.

Such findings have important implications for job literacy training. They suggest that job literacy problems may not be solved by concentrating on basic academic skills or by raising students' reading grade levels on standardized tests. Indeed, a recent review of military training programs determined that literacy training must involve job-specific literacy tasks to be successful (Sticht, 1982, pp. 53-54). Although traditional basic skills programs raised personnel's academic grade levels, they only had an impact on job performance measures if they involved direct instruction in job literacy tasks.

We must be careful, however, in generalizing about the metacognitive findings. The two studies by Mikulecky and associates sampled a limited number of highly literate workers in highly specialized jobs—27 nurses in the first, 29 electronics technicians in the second. The nurses' average reading level was 12th-grade, whereas that of the technicians ranged between 12 and 14.3 (Mikulecky & Ehlinger, 1986, p. 54; Mikulecky & Winchester, 1986, p. 7). It is uncertain whether these results would apply to workers with lower reading levels, or to more typical workplaces with simpler information-processing demands. If future research confirmed these metacognition conclusions, it would suggest that schools and adult basic education centers need to concentrate on literacy skills related to assessing, organizing, and monitoring.

CONCLUSIONS

We have attempted to trace trends in literacy and reading ability in the United States during the past century. As the patient reader knows, our main conclusions are that the data

are sketchy and the trends are murky. Problems of definition, validity, representativeness, and comparability preclude unambiguous conclusions. Thus, present-day literacy policy should be based on an assessment of our current condition, difficult enough to make, and on the basis of our ideals—not on the basis of alleged declines in literacy skills. The trends are in doubt; the existence of literacy problems in our society is not. We favor strenuous efforts to improve basic literacy skills and to teach all children critical reading and thinking skills.

What *can* we say about the historical record? First, during the twentieth century, self-reported outright illiteracy has almost disappeared. Nevertheless, in 1979, nearly a million adults rated themselves as illiterate, and these people clearly have a severe problem.

Second, the big story in twentieth-century literacy is the rise in school attainment. Although some children attend school without learning much, it seems indisputable that a rise in schooling of the magnitude witnessed in the United States has led to a much more literate population. In 1910, almost one fourth of the population had not gone past the fourth grade; by 1980, only 3.3 percent had not. In 1910, almost half the population had not reached the eighth grade; by 1980, that proportion was under 10 percent.

Third, although it is difficult to make a confident statement about the reading performance of students, we venture the conclusion that reading achievement for a given age level has been stable throughout most of the twentieth century.

Does this mean that things are rosy on the literacy front? Certainly not. Results of the functional literacy tests suggest that a substantial portion of the population, from 20 to 30 percent, have difficulty coping with common reading tasks and materials. The job literacy measures, for all their limitations, have detected substantial mismatches between many workers' literacy skills and the reading demands of their jobs. Even if schools are doing about as well as they have in the past, they have never done well in educating minorities and the poor or in teaching higher-order skills. And, if increased education is the only reason the population has kept up with the increasing literacy demands of our society, we have plenty to worry about. School attainment is no longer rising, and dropout rates are increasing. The solution to rising literacy demands is now more difficult. And, even if the workplace is not truly demanding more reading ability, we shall nonetheless need much better reading skills across the entire population if we are to survive and improve as a democratic society in an increasingly complex age. Seen in this light, there is much to galvanize renewed efforts at literacy training, at all levels. We need no proof of a great decline to make us concerned. Serving the goals of economic and political participation on the literacy front will require new commitment, more money, and a closer collaboration by educators, employers, community groups, and government agencies.

REFERENCES

ACLAND, H. (1976, July). If reading scores are irrelevant, do we have anything better? *Educational Technology, 16*, (7), 25-29.

ADULT PERFORMANCE LEVEL PROJECT. (1977). *Final report: The Adult Performance Level Study.* Washington, DC: U.S. Office of Education.

AMERICAN COLLEGE TEST. (1985). Table: ACT score means & *SDs* for successive years of ACT-tested college-bound students. Iowa City: ACT.

ARMBRUSTER, F. (1977). *Our children's crippled future: How American education has failed.* New York: Quadrangle Books.

BERG, I., & GORELICK, S. (1971). *Education and jobs: The great training robbery.* Boston: Beacon Press.

BLOOM, B.S. (1956). The 1955 normative study of the tests of general educational development. *School Review, 64*, 110-124.

BODE, R.K. (1981a). *SRA achievement series* (Tech. Rep. No. 2). Chicago: Science Research Associates.

BODE, R.K. (1981b). *SRA achievement series* (Tech. Rep. No. 3). Chicago: Science Research Associates.

BORMUTH, J.R. (1978). The value and volume of literacy. *Visible Language, 12*, 118-161.

BOWLES, S. (1979, April 1). *Second thoughts on the capitalism-enlightenment connection: Are Americans over educated or are jobs dumb?* Address to the Conference on Libraries and Literacy. National Commission on Libraries and Information Services, Washington, DC.

BOWLES, S., & GINTIS, H. (1976). *Schooling in capitalist America.* New York: Basic Books.

BRELAND, H.M. (1976). The SAT score decline: A summary of related research. In College Entrance Examination

Board. Advisory Panel on the Scholastic Aptitude Test Score Decline. *On further examination* (1977, Appendix). New York: College Board.

BRIMELOW, P. (1983, September 19). What to do about America's schools. *Fortune*, 60-64.

BUSWELL, G.T. (1937, August). How adults read. Supplementary educational monograph published in conjunction with *The school review* and *The Elementary School Journal*, *45*. Chicago: The University of Chicago.

CARROLL, J.B., & CHALL, J.S. (1975). *Toward a literate society*. New York: McGraw-Hill.

CAUGHRAN, A.M., & LINDLOF, J.A. (1972, March). Should the "Survival Literacy Study" survive? *Journal of Reading*, *15*, 429-435.

CERVERO, R.M. (1980). Does the Texas adult performance level test measure functional competence? *Adult Education*, *30*, 152-165.

CLEARY, T.A., & MCCANDLESS, S.A. (1976). Summary of score changes (in other tests). In College Entrance Examination Board, Advisory Panel on the Scholastic Aptitude Test Score Decline, *On further examination* (Appendix). New York: College Board.

COLES, G.S. (1976). U.S. literacy statistics: How to succeed with hardly trying. *Literacy Work*, *5*(2), 47-70.

COLLEGE ENTRANCE EXAMINATION BOARD, ADMISSIONS TESTING PROGRAM. (1983). *National report on college-bound seniors, 1983*. New York: College Board.

COLLEGE ENTRANCE EXAMINATION BOARD, ADVISORY PANEL ON THE SCHOLASTIC APTITUDE TEST SCORE DECLINE. (1977). *On further examination*. New York: College Board.

COPPERMAN, P. (1978). *The literacy hoax: The decline of reading, writing, and learning in the public schools and what we can do about it*. New York: William Morrow.

COPPERMAN, P. (1979). The achievement decline of the 1970s. *Phi Delta Kappan*, *60*, 736-739.

CTB/MCGRAW-HILL. (1982a). *Comprehensive tests of basic skills: Preliminary technical report, Forms U and V*. Monterey, CA: CTB/McGraw-Hill.

CTB/MCGRAW-HILL. (1982b). *Equating tables for CTBS U and V and CTBS S and T*. Monterey, CA: CTB/McGraw-Hill.

CUBAN, L. (1983, June). Effective schools: A friendly but cautionary note. *Phi Delta Kappan*, 695-696.

DIEHL, W.A., & MIKULECKY, L. (1980). The nature of reading at work. *Journal of Reading*, *24*, 221-228.

DODGE, A.F. (1935). *Occupational ability patterns*. New York: Columbia University, Teachers College.

DVORAK, B.J. (1935). Differential occupational ability patterns. University of Minnesota, *Bulletin of the Employment Stabilization Research Institute*, *3*(8), 309-348. Minneapolis: The University of Minnesota Press

EDITORIAL. (1919, February 19). *New York Times*, p. 12.

EDUCATIONAL TESTING SERVICE. (n.d.) *Step III: Manual and technical report*. Reading, MA: Addison, Wesley.

EISENSTEIN, E. (1980). *The printing press as an agent of change*. New York: Cambridge University Press.

ELLIGETT, J., & TOCCO, T.S. (1980, June). Reading achievement in 1979 vs. achievement in the fifties. *Phi Delta Kappan*, *61*, 698-699.

EURICH, A.C., & KRAETSCH, G.A. (1982). A 50-year comparing of University of Minnesota freshman reading performance. *Journal of Educational Psychology*, *74*, 660-665.

FARR, R., FAY, L., & NEGLEY, H. (1978). *Then and now: Reading achievement in Indiana (1944-45 and 1976)*. Bloomington: Indiana University. (ERIC Document Reproduction Service No. ED 158 262)

FARR, R., TUINMAN, J., & ROWLS, M. (1974). *Reading achievement in the United States: Then and now*. Bloomington: Indiana University. (ERIC Document Reproduction Service No. ED 109 595)

FINE, S.A. (1968). The use of the *Dictionary of occupational titles* as a source of estimates of educational and training requirements. *The Journal of Human Resources*, *3*, 363-375.

FISCHER, J.K., HANEY, W., & DAVID, L. (1980). *APL revisited: Its uses and adaptation in states*. Washington, DC: U.S. Government Printing Office.

FISHER, D.L. (1978). *Functional literacy and the schools*. Washington, DC: National Institute of Education.

FISHER, D.L. (1981). Functional literacy tests: A model of question-answering and an analysis of errors. *Reading Research Quarterly*, *16*, 418-448.

FLANAGAN, J.C. (1976). Changes in school levels of achievement: Project Talent ten- and fifteen-year retests. *Educational Researcher*, *5*(8), 9-12.

FOLGER, J.K., & NAM, C.B. (1967). *Education of the American population*. Washington, DC: U.S. Government Printing Office.

FREEMAN, H.E., & KASSENBAUM, G.G. (1956, May). The illiterate in American society: Some general hypotheses. *Social Forces*, *34*, 371-375.

GADWAY, C.J., & WILSON, H.A. (1976). *Functional literacy: Basic reading performance*. Denver, CO: Education Commission of the States. (ERIC Document Reproduction Service No. ED 112 350)

GATES, A.I. (1961). *Reading attainment in elementary schools: 1957 and 1937*. New York: Teachers College.

GINZBERG, E., & BRAY, D.W. (1953). *The uneducated*. New York: Columbia University Press.

GOULD, S.J. (1981). *The mismeasure of man*. New York: Norton.

GRANT, W.S. (1949). *Comparative study of achievement in reading in 1916 and 1948*. Grand Rapids school survey. Grand Rapids, Michigan, Board of Education. Results briefly described in Gray, W.S. (1950). Summary of Reading Investigations July 1, 1948 to June 30, 1949. *Journal of Educational Research*, *43*, 401-439.

GRANT, W.V., & EIDEN, L.J. (1982). *Digest of Educational Statistics*. Washington, DC: U.S. Government Printing Office.

GRAY, W.S. (1956). How well do adults read? In N.B. Henry (Ed.), *Adult reading. Fifty-fifth yearbook of the National Society for the Study of Education* (Part II). Chicago: The University of Chicago Press.

GRIFFITH, W.S., & CERVERO, R.M. (1977). The Adult Performance Level program: A serious and deliberate examination. *Adult Education*, *27*, 209-224.

GUTHRIE, J.T., & KIRSCH, I.S. (1984). The emergent perspective on literacy *Phi Delta Kappan*, *65*, 351-355.

GUTHRIE, J.T., SEIFERT, M., & KIRSCH, I.S. (1986). Effects of education, occupation, and setting on reading practices. *American Educational Research Journal, 23*, 151-160.

HALE, M. (1982). History of employment testing. In A.K. Wigdor & W.R. Garner (Eds.), *Ability testing: Uses, consequences, and controversies. Part II: Documentation Section* (pp. 173-194). Washington, DC: National Academy Press.

HARCOURT BRACE JOVANOVICH, TEST DEPARTMENT. (1971). *Equivalent scores for Metropolitan Achievement Tests, 1970 edition, and Metropolitan Achievement Tests, 1958 edition* (Special Report No. 14). New York: Harcourt Brace Jovanovich.

HARCOURT BRACE JOVANOVICH, TEST DEPARTMENT. (1983). *Some comments on the relationship between scores on the 1973 and 1982 editions of Stanford Achievement Test* (Special Report No. 4A). New York: Harcourt Brace Jovanovich.

HARMAN, D. (1970). Illiteracy: An overview. In *Harvard Educational Review, 40*, 226-243.

HARNISCHFEGER, A., & WILEY, D. (1975). *Achievement test score decline: Do we need to worry?* St. Louis, MO: Central Midwestern Regional Education Laboratory.

HARRIS, L., AND ASSOCIATES. (1970). *Survival literacy study*. Washington, DC: National Reading Council. (ERIC Document Reproduction Service No. ED 068 813)

HARRIS, L., AND ASSOCIATES. (1971). *The 1971 national reading difficulty index: A study of functional reading ability in the United States, for the National Reading Center*. Washington, DC: National Reading Center.

HEATH, S.B. (1980). The functions and uses of literacy. *Journal of Communication, 30*, 123-133.

HEATH, S.B. (1984). *Ways with words: Language, life and work in communities and classrooms*. New York: Cambridge University Press.

HIERONYMUS, A.N. (1985, September 16). Preliminary information on the 1984 ITBS results. Personal communication.

HOLT, J. (1976). *Instead of education*. New York: Dutton.

HUNTER, C.S.J., & HARMAN, D. (1979). *Adult illiteracy in the United States: A report to the Ford Foundation*. New York: McGraw-Hill.

IOWA TESTING PROGRAM. (n.d.) *Iowa Tests of Basic Skills: Summary of national achievement trends, 1955-1981, Grades 3-8, using median performance of 1955, Fall, as a base*. Mimeograph copy provided by A.N. Hieronymus

THE IOWA TESTS OF EDUCATIONAL DEVELOPMENT: A SUMMARY OF CHANGES IN THE ITED NORMS. (1971). Iowa City: The University of Iowa.

JENCKS, C., SMITH, M., ACLAND, H., BANS, M.J., COHON, D., GINTIS, H., HEYNS, B., & MICHELSON, S. (1972). *Inequality: A reassessment of the effect of family and schooling in America*. New York: Harper & Row.

KAESTLE, C.F. (1985). The history of literacy and the history of readers. *Review of Research in Education, 12*, 11-54.

KIRSCH, I.S. (1985). *NAEP profiles of literacy: An assessment of young adults' development plan, April 1985*. Princeton, NJ: Educational Testing Service.

KIRSCH, I.S., & GUTHRIE, J.T. (1977-1978). The concept and measurement of functional literacy. *Reading Research Quarterly, 13*, 485-507.

KIRSCH, I.S., & GUTHRIE, J.T. (1984). Adult reading practices for work and leisure. *Adult Education Quarterly, 34*, 213-232.

KIRSCH, I.S., & JUNGEBLUT, A. (1986). *Literacy: Profiles of America's young adults: Final Report*. Princeton, NJ: National Assessment of Educational Progress.

KORETZ, D. (1986). *Trends in educational achievement*. Washington, DC: U.S. Congressional Budget Office.

KOZOL, J. (1985). *Illiterate America*. New York: Anchor/Doubleday.

LERNER, B. (1981). The minimum competence testing movement: Social, scientific, and legal implications. *American Psychologist, 36*, 1057-1066.

LEVIN, H.M., & RUMBERGER, R. (1983, January 30). Hi-tech requires few brains. *Washington Post*, p. C5.

MEIER, D. (1981, Fall). Why reading tests don't test reading. *Dissent*, 457-466.

MEIER, D. (1984, Winter). "Getting tough" in the schools. *Dissent*, 61-70.

MIKULECKY, L. (1981). The mismatch between school training and job literacy demands. *The Vocational Guidance Quarterly, 30*, 174-180.

MIKULECKY, L. (1982). Job literacy: The relationship between school preparation and workplace actuality. *Reading Research Quarterly, 17*, 400-419.

MIKULECKY, L., & EHLINGER, J. (1986). The influence of metacognitive aspects of literacy on job performance of electronics technicians. *Journal of Reading Behavior, 18*, 41-62.

MIKULECKY, L., & WINCHESTER, D. (1983). Job literacy and job performance among nurses at varying employment levels. *Adult Education Quarterly, 34*, 1-15.

MONTEITH, M. (1980, February). How well does the average American read? Some facts, figures, and opinions. *Journal of Reading, 23*, 460-464.

MURPHY, R.T. (1973). *Adult functional reading study*. Princeton, NJ: Educational Testing Service. (ERIC Document Reproduction Service No. ED 109 650)

MURPHY, R.T. (1975a). *Adult functional reading study: Supplement to final report*. Princeton, NJ: Educational Testing Service. (ERIC Document Reproduction Service No. ED 109 651)

MURPHY, R.T. (1975b). Assessment of adult reading competence. In D.M. Nielsen & H.F. Hjelm (Eds.), *Reading and career education* (pp. 50-61). Newark, DE: International Reading Association.

NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS. (1979). *Changes in mathematical achievement, 1973-78* (Report No. 09-MA-01). Denver, CO: Education Commission of the States.

NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS. (1981). *Three national assessments of reading: Changes in performance, 1970-1980 (Report No. 11-R-01)*. Denver, CO: Education Commission of the States.

NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS. (1982). *Writing achievement, 1969-1979* (Report No. 10-W-35). Denver, CO: Education Commission of the States.

NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS. (1985). *The reading report card, progress toward excellence in our schools: Trends in reading over four national assessments, 1971-1984* (Report No. 15-R-01). Princeton, NJ: Educational Testing Service.

NATIONAL COMMISSION ON EXCELLENCE IN EDUCATION. (1983). *A nation at risk: The imperative for educational reform*. Washington, DC: U.S. Government Printing Office.

NORTHCUTT, N.W. (1975). Functional literacy for adults. In D.M. Nielsen & H.F. Hjelm (Eds.), *Reading and career education*. Newark, DE: International Reading Association.

OLNECK, M. (1984). Terman redux. *Contemporary Education Review, 3*, 287-314.

OLSON, D.R. (1977). The languages of instruction: The literate bias of schooling. In R.C. Anderson, R.J. Spiro, & W.E. Montague (Eds.), *Schooling and the acquisition of knowledge*. Hillsdale, NJ: Erlbaum.

O'TOOLE, J., HANSOT, E., HERMAN, W., HERRICK, N., LIEBOW, E., LUSIGNAN, B., RICHMAN, H., SHEPPARD, H., STEPHANSKY, B., & WRIGHT, J. (1973). *Work in America: Report of a special task force to the Secretary of Health, Education, and Welfare*. Cambridge, MA: Massachusetts Institute of Technology Press.

THE PSYCHOLOGICAL CORPORATION. (1978). *Equivalent grade equivalent scores for Metro '72 and Metro '78* (Special Report No. 20; Revised ed.) New York: Harcourt Brace Jovanovich.

RAVITCH, D. (1985). *The schools we deserve*. New York: Basic Books.

RESNICK, D., & RESNICK, L. (1977). The nature of literacy: An historical exploration. *Harvard Educational Review, 43*, 370-385.

RESNICK, D., & RESNICK, L. (1985). Standards, curriculum and performance: Historical and comparative perspective. *Educational Researcher, 14*, 5-20.

SCHRADER, W.B. (1968). *Test data as social indicators*. Princeton, NJ: Educational Testing Service.

SCIENCE RESEARCH ASSOCIATES. (1978). *Iowa Tests of Educational Development* (Technical Report).

SELDEN, R. (1978). Literacy: Current problems and current research. In *Fifth report of the National Council on Educational Research* (pp. 31-40). Washington, DC: U.S. Department of Education.

SOLTOW, L., & STEVENS, E. (1981). *The rise of literacy and the common school in the United States: A socioeconomic analysis to 1870*. Chicago: University of Chicago Press.

SPENNER, K.I. (1980). Occupational characteristics and classification systems. *Sociological Methods and Research, 9*, 239-264.

STEDMAN, L.S., & KAESTLE, C.F. (1985). The test score decline is over: Now what? *Phi Delta Kappan, 67*, 204-210.

STEDMAN, L.S., & KAESTLE, C.F. (1986). *An investigation of crude literacy, reading performance, and functional literacy in the United States, 1880-1980* (Program Report 86-2). Madison: University of Wisconsin, Wisconsin Center for Education Research.

STICHT, T.G. (Ed.). (1975). *Reading for working: A functional literacy anthology*. Alexandria, VA: Human Resources Research Organization.

STICHT, T.G. (1982). *Basic skills in defense*. Alexandria, VA: Human Resources Research Organization.

STICHT, T.G., & MCFANN, H.H. (1975). Reading requirements for career entry. In D.M. Nielsen & H.F. Hjelm (Eds.), *Reading and career education* (pp. 62-76). Newark, DE: International Reading Association.

SUM, A.M., HARRINGTON, P.E., & GOEDICKE, W. (1986). *Basic skills of America's teens and young adults: Findings of the 1980 National ASVAB Testing and their implications for education, employment and training policies and programs*. Boston: Northeastern University.

THOMPSON, R. (1983, June 24). Illiteracy in America. *Editorial Research Reports, 1*(24), 475-492. Washington, DC: Congressional Quarterly.

TUDDENHAM, R.D. (1948). Soldier intelligence in World Wars I and II. *American Psychologist, 3*, 54-56.

TYLER, R.W. (1930). High school pupils of today. *Educational Research Bulletin, 9*, 409-410.

U.S. BUREAU OF THE CENSUS. (1948). *Illiteracy in the United States: October 1947* (Current Population Reports, Series P-20, No. 20). Washington, DC: U.S. Government Printing Office.

U.S. BUREAU OF THE CENSUS. (1953). *School enrollment, educational attainment, and illiteracy: October 1952* (Current Population Reports, Series P-20, No. 45). Washington, DC: U.S. Government Printing Office.

U.S. BUREAU OF THE CENSUS. (1960). *Literacy and educational attainment: March 1959* (Current Population Reports, Series P-20, No. 99). Washington, DC: U.S. Government Printing Office.

U.S. BUREAU OF THE CENSUS. (1971). *Illiteracy in the United States: November 1969* (Current Population Reports, Series P-20, No. 217). Washington, DC: U.S. Government Printing Office.

U.S. BUREAU OF THE CENSUS. (1975). *Historical statistics of the United States, Colonial Times to 1970* (Bicentennial Edition, Part 1). Washington, DC: U.S. Government Printing Office.

U.S. BUREAU OF THE CENSUS. (1980). *Educational attainment in the United States: March 1979 and 1978* (Current Population Reports, Series P-20, No. 356). Washington, DC: U.S. Government Printing Office.

U.S. BUREAU OF THE CENSUS. (1982). *Ancestry and language in the United States: November 1979* (Current Population Reports, Series P-23, No. 116). Washington, DC: U.S. Government Printing Office.

U.S. CONGRESS. (1986). *Illiteracy in America*. Joint hearings before the House Subcommittee on Elementary, Secondary, and Vocational Education and the Senate Subcommittee on Education, Arts and Humanities, August 1, October 1 and 3, 1985. Washington, DC: U.S. Government Printing Office.

U.S. CONGRESS. HOUSE (1984). *Illiteracy and the scope of the problems in this country*. Hearing before the House Subcommittee on Post Secondary Education and Labor, September 21, 1982. Washington, DC: U.S. Government Printing Office.

U.S. CONGRESS. HOUSE. (1986). *Oversight on illiteracy in the United States.* Hearing before the House Subcommittee on Elementary, Secondary, and Vocational Education, March 20, 1986. Washington, DC: U.S. Government Printing Office.

U.S. DEPARTMENT OF DEFENSE. (1984). *Counselor's manual for the Armed Services Vocational Aptitude Battery, Form 14.* Washington, DC: Office of the Assistant Secretary of Defense.

U.S. DEPARTMENT OF EDUCATION. (1986). *Update on adult illiteracy.* Washington, DC: U.S. Department of Education.

U.S. DEPARTMENT OF LABOR. (1979). *Manual for the USES General Aptitude Test Battery: Section II. Occupational aptitude pattern structure.* Washington, DC: U.S. Government Printing Office.

U.S. DEPARTMENT OF LABOR. BUREAU OF LABOR STATISTICS. (1974, March). *Educational attainment of workers* (Special Labor Force Report No. 175). Washington, DC: U.S. Department of Labor.

U.S. DEPARTMENT OF LABOR. BUREAU OF LABOR STATISTICS. (1982). *Economic projections to 1990* (Bulletin 2121). Washington, DC: U.S. Department of Labor.

VENEZKY, R.L. (1982). The origins of the present-day chasm between adult literacy needs and school literacy instruction. *Visible Language, 16,* 113-126.

VOGT, D.K. (1973). *Literacy among youths 12-17 years United States.* Rockville, MD: National Center for Health Statistics.

WELLBORN, S.M. (1982, May 17). Ahead: A nation of illiterates? *U.S. News & World Report, 92,* 53-57.

WERNER, L.M. (1986, April 21). 13% of U.S. adults are illiterate in English, a federal study finds. *New York Times,* p. 1.

WEST, J., DIODATO, L., & SANDBERG, N. (1984). Trend study of high school offerings and enrollments: 1972-73 and 1981-82. Washington, DC: U.S. Government Printing Office.

WITTY, P., & COOMER, A. (1951). How successful is reading instruction today? *Elementary English, 28,* 451-459.

YERKES, R.M. (1921). *Psychological examining in the United States Army.* Washington, DC: National Academy of Sciences.

YOAKUM, C.S., & YERKES, R.M. (1920). *Army mental tests.* New York: Holt and Company.

ZAJONC, R.B., & BARGH, J. (1980). Birth order, family size, and decline of SAT scores. *American Psychologist, 35,* 662-668.

Footnote

This article is based upon a longer report: L.C. Stedman and C.F. Kaestle. (1986). *An investigation of crude literacy, reading performance, and functional literacy in the United States, 1880-1980* (Program Report 86-2). Madison: University of Wisconsin, Wisconsin Center for Education Research. The research is part of A Social History of the American Reading Public, 1880-1980, Carl F. Kaestle, Principal Investigator, a project supported by the Spencer Foundation and by the National Institute of Education (Grant No. NIE-G-84-0008) through the Wisconsin Center for Education Research. The opinions expressed in this article do not necessarily reflect the position, policy, or endorsement of the Spencer Foundation or of the National Institute of Education.

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[3] Although his research was contracted by the National Institute of Education, Fisher's (1978) remarks do not necessarily reflect NIE position of policy, and no official endorsement by NIE is implied.

National Literacy Campaigns: Historical and Comparative Lessons

Over the past 400 years, literacy campaigns have played a role in larger transformations in various societies, note the authors. They examine the lessons we can learn from several such campaigns.

BY ROBERT F. ARNOVE AND HARVEY J. GRAFF

> The magnitude of the problem in many countries calls for massive efforts. Only specific campaigns with clearly-defined targets can create the sense of urgency, mobilize popular support and marshall all possible resources to sustain mass action, continuity, and follow-up.[1]

THE IDEA of a campaign to promote massive and rapid increases in rates of literacy is not unique to the 20th century. Major campaigns have taken place over the past 400 years, and they share common elements.

Both historically and comparatively, literacy campaigns have played a role in larger transformations in societies. These transformations have attempted to integrate individuals into more comprehensive political and/or religious communities. During the transformations, authorities bent on centralization have used compulsion and social pressure to propagate a particular doctrine among large numbers of learners and teachers.

Since the Protestant Reformation of the 16th century in Europe, literacy campaigns have made use of a variety of media and specially developed materials, commonly involving a cosmology of symbols, martyrs, and heroes. The campaigns have often been initiated and sustained by charismatic leaders – Luther, Calvin, Knox, Gandhi, Lenin, Mao Zedong, Castro, Nyerere – and have usually depended on a special "strike force" of teachers to disseminate a particular faith or worldview.

The stature of these leaders and the values they have articulated for their followers have been tied to notions of salvation, redemption, re-creation. During the Reformation and Post-Reformation periods in Europe, as well as during the 19th-century American common school "crusade," these notions centered on the saving of individual souls and the achievement of political order. In the 20th century (especially after World War II), these ideas have tended increasingly to refer to the redemption of a society that had suffered under colonialism, to the birth of a nation, and to the creation of a new and more just social order.

Belief in the printed word and in the

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Literacy has been seen as a process of consciousness-raising aimed at human liberation.

efficacy of literacy has become an article of faith. Both then and now, reformers and idealists – the movers and shakers of societies and of historical periods – have viewed literacy as a means to better ends: a more moral society or a more stable political order. Both then and now, individuals have sought and used literacy to attain their own goals.

In the 20th century, and particularly since 1960, literacy has been seen as a process of consciousness-raising aimed at human liberation.[2] In this view, literacy is not an end in itself but a means to national development and to a social order defined by national and international elites.[3] From our review of past literacy campaigns, we have drawn several lessons that may prove useful to the planners of current and future efforts. Among these lessons are:

- the need for literacy efforts to last long enough to be effective,
- the desirability of mobilizing local initiative in conjunction with national will,
- the need to take into account the fact that certain populations will resist nationally directed programs,
- the need to focus eventually on schooling for youth (in order to head off future illiteracy), and
- the need to see literacy in its various contexts.

LENGTH OF CAMPAIGN

In a review of national literacy campaigns of the 20th century, commissioned by UNESCO, H.S. Bhola defines a literacy campaign as "a mass approach that seeks to make all adult men and women in a nation literate within a particular time frame." He notes that the word *campaign* "suggests urgency and combativeness; it is in the nature of an expectation, it is something of a crusade." Sometimes, large-scale attainment of literacy becomes the moral equivalent of war. By contrast, a *literacy program* – even though it is carefully planned, systematic, and based on clearly stated objectives – "may lack both urgency and passionate fervor."[4]

Although a limited time frame is considered to be a defining characteristic of a mass campaign, those national efforts that are frequently viewed as exemplars of 20th-century mobilizations for literacy commonly lasted for two or more decades. Bhola's examples include campaigns in the USSR (1919-39), in Vietnam (1945-77), in the People's Republic of China (1950s-80s), in Burma (1960s-80s), in Brazil (1967-80), and in Tanzania (1971-81). Only the Cuban literacy campaign spanned a period of one year or less. The Nicaraguan literacy crusade of 1980 – which Bhola did not study – lasted only five months. Immediately following that crusade, however, the Nicaraguan government instituted a campaign in indigenous languages aimed at non-Spanish-speaking populations of the Atlantic Coast region, and it established (as Cuba had done earlier) a continuing program of basic or popular education.[5] Today, some six years after the Nicaraguan literacy campaigns of 1980-81,

there are new calls for a campaign that will reach those adults who have lapsed into illiteracy because of the military situation in that nation.

Literacy campaigns are usually initiated during periods of upheaval, revolutionary transformation, and civil strife. Thus it should come as no surprise that the lofty educational goals that often characterize new political regimes are difficult to achieve and to sustain. The USSR, for example, was the first nation to adopt a war/siege mentality to combat illiteracy. The Decree on Illiteracy of 26 December 1919 required all illiterates between the ages of 8 and 50 to study, empowered local *Narkompros* (People's Commissariats of Enlightenment) to draft citizens to teach, and made it a criminal offense to refuse to teach or study.[6] However, five years after the passage of comprehensive legislation and the establishment of a national literacy agency and of "liquidation points," Minister of Education Anatoly Lunacharsky complained that "the society for the liquidation of illiteracy passes wonderful resolutions, but the concrete results of its work are despicable."[7] And 10 years after the Decree on Illiteracy had been pronounced, N.K. Krupskaya, Lenin's wife and a renowned educator, complained that not a single article had been implemented.[8]

NEED FOR LOCAL INITIATIVE

A nationally orchestrated literacy campaign may require 10 years or more to take hold, but such campaigns are usually preceded by grassroots initiatives. Moreover, the fanfare heralding the achievements brought about by a new political regime generally obscures the local educational efforts and accomplishments on which the national policy makers have built.[9]

Nineteenth-century America is perhaps the most striking example of the successful attainment of high literacy levels through decentralized efforts. Unlike the German, Swedish, and Scottish campaigns of the 17th and 18th centuries, America had no centrally determined policy to bring the power and resources of the nation-state to bear on the problem of literacy. Instead, competition among religious denominations, the proliferation of religious and secular presses, the exhortations of leading secular and clerical authorities, and local civic initiative combined to promote literacy activities. Most of these activities were organized and directed by individual states, rather than by the federal government.[10]

In the 20th century, the most striking examples of mobilization for literacy have been national, centrally organized efforts waged as "wars on ignorance." But these efforts have also depended heavily on local initiative and local organizations to recruit teachers and to implement instructional activities. The People's Republic of China had the most massive mobilization (more than 137 million people), an effort, according to Bhola, that was centrally instituted and nationally orchestrated, but carried out in a decentralized manner, leaving much to local choice and initiative. "China illustrates in extreme form the importance of national political will in the achievement of widescale literacy in a poor country.[12] Other prominent examples include Cuba, Tanzania, and Nicaragua. By contrast, such advanced industrialized nations as the U.S., the United Kingdom, and France have not committed the requisite resources and efforts to meet substantial literacy problems, according to Leslie Limage.[13]

Particularly in socialist nations, the success of large-scale mobilizations often depends on mass organizations, such as youth, worker, neighborhood, defense, or women's associations. National literacy campaigns can give large numbers of citizens opportunities to participate in decision making. But these massive mobilizations (and the organizations that back them) can also serve as instruments through which dominant groups or the state exercise cultural and political hegemony. History offers many examples of people who – individually and collectively – have resisted attempts by dominant groups to control the uses of literacy and communication skills. As early as the 16th century, the German literacy drives prompted resistance from peasants. Both before and after the revolution of 1917, various peasant populations in Russia set up their own schools and used reading materials that did not accord with the designs of state authorities. Ben Eklof chronicles peasant attacks on state-appointed teachers in the late 1920s and early 1930s. He also describes how, despite intense efforts at censorship, Russians pursue their own (often escapist) reading interests today:

> Library subscribers take out books on politics in far smaller number than their availability. Books checked out are concentrated in the areas of travel, biography, and history (primarily on World War II, military memoirs, spy documentaries, regimental histories).[14]

Similar accounts of reading habits from Tanzania and the People's Republic of China suggest that peasants and workers may be less interested in reading about how to construct a latrine or organize a cooperative than in reading stories of romance and adventure. Arthur Gillette, who participated in the evaluation of the 11-nation Experimental World Literacy Program sponsored by UNESCO (1967-73), sums up the difficulty of controlling outcomes of literacy campaigns:

> Happily, literacy like education more generally cannot be reduced to behavioral conditioning. It endows people with skills that they can (although do not always) use to receive and emit messages of an almost infinite range, a range that in any event escapes the control of those who imparted literacy. . . . Literacy is potential empowerment.[15]

A nationally orchestrated literacy campaign may require 10 years or more to take hold.

REACHING SIGNIFICANT POPULATIONS

In addition to the resistance of people to control, past literacy campaigns can teach other lessons. One such lesson has to do with the ubiquity of social class, ethnic, racial, geographical, and gender differences in the acquisition of literacy over the past 400 years. Both historically and comparatively, rural populations, the working class, ethnic and racial minorities, and women have been the last

Literacy often carries tremendous symbolic weight. It serves as a badge, a sign of initiation.

groups to receive literacy instruction and to gain access to advanced levels of schooling. As various UNESCO publications reiterate, "The world map of illiteracy is the map of poverty."

Women have been the most disadvantaged group. From the time of the Protestant Reformation, when the state held heads of households responsible for providing literacy instruction and for supervising reading, men have typically benefited most from literacy campaigns. When women were finally given access to reading skills, men still received preference in the teaching of writing skills. However, in early modern Sweden and in 19th-century America, recognition of women's unique "educational mission" as mothers and as schoolteachers pushed their literacy rate upward until it sometimes rivaled that of men. A majority of the literacy workers during the recent campaigns in Cuba and Nicaragua were women. But in other nations, such as Tanzania, most of the individuals who have achieved higher levels of functional literacy are men.[16]

An analysis of literacy campaigns as diverse as those in preindustrial Germany, in the Soviet Union (1919-39), in Tanzania (1970-83), and in Nicaragua (1980-86) discloses an unmistakable pattern. Regardless of the intensity or the scale of these efforts, each brought literacy (whether by intent or not) to approximately 85% of the adult population.[17] A seemingly irreducible 10% to 20% of the adult population in each nation remained illiterate.

This finding raises at least three important questions for future study. Who are these unreachable people? What factors and conditions (e.g., institutional discrimination; inappropriate language, methods, and materials of instruction; opposition to the ideology of a political regime) are associated with a failure to attain literacy? And how are illiterate individuals treated by an increasingly literate population?

Quite apart from any new power or capabilities that it may bring, literacy often carries tremendous symbolic weight. It serves as a badge, a sign of initiation into a select group. By the same token, individuals who remain illiterate by choice or by chance may be perceived as deviant and thus denied full membership rights in the larger community. Individuals who actively oppose literacy efforts run the risk of being labeled as unassimilated, counterrevolutionaries, or enemies of the state.

THE ROLE OF SCHOOLING

Faced with literacy campaigns, adults are often intractable. They do not wish to learn in ways prescribed by state authorities or to be converted to a different set of beliefs. One important feature of the German literacy campaigns of the Reformation was Martin Luther's shift in focus from all members of the community to the young.[18] The dilemma that Luther confronted – whether to concentrate literacy efforts on the young (who may be less "corrupted" and more malleable) or on adults – has been a strategy issue in almost every mass campaign since his day. Most 20th-century literacy campaigns have started as large-scale efforts aimed at entire populations, but gradually they have narrowed their focus and emphasized more strongly the formal education of the young.

Not surprisingly, the teaching of literacy skills and the socialization of individuals have merged over time to become institutionalized in state systems of education. From the beginning, literacy campaigns have had as their goal the propagation of a particular faith or worldview through the reading of prescribed texts under the supervision of teachers of upright character and a certain moral persuasion.

Over time, the religious orientation of school systems has given way to a more secular faith in the nation-state and, frequently, to the propagation of an ideology such as capitalism or socialism. Political elites find state-organized and state-regulated systems of schooling efficient mechanisms for achieving such goals. There may be certain benefits to bureaucratic systems of education, with their attendant centralization of decision making, standardization of routines, and uniformity of curriculum. For the substantial number of individuals who do not fit into such structures, however, bureaucratic systems of education foster alienation and academic failure – perhaps even illiteracy.

VIEWING LITERACY IN CONTEXT

Literacy takes on meaning according to the historical and social setting. No-

tions of which skills constitute literacy change over time and differ by setting, causing estimates of illiteracy to vary enormously from time to time and from place to place. In the U.S. alone, estimates of illiteracy have fluctuated over the past seven years from less than 1% of the population to 70 million Americans deemed to possess "marginal" literacy skills.[19] In general, environments that are more technologically complex are thought to require reading and writing skills that are more sophisticated. Thus there will be calls for renewed efforts to teach higher-order literacy skills.

One question facing political and educational policy makers in the U.S. and other societies is whether or not they are willing to dedicate sufficient resources and time to that endeavor, while simultaneously encouraging local initiative and input. To launch effective efforts to teach contextually relevant literacy skills, policy makers must take into account the reasons for resistance to such national campaigns, and they must find materials and methods that enable literacy workers to reach populations that have previously been ignored or discriminated against.

THAT LITERACY will integrate a society, eliminate inequalities, and contribute to political and social stability is certainly too much to expect. Literacy, however, can be empowering, especially when it works in conjunction with other changes. Ultimately, contextual factors – the opportunities for using literacy skills, the transformations that occur in social structures, the ideology of national leaders – determine whether or not individuals retain and use their literacy skills. Whether literacy and postliteracy campaigns use materials and methods that are truly designed to equip people to play more active roles in shaping the direction of their societies or, instead, use materials and methods aimed at inducting people into predetermined roles is a telling indication of the ideology and intent of these campaigns.

From current and past literacy campaigns, planners and political leaders have learned a number of lessons about the factors that contribute to the success of a campaign or cause it to fall short of its goal. But the extent to which international and national authorities have grasped the implications of these lessons and are committed to applying them remains in question. The lack of resolve of political and educational leaders in many nations may be attributed to the fact that widespread literacy within a populace can have uncontrollable, contradictory, and conflicting consequences.[20]

As individuals gain literacy, there is a dialectic or interaction between them and the environment and between them and the centralizing authorities. The dialectic is an ongoing process, its nature continuously shaped by the expansion – and sometimes the transformation – of literacy itself. Over the last 30 years, the ideology of literacy has shifted toward an emphasis on empowerment. The factors contributing to this shift have included the seminal work of Paulo Freire, the examples provided by national literacy campaigns in Cuba and elsewhere, UNESCO-sponsored conferences and declarations, and the emergence of a body of scholarly literature that is more political in nature. It is too early to tell whether the shift to empowerment and grassroots determination of literacy development will effectively counter the long-standing tradition of centralized direction of literacy efforts.

The tension between the base and the top, between the masses and the elites, between those who are the supposed beneficiaries of literacy and those who envision and organize campaigns for the populace has been heightened by the telescoped time span in which literacy campaigns are undertaken, by modern technologies and communications systems, and by refined instruments of state power – all of which increase the potential for social control. The tension is also heightened by the increasing awareness of masses and elites alike of the political nature of literacy. (This increasing awareness is not surprising, given the rhetoric and ideology of recent national campaigns, which have stressed education for "critical consciousness" and "liberation.") The sources and nature of the tension seem relatively clear; it is very difficult to predict or prescribe the manifold outcomes of a literacy campaign and the uses to which literacy will ultimately be put.

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1. H.S. Bhola, with Josef Müller and Piet Dijkstra, *The Promise of Literacy: Report of the International Seminar on Campaigning for Literacy, Udaipur, India, January 4-11, 1982* (Baden-Baden, Germany: Nomos Verlagsgesellschaft, 1983), p. 245.
2. See, for example, Leon Bataille, ed., *A Turning Point for Literacy: Proceedings of the International Symposium for Literacy, Persepolis, Iran* (New York: Pergamon Press, 1976); and Paulo Freire, *Pedagogy of the Oppressed* (New York: Seabury, 1970).
3. G. Carron and Anil Bordia, *Issues in Planning and Implementing National Literacy Programmes* (Paris: UNESCO and IIEP, International Institute for Educational Planning, 1985), esp. p. 18.
4. H.S. Bhola, *Campaigning for Literacy: A Critical Analysis of Some Selected Literacy Campaigns of the 20th Century, with a Memorandum to Decision Makers* (Paris: UNESCO/International Council for Adult Education, 1982), p. 211.
5. For further discussion, see Robert F. Arnove, *Education and Revolution in Nicaragua* (New York: Praeger, 1986), esp. Ch. 3.
6. Peter Kenez, "Liquidating Illiteracy in Revolutionary Russia," *Russian History*, vol. 9, 1982, pp. 180-81, cited in Ben Eklof, "Russian Literacy Campaigns," in Robert F. Arnove and Harvey J. Graff, eds., *Literacy Campaigns: Historical and Comparative Perspectives* (New York: Plenum, 1987), p. 131.
7. Roger Pethybridge, *The Social Prelude to Stalinism* (London: Macmillan, 1974), p. 152.
8. Eklof, p. 131.
9. Ibid., pp. 123-31. On the literacy campaign in China, see Evelyn Sakakida Rawski, *Education and Popular Literacy in Ch'ing China* (Ann Arbor: University of Michigan Press, 1979); and Charles W. Hayford, "Literacy Movements in Modern China," in Arnove and Graff, pp. 147-71.
10. See Edward Stevens, "The Anatomy of Mass Literacy in Nineteenth-Century United States," in Arnove and Graff, pp. 99-122.
11. Bhola, pp. 85-90.
12. Ibid., p. 98.
13. Leslie Limage, "Adult Literacy Policy in Industrialized Countries," *Comparative Education Review*, vol. 30, 1986, p. 50-73.
14. Eklof, p. 144.
15. Arthur Gillette, "The Experimental World Literacy Program: A Unique International Effort Revisited," in Arnove and Graff, p. 215.
16. Yussat Kassam and Bud Hall, "Tanzania's National Literacy Campaign: A Journey of Imagination, Energy, and Commitment," unpublished paper, International Council for Adult Education, Toronto, 1985; and Jeff Unsicker, "Tanzania's Literacy Campaign in Historical-Structural Perspective," in Arnove and Graff, esp. pp. 220-24.
17. The exception is Cuba, which claims that its 1961 campaign reduced the rate of illiteracy from 24% to 4%. See Marvin Leiner, "The 1961 National Literacy Campaign," in Arnove and Graff, pp. 173-96.
18. Gerald Strauss, *Luther's House of Learning: Indoctrination of the Young in the German Reformation* (Baltimore: Johns Hopkins University Press, 1978); and Richard L. Gawthrop, "Literacy Drives in Preindustrial Germany," in Arnove and Graff, esp. pp. 31-33.
19. Jonathan Kozol, "Illiteracy Statistics: A Numbers Game," *New York Times*, 30 October 1986, p. 27.
20. On the problems of national planning, see Henry M. Levin, "The Identity Crisis of Educational Planning," *Harvard Educational Review*, February 1981, pp. 85-93; and on the difficulties of determining literacy outcomes, see Harvey J. Graff, *The Legacies of Literacy: Continuities and Contradictions in Western Culture and Society* (Bloomington: Indiana University Press, 1987).

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ADULT EDUCATION QUARTERLY
Volume 36, Number 1, Fall, 1985, pp. 50–54

IS A COMMON DEFINITION OF ADULT LITERACY POSSIBLE?

RONALD M. CERVERO

Although the literacy of the adult population has been a major concern of governments and education for many years, there has never been agreement on what it actually means to be literate in American society. Scribner (1984) comments on this situation by observing that:

> A dominant response of scholars and researchers to this perceived ambiguity has been to pursue more rigorously the quest for definition and measurement of the concept. . . . Many, although by no means all, of those grappling with the problems of definition and measurement appear to be guided by a search for the "essence"—for the "one best" way of conceptualizing literacy. (pp. 6–7)

The purpose of this paper is to evaluate the efforts to achieve a common or single definition of adult literacy in the United States. The first section describes the current understandings of literacy as reported in the professional literature. The next section focuses on the feasibility of establishing a common definition of adult literacy in contemporary America. Finally, the normative aspects of the issue are explored; this section asks whether there is a need for a common definition after all.

CURRENT UNDERSTANDINGS OF ADULT LITERACY

While several terms are used most often to denote adult literacy (literacy, general literacy, functional literacy, functional competency), there is no commonly accepted definition of adult literacy. Yet, amid this diversity one can detect an increasingly common element in many of the definitions proposed in the last fifteen years. For several decades, literacy had been defined as a specified number of grade levels achieved in formal schooling, varying from fourth to eighth grade (Cook, 1978). In fact, the U.S. Census continues to use grade-level achievement to measure the literacy level of the American population. In contrast to a grade-level criterion, most current definitions describe literacy in terms of adults' ability to function within a social context. In these definitions, literacy is not something that can be measured in an absolute sense, such as body weight, but rather in a relative sense. Many people who have seriously studied the issue have arrived at this same conclusion and have proposed relativistic definitions (Freire, 1970; Hunter & Harman, 1979; Kirsch & Guthrie, 1977–1978; Northcutt, et al., 1975; Scribner & Cole, 1978; Sticht, et al., 1972).

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Relativistic understandings of literacy were first popularized in William S. Gray's survey of reading and writing for UNESCO (1956) within the rubric of "functional literacy." To Gray, a person is functionally literate "when he has acquired the knowledge and skills in reading and writing which enable him to engage effectively in all those activities in which literacy is normally assumed in his culture or group" (Gray, 1956, p. 24). Most recent definitions had broadened the scope of literacy beyond reading and writing skills. The Adult Performance Level (APL) study identified competencies that are functional to economic and educational success in today's society (Northcutt, et al., 1975). In a similar vein, Hunter and Harman (1979) define functional literacy as "the possession of skills *perceived as necessary by particular persons and groups* to fulfill their own self-determined objectives as family and community members, citizens, consumers, jobholders, and members of social, religious, or other associations of their choosing" (p. 7). In contrast to these expansive definitions, Kirsch and Guthrie (1977–1978) argue that "functional literacy refers to how well a person can read materials with 'survival' activities" (p. 505).

The policy of the federal government, as expressed in the Adult Education Act, became consistent with the practice of defining literacy in a social context in 1978. With the reauthorization of the Act, funding guidelines defined the target population not only as those with less than a high school diploma, but also those who lacked the skills to function productively in American society. From this brief review we can conclude that with a few exceptions, there is general agreement with the principle that literacy should be defined as the ability of individuals to function within a specific social context.

FEASIBILITY OF ESTABLISHING A COMMON DEFINITION

Agreement on a principle that should be used in defining adult literacy is one thing. It is quite another matter to provide a definition that could be used in specifying goals for and evaluating literacy programs; specifying the appropriate content for literacy instruction; diagnosing, placing, and assessing students; and determining how many adults are illiterate. The former may be thought of as a mission statement (something so general that almost everyone can agree to it) while the latter demands an *operational* definition. In an analysis of functional literacy, Kenneth Levine (1982) explains why so many people with diverse views can agree with the general concept of functional literacy: ". . . an inspection will uncover one of the characteristic defects of fashionable ideas—an extreme elasticity of meaning. . . . There is in the case of functional literacy a systematic and insidious ambiguity that permits incongruent interpretations while simultaneously promoting a comfortable but illusory consensus" (p. 249).

It is argued here that while a common conceptual definition *may* be possible, a common operational definition is not feasible in contemporary America. The fundamental problem is that any definition of literacy specific enough to provide goals and content for programming is principally an expression of values. The fact that we find great variance in goals and assumptions of adult literacy programs underlines the pluralism of American values. Thus, the major issue that would have to be addressed in formulating a common definition is whether

there exists a set of values that is common to all people. Hunter and Harman (1979) speak directly to the issue:

> . . . if we take seriously the dynamic interaction between self-defined needs and the requirements of society, measurement of functional literacy becomes infinitely more elusive. Who but the person or group involved can really describe what 'effective functioning in one's own cultural group' really means? (p. 19)

They agree with the conclusion reached by Scribner and Cole (1978) who spent five years studying literacy among the Vai people of Liberia:

> . . . while attempts to arrive at some overall measures of literacy competencies may be useful for certain comparative purposes, the representation of literacy as a fixed inventory of skills that can be assessed outside of their contexts of application has little utility for educational policies. (p. 459)

The important point is that if literacy is defined in the context of a given environment, different contexts require different skills. Sticht, et al. (1972) provide a real-life example in their study of the adult functional literacy skill levels necessary for certain U.S. Army occupations. Even within the narrow context studied, they found a variance in the level of literacy skills required for effective functioning: "If one were to consider a functional reading level to be one at which 80 per cent of the readers would be expected to get 70 per cent of the job reading task items correct, then functional literacy for cooks would be in the range of grade levels 7.0–7.9, for repairmen, 8.0–8.9, and for supply specialists, 12.0–12.9" (p. 444). It seems that once a relativistic approach to defining literacy is accepted, a common operational definition is not attainable.

Even within a given context, however, a common definition would be dependent on the values of the definers. For example, Griffith and Cervero (1977) note that "the APL approach exemplifies a philosophy of adjustment to the status quo rather than an active inquiring attitude compatible with the notion of responsible citizenship in a free society" (p. 221). In her study of the social networks of illiterate adults, Fingeret (1983) provides powerful empirical evidence that the definition of literacy is rooted in a value perspective. The customary assumption of many definitions of literacy is that illiterate adults are dependent and unable to function effectively in society because they are unable to perform reading and writing skills autonomously. However, in her ethnographic study of 43 illiterate adults, Fingeret (1983) found that:

> Many illiterate adults view reading and writing as only two of the many instrumental skill and knowledge resources that, combined, are required for daily life. Individuals create social networks that are characterized by reciprocal exchange; networks offer access to most of the resources individuals require, so that it is unnecessary to develop every skill personally. Therefore, many illiterate adults see themselves as interdependent; they contribute a range of skills and knowledge other than reading and writing to their networks. (p. 133–134)

Many have looked at adult illiterates and have defined their literacy needs in terms of learning to read and write. Fingeret views these same adults and concludes that "illiteracy no longer defines dependence in the social context of these adults. Educators must become involved in the social networks of illiterate adults

and must recognize that the development of literacy skills, even for one individual, entails a broader process of social change" (p. 145).

THE NEED FOR A COMMON DEFINITION

Having argued that a common definition is not feasible in contemporary America does not imply that there is not a need for a common definition. Needs are not value-free statements of fact; rather, needs are created by interpreting facts through a set of values. Thus, different people looking at the same facts about adult literacy will "see" different needs. A common definition of adult literacy may serve the needs of certain types of people in the adult literacy scene and may be dysfunctional to others. This section examines whose needs might and might not be served by a common definition of adult literacy. In the following discussion it is assumed that the common definition would be an operational one.

One group whose needs might be served by a common definition would be those centralized agencies, such as the federal and state governments, that provide funding for adult literacy programs. Imagine a system in which every person could clearly be identified as literate or illiterate along clearly specified dimensions. Literacy programs would be designed to help students remedy their deficiencies along these dimensions and thus become literate. Accountability would be the trademark of this system. One could know exactly how many illiterates were in the target population, how many were served in programs, and how many became literate. There would be a number of benefits to this system. Among them would be: 1) these centralized bodies could fulfill their goal to provide accurate statistics on adult literacy; 2) literacy programs and those who administer them could be much more accountable to funding agencies than they are now.

If all literacy programs had the same goals and content, the biggest winners probably would be the commercial interests in the field such as the book and test publishers. The current "market" for adult literacy materials, while somewhat profitable, could become quite lucrative if all programs needed the same type of materials and diagnostic tests. Since there is no standardized curriculum at present, the content and skill areas of the General Educational Development (GED) Test determine the subject matter of many literacy programs. Thus, many book publishers design their materials to concentrate on these areas. Yet there are many programs driven by different definitions of literacy (e.g., life skills) which need different materials and tests. A standardized national curriculum for adult literacy would serve the needs of commercial interests to develop one set of materials that could be marketed to all programs.

It is difficult to imagine what advantages would exist for adult educators or adult learners in a system guided by a common definition of literacy. We know that different adults and different communities have diverse needs with respect to literacy (Hunter and Harman, 1979). Some adults need to learn to read; others need to obtain a high school credential, while some need literacy training for a specific job. Some adult educators seek to develop the traditional literacy skills (reading and writing) of adults, while others use literacy as a means of community development. Some literacy programs teach skills necessary to sur-

vive within society, while others teach skills to challenge the existing norms and values of society. A common definition of literacy would limit the range of choices available to adult learners. Given the pluralistic values underlying the current range of literacy efforts, it is extremely unlikely that a common operational definition of literacy would encompass all literacy programs. The only questions to be answered would be which adults would not be served and who would make those decisions.

A CONCLUDING NOTE

Is there a need for a common definition of literacy? Kenneth Levine (1982) provides a perspective within which to discuss the question:

> The social and political significance of literacy is very largely derived from its role in creating and reproducing—or failing to reproduce—the social distribution of knowledge. If this were not so, if literacy did not have this role, the inability to read would be on a par with tone-deafness, while an ability to write would be as socially inconsequential as a facility for whistling a tune. (p. 264–265)

The effort to achieve a common definition would not be a technical process aimed at discovering the objectively best definition of literacy. Rather, it should be viewed as a clash of competing value positions, ideologies, and power structures. There can be little doubt that the winners in this struggle would be those who wish to reproduce the existing social distribution of knowledge. The question, then, is not whether there is a need for a common definition of literacy, but rather whose needs will be served.

REFERENCES

Cook, W. D. (1977). *Adult literacy education in the United States.* Newark, Delaware: International Reading Association.

Fingeret, A. (1983). Social network: A new perspective on independence and illiterate adults. *Adult Education Quarterly, 33,* 133–146.

Freire, P. (1970). The adult literacy process as cultural action for freedom. *Harvard Educational Review, 40,* 205–225.

Gray, William S. (1956). *The teaching of reading and writing.* Chicago: Scott, Foresman & Company.

Griffith, W. S., & Cervero, R. M. (1977). The adult performance level program: A serious and deliberate examination. *Adult Education, 27,* 209–224.

Hunter, C. & Harman, D. (1979). *Adult illiteracy in the United States.* New York: McGraw-Hill.

Kirsch, I. & Guthrie, J. T. (1977–1978). The concept and measurement of functional literacy. *Reading Research Quarterly, 13,* 485–507.

Levine, K. (1982). Functional literacy: Fond illusions and false economics. *Harvard Educational Review, 52,* 249–266.

Northcutt, N., Selz, N., Shelton, E., Nyer, L., Hickok, D., & Humble, M. (1975). *Adult functional competency: A summary.* Austin, Texas: The University of Texas, Division of Extension.

Scribner, S. (1984). Literacy in three metaphors. *American Journal of Education, 93,* 6–21.

Scribner, S. & Cole, M. (1978). Literacy without schooling: Testing for intellectual effects. *Harvard Educational Review, 48,* 448–461.

Sticht, T. G., Caylor, J. S., Kern, R. P., & Fox, L. C. (1972). Project REALISTIC: Determination of adult functional literacy skill levels. *Reading Research Quarterly, 7,* 424–465.

Forrest P. Chisman

EXECUTIVE SUMMARY OF JUMP START: The Federal Role in Adult Literacy

A Time for Action

Nineteen eighty-nine is the year of opportunity for adult literacy in the United States. A combination of regard for the welfare of individuals, civic values and a growing appreciation of the nation's bottom-line interest in a more skilled workforce has created a coalition of concern that cuts across political parties, ideologies, regions, and all walks of life.

The economic aspect of the need to improve literacy in the United States has added a new sense of urgency to longstanding concerns. **Seventy-five percent of the American workforce in the year 2000 are adults today**: they are out of school and most are in the workforce. By the most conservative estimates **20–30 million of these adults have serious problems with basic skills**: they cannot read, write, calculate, solve problems, or communicate well enough to function effectively on the job or in their everyday lives.

There is no way in which the United States can remain competitive in a global economy, maintain its standard of living, and shoulder the burden of the retirement of the baby boom generation unless we mount a forceful national effort to help adults upgrade their basic skills in the very near future.

Mounting such an effort will require overcoming years of neglect. **At present the field of basic skills education is intellectually, institutionally, and politically weak and fragmented.** While there is a great deal of experience-based knowledge to build on, there is too little systematic research or evaluation and diffusion of ideas. For the most part, instructors are poorly supported and inadequately trained.

Responsibility for basic skills training is fragmented at all levels of government. At the federal level, the departments of Education, Labor and Health and Human Services administer major programs, and other departments also have responsibilities in the field. Yet, at most, $1–2 billion is available at the federal level, and much less is surely spent. This means that adult literacy has been **a very low priority for almost everyone in Washington**.

The federal role in advancing adult literacy must be to help jump start a more substantial national effort than currently exists. Primary responsibility for addressing the problem must remain with state and local governments and with nongovernmental institutions. State governments have a particularly important role to play as coordinators of service delivery systems. But federal programs currently determine the directions of large parts of the national effort, and there are enormous stakes involved for all Americans. The federal government must play a leadership role by energizing other institutions and providing a sense of direction for the field.

A NEW OUTLOOK

Before the federal government, or the nation as a whole, can make substantial progress, Americans must adopt **a new outlook toward adult literacy**. We must realize that **there is enormous latent political support for vigorous initiatives** in this area from business, labor, all levels of government, and the public at large. But to make good use of that support, **we must form a better understanding of how to approach this complex field**. In particular, we must understand that:

- Valuable as it is, **school reform will not solve the problem** of adult literacy—the 20–30 million adults with inadequate basic skills are already out of school;
- **Volunteers alone cannot solve the problem**, nor are they a "cheap way out"—but they are one of several essential ingredients in the literacy system, and they need support; while supporting them we must also enlarge and enhance our professional teaching corps;
- **Business alone will not solve the problem**—although business, labor, and the public sector working together in partnerships can accomplish a great deal;
- **Technology is not a dehumanizing factor** nor is it a substitute for teachers—it is an essential ingredient in any adequate nationwide literacy effort;
- There is no single ideal service delivery system for literacy--**the national effort is and must be pluralistic**;
- There are at least **two dimensions** of the literacy problem: the **difficulties experienced by all of those with limited basic skills and the difficulties of the 3–4 million Americans with limited proficiency in English (the "ESL population")**—and our systems for serving the latter are far more refined. But **unless we invest more to address the language problems of immigrants and of Hispanic-Americans, the nation is headed toward a major economic and social crisis**, because these groups are the fastest-growing segments of our population and workforce.

THE NATIONAL FOCUS

As we adopt a new outlook on literacy, we must **focus greater national attention on the most seriously neglected national priority in this**

field: basic skills of the workforce. Although this is the aspect of the literacy problem with the greatest near-term economic importance, **paradoxically most public and private programs are not available to people who are on the job**. Almost all federal resources are targeted on the unemployed or other disadvantaged groups. We must not abandon those efforts, but we must build an emphasis on workforce literacy if the nation is to meet the economic and social challenges of the years to come. And we must demand systems that help learners attain large gains in basic skills: programs that help people to make major advances at work and in other aspects of their lives, rather than simply nominal achievements.

Fortunately, **the measures required to come to grips with the problem of adult literacy in the near term are neither very expensive nor very difficult**, compared with the measures required to tackle other major economic and social problems. The primary need is for leadership: setting clear national goals and reorienting priorities to achieve them. New annual spending at the federal level of $550 million or less would be sufficient to make a quantum leap forward.

SPECIFIC RECOMMENDATIONS

To jump start a national effort to enhance literacy that is commensurate with the national need, **the federal government must adopt measures along the following lines**:

- **Executive branch leadership:**
  — The **president should establish adult literacy, and workforce literacy in particular, as a major priority of his administration**;
  — He should appoint a **special six-month task force to develop a strategic plan that will specify the nation's goals and the means of achieving them**;
  — He should establish a **Cabinet Council on Adult Literacy** with responsibility for coordinating federal efforts toward meeting national goals: getting the most out of existing programs and launching new initiatives.

- **Legislative initiatives:**
  To focus national attention on the array of policy issues that must be addressed, the administration and Congress should introduce the **Adult Basic Skills Act of 1989**. The Act would:
  — **Build a stronger intellectual base for adult literacy** by: 1) establishing a quasi-governmental **National Center for Adult Literacy** charged with conducting basic and applied research, providing technical assistance to literacy programs and instructors, and monitoring the field for policy-makers; and 2) requiring the three departments (Labor, Education and Health and Human Services) with major responsibility in this field to set aside substantial funds for policy research from their existing budgets;
  — **Promote innovation in training and technology** by: 1) creating a program of matching grants to state and local governments for investments in these essential components of the field (this program should begin on a small scale and escalate gradually over several years up to a ceiling); 2) ensuring that the technology now in place is fully utilized

and available to all who can benefit from it; and 3) creating a literacy leader training program to encourage more young people to make adult literacy a full-time career;

— **Reinforce federalism** by: 1) providing governors with an eight percent set-aside fund from education and training programs to promote innovative ventures; 2) requiring governors who receive those funds to develop, implement, and monitor state literacy plans that will coordinate and upgrade service delivery systems, including upgrading the quality of the teaching force; 3) providing matching grants to states to develop state resource centers that will provide technical support for enhanced state efforts; and 4) allowing states to make greater use of volunteer groups and other nongovernmental organizations;

— **Enhance the effectiveness of existing federal programs and place greater emphasis on workforce literacy:**

1) In the **Job Training Partnership Act** by: creating a new title authorizing basic skills training for the employed, initially funding the new title to support large-scale system demonstrations in workforce literacy, and loosening up requirements in the present adult programs of JTPA to allow more extensive literacy services;

2) In the **Carl D. Perkins Vocational Education Act** by: making basic skills competence a major goal of vocational education programs and a requirement for participating in job-specific training, and by funding the adult training and retraining provisions of the Vocational Education Act;

3) In the **Adult Education Act** by: fully funding the Adult Education Program, doubling its appropriation to meet the flood of demands for ESL services, elevating the director of the program to the level of Assistant Secretary, providing the director with responsibility for coordinating Education Department basic skills services, and allowing governors the latitude to appoint any official of their choosing to coordinate state services under the Act;

4) In the **Family Support Act** by: requiring welfare agencies to provide basic skills instruction to all participants in the JOBS program who need it, both before they find employment and for some period of time after they are employed;

5) In **other federal programs** by: fully funding the **Even Start** family literacy program, reauthorizing the **VISTA** program and providing new funds for experiments with innovative uses of volunteers, mandating studies of the **basic skills needs of the federal workforce and of industries vital to the national interest** and developing programs to meet those needs, and establishing an ongoing **government-wide process of program enhancement**, through the new Cabinet Council, aimed at meeting the economic and social requirements of the nation for enhanced literacy over the coming decades.

THE POLITICS OF ADULT LITERACY EDUCATION

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Luncheon Address Presented to the National Urban Literacy Conference
Sponsored by the Urban Literacy Network
Washington, D.C.
January 22, 1988

Adult literacy education always has been political -- choices about who reads, what they read, and how they use what they read always have been connected to the distribution of power in a society. From ancient times we find literacy systematically denied to those the ruling elite want to maintain in a position of subjugation, and literacy used as a means of social control. This is evident in laws forbidding slaves' learning to read, voter registration literacy tests, and the current move to control the content of textbooks on moral grounds.

Literacy is not some naturally occurring object, like stone or soil or water or air. It is a social construct -- it is defined and created by those in power in a society, and those definitions change as conditions change. Thus, literacy is considered historically and culturally relative; definitions of literacy depend on time and place (although they always are decided upon by those in positions of power). As the definitions shift, membership in the categories of "literate" and "illiterate" changes, and the rewards and stigma attached to membership in each category change as well. Discussion about the relative nature of literacy usually takes place in an academic context, abstract and divorced from present practice. However, I believe that the definitions, categories and criteria are changing right now -- and that it is up to us to choose our roles, from passive viewers to active participants in the process.

Many of us have been working in adult literacy education since the 1960s when federal legislation first created the Adult Basic Education program; we were operating then in an environment in which it was fashionable to speak of a "social consciousness" and a number of fundamental social issues were addressed through new policies. Education -- including literacy skills -- was seen as part of the foundation necessary to enable individual social mobility in

our society; improvement of the standard of living -- an economic issue -- and the quality of life -- a personal, subjective issue -- were national goals.

Illiteracy was a social problem during the 1960s to the extent that it was viewed as contributing to social unrest; the economy was expanding and literacy was viewed as a prerequisite for persons who had been disenfranchised to reap their share of the rewards of a bountiful nation. It was the key to moving up and out of the ghetto, up and out of labor-intensive jobs and up and out of the ranks of the poor. Literacy education was designed to support the expanding economy by moving adults into the "mainstream."

Then we entered a period called by many, "retrenchment." Funding for literacy programs, always minimal, became scarce. As the economy contracted and the economic status of those in power appeared to be threatened, opportunities for others to move into their ranks narrowed. Social programs and issues of social justice no longer had a central place in mainstream political rhetoric.

In the last couple of years the context has changed again. The role of literacy in supporting economic development once more is being highlighted; talk about adult literacy education once more is being transformed into political capital. But there are some important differences from twenty years ago.

I know that you all are aware of the current line of reasoning that places adults who need to develop their literacy skills in a causal relationship to current economic problems. These adults, presumed to be unable to work in the workplaces of the future, keep America from ascending to the top of the new post-industrial, technological age, global order. Most obviously, these arguments ignore the realities of social class and social structure. They also ignore the complex web of forces contributing to the United States' present economic problems -- adults who cannot read and write well are by far more the victims of these forces than their cause! Nonetheless, the tight connection established between literacy and economic development provides the framework within which we see the current attention to literacy education.

However, today's political talk about literacy is not about "empowerment" of people who are poor and disenfranchised; it is about maintaining the present distribution of wealth and power in America and, even more, across the planet. The claim is being made that the skills needed for the lowest level of jobs has shifted -- or is in the process of shifting. This is not about literacy for social mobility, but is about literacy for basic, entry-level employment. These

arguments focus only secondarily on improving the quality of life for individuals and communities; primarily they emphasize maintaining the pre-existing standard of living in America. In other words, in the center of this talk of change and the future lies the image of the status quo.

But how can this be? Persons who have been denied power and devalued are the focus of efforts to provide them with tools that provide access to power -- if only functional power by virtue of their now being able to do things they could not do previously. These efforts potentially undermine literacy as a tool of the power elite -- but this attention to literacy is oriented to supporting the existing power structure rather than to redistributing power in our society. Thus, a dilemma is posed -- there seems to be a fundamental underlying contradiction -- because of the potential social consequences of universal literacy.

As a result, we must be sensitive to a number of ways in which any potential redistribution of power -- and, therefore, true literacy -- is being undermined. First, nonliterate adults are taught that they are the problem through the continued propagation of destructive stereotypes and assumptions, including: that nonliterate adults cannot inform themselves about political, social and economic issues; that they must rely upon the help of others to negotiate commonplace daily life tasks; that they are swayed easily by propaganda and demagoguery; and that they are socially isolated, alienated, and impotent. Most fundamentally, nonliterate adults are viewed as unable to grow and learn and barely able to cope with daily life. Our challenge is to find ways to take advantage of new opportunities but, at the same time, not to add to the problem by supporting these false and destructive stereotypes, and to create a more constructive, respectful and potent view of nonliterate adults.

Second, we must understand that American mainstream culture still tends to equate nonliteracy with "primitive," undeveloped, or simply incapable minds. Nonliterate adults are viewed as needing to be cared for, much as young children are seen as being dependent on adults, rather than as being able to participate as equals in decisions about their lives. Therefore, they are not viewed as having an active role in creating programs to meet their needs, but rather as passive recipients of services. It is difficult to transcend thousands of years of social conditioning to remember that literacy does not define dependency. Nonetheless, we must not lose sight of the importance of collaboration with learners -- in program development and instruction -- and we must work hard to make collaboration a cornerstone of literacy efforts.

Third, we are moving away from a dichotomy between literacy and illiteracy to a notion of continuing literacy development. I think this is a positive movement, on the whole, but it legitimizes using "literacy" resources to work with adults whose skills already may be fairly sophisticated, but, in the context of a certain set of job demands, may require still greater development. These are adults already established in the mainstream society and participating at a fairly high level. The danger is that resources will be diverted from those with fewer skills, using the justification that it is too resource-intensive to connect them to the available employment opportunities. We must remain committed to working with those adults who have the most minimal skills. Although we have to think in terms of lifelong literacy development -- for all of us -- as part of our lifelong learning process, we also have to remember that the potential consequences of such development may be more threatening when they include helping previously nonliterate adults find their voice as a political constituency.

Fourth, finally there appears to be widespread recognition of the important role of background knowledge and context for effective teaching and learning. However, in many instances this is being narrowly translated into prescriptive workplace literacy programs and adults' family, personal and civic lives, their most fundamental contexts, often are dismissed. Such workplace literacy programs flirt with the danger of simply training adults for specific tasks rather than helping them learn to read, write, solve problems, and continue learning. We need to develop a more politicized understanding of workplace literacy, incorporating a critical perspective on the power relationships in the workplace and the functions of literacy in the relationship between workers and their employers, as well as integrating a far more complex definition of functional context.

Of course, any action on the part of literacy educators presupposes a proactive stance with local, state and federal policy makers. Many of us are feeling a bit overwhelmed these days with the activity in our local areas, our states and at the federal level. It is difficult, often, simply to feel informed about it, never mind to feel that it is possible to take a role shaping it. Many of us entered this field primarily because we care about people, about service and education, about the quality of life and about social justice, but we were drawn to practice rather than to policy making. For many years, we felt that we could afford to ignore advocacy roles, and that we could ignore each other.

Those days are over. Our profession is being redefined for us -- by the media, by Chambers of Commerce, by mayors and governors and legislators and business owners -- and the process will continue because it is viewed as related to the quality of life for mainstream America. We must rise to this challenge intelligently, politically, and with a generous spirit of collaboration.

Policy makers, or those working in local, state or federal government positions, have been struggling to understand that literacy is more than a set of reading and writing skills and that literacy development is a complex issue requiring far more than a "quick fix" if there is to be any real change. Unfortunately, dealing with complicated issues in a complicated way is not particularly among the strengths of most governments!

Therefore, the challenge for those who can influence the distribution of resources is to find some way to make a serious, long-term commitment to addressing literacy development as a complex issue -- to approach it in a comprehensive way, to develop comprehensive policies. It is time to stop putting social issues in competition with each other -- the "social issue of the year" approach has got to go -- and to begin developing policies that reflect the inter-relatedness of all of these issues.

The current mainstream orientation to literacy depicts nonliterate adults as different -- fundamentally different -- and not OK. True progress in literacy will only come, however, when we realize that we're all folks, in the end. We all must work together to promote a broad notion of literacy that embraces the growth of the human spirit, recognizing that full participation in the economy will accompany such personal growth.

Only when we focus on what we share in common -- literacy educators from all organizations, policy makers, learners -- and find the courage to name and confront our differences, only then can we begin reconstructing the politics of adult literacy education in America.

References for Some Other Writing by Arlene Fingeret

Adult Literacy Education: Current and Future Directions. .Columbus, OH: ERIC Center for Adult, Career and Vocational Education Major Publications Program, Winter, 1984. (Available in ERIC)

N.C. Statewide Evaluation of Adult Basic Education: Final Report, 1985. N.C. Department of Community Colleges, Raleigh, NC, 1985. (Available in ERIC)

"Social Network: A New Perspective on Independence and Illiterate Adults." Adult Education Quarterly, vol. 33, 1983, pp. 133-146.

"Common Sense and Book Learning: Culture Clash?" Lifelong Learning: The Adult Years, vol. 6 no. 8, 1983, pp. 22-24.

"Through the Looking Glass: Literacy as Perceived by Illiterate Adults." Presented at the American Educational Research Association Annual Conference, New York City, April, 1982. (Available in ERIC)

Review of the Research in Adult Literacy

OVERVIEW

Research in adult literacy is rooted in federal efforts to understand and eliminate illiteracy during the depression and then in the military beginning with World War II. Research originally conducted for the armed forces comprises one important strand of the literature on adult literacy. Thomas Sticht has been active as a researcher since the 1960s and has done much of his work for the military. In a comprehensive review of the research literature, Sticht examines and categorizes what we know about adult literacy and summarizes the major points of history in the field. Sticht contends that Wanda Cook's review of the history of adult literacy in America from 1900 to 1979 demonstrates a continuous "crisis mentality" toward adult literacy (Sticht, p. 84).

Another major research effort in adult literacy, commissioned as one of the studies of the National Adult Literacy Project (a part of the Federal Adult Literacy Initiative of 1983), sought to identify and describe the "promising practices" of programs nominated as excellent. The categories examined in the study included: recruitment; orientation; counseling; diagnostic testing; assessment of student achievement; instructional methods, materials, and management systems; student follow-up systems; and program evaluation. The full account of this effort was published in Renee Lerche's *Effective Adult Literacy Programs: A Practitioner's Guide*. We reprint the overview and conclusions of that report.

George Diekhoff examines data available on time spent and gains made in literacy programs. He raises questions about the practical significance of the results and the appropriateness of measures used.

Researchers have paid special attention to the acute problems of recruitment and retention. These are challenges in adult literacy work because, unlike the visible and relatively stable population of school children who are required by law to be in class, adults must be found, convinced to attend, and persuaded to keep attending literacy programs. With the exceptions of literacy programs in prisons and the military, participants cannot be compelled to attend classes. Participants often expect changes to come far more rapidly than they usually occur. Discouragement is a constant problem as people begin to realize how long the road to literacy for them may be. Miriam Balmuth reviews some of the research on these highly related, intensely human issues.

Chapter 2

Adult Literacy Education

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INTRODUCTION

A child who grows to adulthood in the United States, acquires some degree of facility in the use of the native language in the oral mode, but achieves only minimal skills in reading, writing, and computing may be called an "illiterate." Terms such as "functionally illiterate" or "marginally illiterate" may be used to differentiate the nearly totally illiterate from the adult who has some literacy ability, but not much relative to age peers and socially perceived needs for literacy. These terms mean that, while these adults have some ability to produce and comprehend graphic symbols, their ability is not extensive enough to permit them to *function* as well as many of their peers in various task environments that involve graphic symbols. Hence, *functionally*, they are said to be "illiterate," though in terms of absolute ability they are not "illiterate."

English as a Second Language

Some adults who cannot perform many tasks involving literacy come from foreign countries where they learned a language other than English. Some of these adults may be illiterate or functionally illiterate both in their native language and in English. Some may be quite literate in their native language, but not in English. Their primary difficulty in the United States may be that they know little English or none at all. Adults who cannot function well with the English language in the United States are generally not thought of primarily

I would like to thank Rosemarie Park and Steve Reder for their helpful comments on the first draft of this paper; Wanda Cook for permission to prepare the extensive outline of her book in Appendix 1; and Debra Vella, who prepared the outline.

as illiterates or functional illiterates, but rather as adults who need to learn spoken and written English as a second language (ESL).

Focus of Current Review

Although ESL adults represent a growing percentage of the student population in adult basic and secondary education programs (Pugsley, 1987), the present review focuses on literacy education for adults who have grown up in the United States using English as a native language, but who have not learned to use graphic symbols or symbol systems (e.g., the alphabet, arithmetic) or a wide variety of graphic devices (technical manuals, forms, airline schedules, textbooks, wall posters, and so forth) very well. At times, however, studies will be reviewed that do not differentiate between the ESL and other adults with limited literacy.

The review of adult literacy education is organized into three parts. Part I presents an historical context for adult literaacy education in the United States in which three issues salient over time are identified. These issues are (a) the "crisis" approach to adult literacy education over the last 80 years; (b) issues and problems involved in defining and counting "illiterates"; and (c) issues involved in setting the objectives for adult literacy education.

Part II comments on various research studies that are relevant to a broader understanding of adult literacy and its development but which are not given extensive coverage here due to space constraints. The present review is not comprehensive, and the purpose of Part II is to provide bibliographic assistance to readers interested in pursuing research on adult literacy in greater depth than is possible within the scope of this chapter.

Part III turns from the review of research on the issues in adult literacy education to a discussion of three new directions in adult literacy education and related research. These new directions are (a) competency-based adult literacy education; (b) intergenerational literacy education for parents and their children; and (c) workplace literacy assessment and program development.

The final section of the chapter is a very brief statement of conclusions and broad directions for future research.

PART I
ISSUES IN ADULT LITERACY EDUCATION

This section first presents a brief summary of the adult literacy education system as of the mid-1980s. This system includes both the formal, "mainstream" education programs funded by federal, state, and local tax dollars, and the "informal" programs carried out by community-based organizations across the nation with the support of private grants, donations, and volunteers (and, at times, some federal demonstration funds).

Following the brief summary of the literacy education system, an historical summary of the history of adult literacy education in the United States is presented and used to identify major issues that are the subject of the research reviewed in the balance of this chapter.

The Adult Literacy Education System

The present formal adult literacy education system had its beginnings in the War on Poverty of the 1960s. The legislative heart of the War on Poverty was the Economic Opportunity Act (EOA) of 1964. For adult literacy education, Title II B of the EOA was a watershed. It marked the first time that federal funds were allocated explicitly for adult literacy education. The Adult Basic Education Program of Title II B aimed at providing basic education for adults 18 years old or older who had completed eight or fewer grades of education (Cook, 1977, pp. 83–84). Later, the program was transferred to the Elementary and Secondary Education Act of 1966, and in 1969 its provisions were extended to define persons 16 years of age and older as adults, and to permit them to obtain education through the 12th grade or its equivalent (Cook, 1977, p. 106).

As Appendix 1 indicates, both before and after the EOA there has been a melange of state and local adult literacy programs and institutional programs in the military, prisons, and various "human conservation" projects. The Adult Basic Education legislation of the EOA brought the first nationally organized, sustained, programmatic services for adult literacy education in the nation's history. That the program serves a need is suggested by data for 1968 through 1986 showing that participants in adult basic education (ABE) and adult secondary education (ASE) increased sixfold, from just under 500,000 in 1968 to slightly over 3 million in 1986. Funding from federal, state, and local sources during this period increased more than tenfold, from around $40 million in 1968 to over $400 million in 1986 (Pugsley, 1987).

The Adult Education Act programs are the federal government's only programs aimed specifically at adult literacy education. However, a recent survey of a wide variety of federal programs in the Departments of Agriculture, Defense, Labor, and others, including the Department of Education, found that 79 programs in 14 federal agencies supported adult literacy education in the context of other activities, such as employment training (e.g., the Job Corps). Total funding for these federal literacy activities exceeded $345 million in fiscal year 1985 (Kahn, 1986).

In addition to the federal and state "mainstream" adult literacy education programs, there are numerous community-based organizations that operate on an independent basis to provide literacy education and other services, support, and advocacy for adults (Eggert, 1984). The Association for Community Based Education (1983) has estimated that such programs may have served as many as 20 million adults, though no basis for this estimate is given.

Additional information about community-based organizations can be found in Hunter and Harman (1979) and Fingeret (1984).

Historical Context for Adult Literacy Education Research

To provide an historical context for much of the contemporary research, Appendix 1 summarizes the brief but analytically astute book on the history of adult literacy education in the United States by Wanda Cook (1977). Each of the columns of Appendix 1 is named for a chapter in Cook's book, which spans almost 80 years, from 1900 through the mid-1970s. The rows of the Appendix list the major topics that Cook reviews in each chapter.

Many of the issues that form the basis for much contemporary research in adult literacy education have origins that are discernible in the topics chronicled by Cook and summarized in the Appendix. Three of these issues and related research are discussed below.

The "Crisis" Nature of Concern for Adult Literacy

Large-scale immigration in the 1900s, the manpower mobilizations of World Wars I and II, the civil unrest of the 1960s, and the concerns for employment, productivity, and international competitiveness of the 1970s and 1980s have created a series of social crises that have repeatedly focused the attention of policymakers and educators on adult literacy problems. Generally, this concern leads to some sort of transient activity: a national commission is established or an initiative is begun; journalists write about the problems of adult illiteracy; researchers gather a little data; volunteer classes proliferate; and then, in a few years, everything settles down again until the next crisis. This "crisis mentality" has spawned numerous and largely unsuccessful "quck-fix" programs (Ryan & Furlong, 1975; Weber, 1975) and hindered the accumulation of a sound body of research- and practice-based knowledge for the development of literacy in adulthood.

Worse, the little research that has been accomplished in the last two decades suggests that the crisis mentality has retarded not only the development of a knowledge base for adult literacy education, but also the preparation of a cadre of professionals competent to design, develop, implement, and teach in adult literacy programs that take into account the little professional and research-based knowledge that is available. National statistics for federal adult literacy programs in 1986 show that 32 percent of the staff are volunteers and about 85 percent of nonvolunteer staff work part time (Pugsley, 1987).

Practitioner Effects on Programs. The lack of properly prepared professionals reveals itself in education practices that at times border on malpractice. For instance, the misuse of standardized tests in pre- and post-testing, and hence falsely characterizing the skills of adults both to the students and to state officials is reported by Darling (1982). She notes that in some state-supported ABE programs in Kentucky in 1982, the time limitations specified

for use with standardized tests were routinely ignored when using these tests to measure the pre- to post-program changes in students' reading skills. The accepted practice was to "allow students as much time as they desire" to complete the tests (Darling, 1982, p. 6). Of course, this completely invalidated the test results.

It may well be that lack of professional understanding of standardized tests and the factors that may affect scores on such tests has contributed to the perpetuation of the "quick-fix" attitude toward literacy programs. For instance, failure to understand the effects of regression to the mean and "warm-up," as in test-taking practice, may underlie the claims of many adult literacy programs that they can, in just a few hours, produce one, two, or more "years" of gain in reading. A review (Sticht, 1987a) of 32 different studies involving U. S. Army, Navy, and Air Force programs, national Right-to-Read reading academies serving over 20,000 students, the Job Corps literacy programs, and several computer-assisted or computer-managed literacy programs showed grade-level gains of from 6 months to 3 years, with hours of instruction ranging from 2 to 141. The average gain was 1.5 years in 48 hours of instruction.

In this survey, the 2-hour program actually consisted simply of testing students for general reading ability before they entered into an automobile mechanics technical training program, and then testing them again 8 weeks later at the end of their training on an alternate form of the reading test. They made a gain of 1.0 years, which equaled or exceeded 8 of the remaining 31 literacy programs that ranged from 15 to 65 hours of instruction.

In other work (Sticht, 1975a), a group of military personnel entering Army basic military training were tested to identify those below the sixth grade level. The latter were retested after two weeks of basic military training (*not* literacy training), and those who again scored below the sixth-grade level were retested after another two weeks. All testing was with different forms. This procedure reduced the pool of those scoring below the sixth-grade level by over 40 percent.

These studies show that many adults who are initiaily identified as below certain levels of reading ability may, in fact, show a higher level later on due to statistical regression and such factors as engaging in study and test-taking activities that they may not have done much of at the time of the original testing, and adaptation to the program staff and environment. Typically, in the programs studied and those reported by others (Kent, 1971; Literacy Assistance Center, 1986; Ryan & Furlong, 1975; Shrank & Stein, 1970; Taggart, 1986) no attempt has been made to control for or adjust gain scores for regression and warm-up.

Failure to understand these characteristics of standardized testing and psychometrics may lead program operators to expect and promise more than they should. In one issue of the newsletter of the Business Council for Effective

Literacy (1985), a community college president reported that with their new computer-based instruction, students made a year's gain in just 20 hours, and so (he extrapolated) in just 60 hours a person could make a 3-year gain. Similar inappropriate extrapolations are discussed in Sticht (1987b).

Additional problems in the use of standardized tests by adult literacy programs were noted by Ryan and Furlong (1975). In commenting on the general finding that brief programs seem to make one or two grades of improvement, they stated, "Adult learners, on the average, do progress faster than children if we can take the reading tests at face value" (p. 178). Here, Ryan and Furlong raised the question of whether the grade-level tests mean the same things for adults as they do for children.

This question was put to empirical test in one series of studies (Sticht, 1982). In that research it was found that adults who scored at the fifth-grade level on a standardized test normed on grade-school children actually performed more poorly than a group of fifth-grade schoolchildren on a task involving simultaneous reading and listening, as when a child reads along while listening as a parent reads aloud. Importantly, as the speed of the story being read aloud was increased, the adults' performance fell even further below that of the grade-school students. This suggests differences in the automaticity of information processing between child and adult literacy learners.

Additional work by Park (1983) on semantic structures and Boraks and Schumaker (1981) on reading strategies suggests that adult literacy students process written information differently than do children. Therefore, it may not be valid to assume that standardized tests normed on children can be taken at their face value when applied to adults.

The Adults' "Reading Potential" and the "Quick Fix." As suggested above, the crisis approach to adult literacy problems has generally been accompanied by the implementation of programs of literacy training in which students typically participate for only a very limited period of time and make one or two "years" of gain. It reflects the crisis mentality and lack of research-based knowledge to believe that adults who have not made much progress in acquiring literacy in 18 or more years can suddenly learn at a rapid pace compared to typical children in the grade schools.

In the absence of such research, practitioners have relied on common sense. For instance, in their textbook entitled *Teaching Reading in Adult Basic Education*, Bowren and Zintz (1977) state:

> Since his experiences are much broader, the adult nonreader generally has more words in his oral vocabulary that can be converted to the reading vocabulary than does the child nonreader. This is one of the reasons that the reading skills may be taught more quickly to adults than to children. (p. 61)

More recently, the question of whether or not adults might learn to read more rapidly than children was raised by Chall (1987). She hypothesizes that

adults in the early stages of learning to read, those stages concerned with learning how to break the code and to establish initial fluency (approximately Grades 1 through 3 levels of skill) might learn more rapidly than children in the same stages because of the adults' higher levels of oral language and knowledge, a position consistent with that of Bowren and Zintz (1977).

This hypothesis may explain why adult literacy educators often believe that adults can and do make such rapid progress. Adults are thought to have a large "reading potential," which is defined as the difference between their oral recognition vocabulary and ability to comprehend oral language and their vocabulary recognition and comprehension ability in the written language.

There is only a little research bearing on this issue, but that little does suggest that the hypothesis may not be correct, at least in showing a great deal of reading potential for adults. Gold (1984) reports test results for a prison literacy program population in which "entering participants were reading at third to fourth grade level, auding at fourth to fifth grade level, and had verbal language facility at fifth to sixth grade level" (p. 23). ("Auding" refers to listening comprehension.)

In an extensive series of studies using one-on-one testing with the Diagnostic Reading Scales (Spache, 1972), a commercially available standardized group test of reading and listening (Durrell & Brassard, 1970), and a specially developed group test normed on adults that compares auding and reading vocabulary and paragraph comprehension, findings similar to those of Gold were obtained (Sticht, Beck, Hauke, Kleimon, & James, 1974; Sticht & Beck, 1976; Sticht, Hooke, & Caylor, 1981). By and large, even adults at the lowest levels of reading (second grade) showed only a grade level or less of "potential," that is, oral language comprehension greater than written language comprehension (Sticht, 1985).

Childhood Reading and the "Quick Fix." Though the data base is skimpy, such data as the foregoing question the validity of the "quick-fix," "crisis" approach to adult literacy education. The much larger data base for childhood reading also calls into question the rapid learning of reading that is claimed at times for adult literacy programs. Here, just two hallmarks of childhood reading development, vocabulary growth and the achievement of automaticity of decoding are considered. The point is that these two factors require many years of extended reading practice during childhood, and it is unlikely that adults can achieve comparable development in just 50 to 100 hours or so.

To accomplish the development of literacy in childhood, our nation has created an educational system of public and private schools in over 20,000 locations providing 13 years of education, including kindergarten. In this extensive period of time, students build upon the knowledge of literacy that they typically acquire prior to schooling in the home and community (Mason & Allen, 1986).

When schooling begins, there is a rapid acceleration of the rate of literacy

acquisition, if schooling is effective. Average students in grades 3 through 12 may increase their reading vocabularies at a rate of some 3,000 active new words per year, for a total of some 30,000 new words in this 10-year period (Graves, 1986). It has been estimated that to accomplish this rate of literacy growth, a typical fifth-grade student may read as many as 1 million words a year both in and out of school, and encounter as many as 16,000 to 24,000 different unknown words (Nagy, Anderson, & Herman, 1987, p. 262).

Even given the extensive practice involved in vocabulary growth, the automaticity of decoding printed language may not match that of decoding spoken language until the sixth to eighth grades, where reading rates of from 130 to 220 words per minute may be expected (Sticht et al., 1974, pp. 82–95). Eye-movement research indicates that it is around the eighth grade that students' eye movements match those of adult proficient readers (Tinker, 1965, pp. 81–84).

It is this development in vocabulary (as well as semantic and conceptual knowledge [Park, 1983]) each year, both in and out of school, and the achievement of automaticity over time that produce a grade-level gain on norm-referenced, standardized reading achievement tests. This "normative" model of what the "typical, mainstream child" accomplishes in making a year's gain in reading is a significant factor to keep in mind when one encounters adult literacy programs that claim to produce one, two, or more "years" of gain in 25 to 100 hours of instruction.

Professionals who have developed a knowledge base from experience and the limited research have for some time criticized the quick-fix mentality (e.g., Harman, 1987). However, as data to be presented below suggest, although many adult literacy educators have come to recognize the fallacy of the quick fix, students still stay in programs for only relatively brief periods of time. Why this is so is another problem for adult literacy research.

Issues in Defining "Illiteracy"

The "statistics" row of Appendix 1 shows the many different definitions that have been used to assess the extent of "illiteracy" or "functional illiteracy" in the last 80 years. The definitional problems include *whom* to count as adults (10-, 14-, or 16-year-olds and older?), and *how* to determine the extent of illiteracy. Should one simply ask whether adults can read or write, as in the early census approach? Or should one ask about the number of years of education completed and then designate those with less than some arbitrary number of years of education as "illiterate" or "functionally illiterate"? At various times advocates of this approach have used less than 4th-, 5th-, 8th-, 9th-, and 12th-grade reading levels (Carroll & Chall, 1975) as the criterion for defining functional illiteracy.

For several decades attempts have been made to measure directly the literacy skills of adults and to use such measures to define "illiteracy," or "func-

tional illiteracy" (Harris & Associates, 1970, 1971; Northcutt, 1975; Kirsch & Jungeblut, 1988). Much of this work has been critically reviewed by Stedman and Kaestle (1986; 1987).

Major issues that have repeatedly surfaced in assessing adult literacy skills include *who* should decide what kinds of tasks adults should be asked to perform to demonstrate their mastery of literacy skills, and "*how good is good enough*"—that is, what criterion or criteria of performance should be used to indicate that a person is functionally literate or not. There is no way to know this from test scores alone. There must be information about how well people who perform at certain levels on the literacy tests perform literacy tasks in the "real world" outside of the test situation. No research of this nature has been found, though some studies on literacy in work settings come close.

Literacy Task Performance in Work Settings. In a decade of work from 1967 through 1977, Sticht and associates compared the performance of military personnel reading from the 4th through 14th grades on general literacy tests to their performance on job reading task tests (Sticht, 1975; Huff, Sticht, et al., 1977; Sticht, Fox, Hauke, & Zapf, 1977a, b). The latter were tests constructed from materials and tasks job incumbents reported performing in their day-to-day work. Across the services, over two dozen jobs were studied and several thousand personnel were tested. Jobs ranged from Army cooks, through Army, Navy, and Air Force clerical workers, to automotive, ship, and aircraft mechanical and electronics maintenance and repair workers.

Several major findings were:

1. The higher a person's general reading ability on standardized tests normed on grade-school children, the better the adults performed on job-reading task tests. Correlation coefficients of .60 to .78 were typical.

2. Across the skill distribution, but especially at the low end of the distribution, Army data for several hundred personnel indicated that those with special background knowledge relevant to the job reading task test, say a person with aptitude for automobile mechanics, performed better than those with no special background knowledge. For fifth-grade level readers averaged across three jobs, performance on job reading task tests was equivalent to that of personnel reading at around the 6.5 grade level. Special knowledge thus added one and one-half "grades" of job-related reading skill to those low in general literacy.

3. For personnel who both had special aptitude and underwent training in the job technical area related to the job reading task tests, and whose general reading was held constant at the fifth-grade level, performance on the job reading task tests increased even more than the increase due to special aptitude alone.

Civilian Job Settings. Mikulecky and Diehl (1980) presented data for some 35 civilian jobs showing that blue-collar and service workers performed about two grade levels better on job reading materials than they did on general

materials. Personnel in clerical, sales, professional, and managerial jobs performed about 1.5 grade levels better on job reading materials than they did on general materials.

Similar findings that special knowledge and practice in performing certain kinds of reading tasks can produce higher skill levels in the job domain than might be expected on the basis of general literacy skills are reported by Guthrie, Kirsch, and Love (1984). In this work, high school level workers, mostly electronics technicians, and college level workers, engineers and other professionals, were compared on their performance of job reading tasks. Across all tasks, the high school diploma holders scored below the college level workers. This is consistent with the findings of Sticht and associates (1975) that higher levels of general reading ability are associated with higher levels of job-related reading.

Guthrie and associates also reported that personnel who spent more time performing certain job reading tasks tended to perform better on such tasks than personnel who spent less time performing such tasks. This agrees with both the work of Sticht and associates and Mikulecky and Diehl in showing that literacy skill can be developed in particular domains and may permit people to perform better in certain "real world" contexts than tests of general literacy would suggest.

General and Special Literacy. The studies of "everyday cognition" reported by Lave, Scribner, and others (Rogoff & Lave, 1984) and the study of literacy among the Vai of West Africa (Scribner & Cole, 1981) provide additional empirical evidence of the effects of practice on literacy, and suggest that literacy is not altogether a generic competence.

This has long been recognized by industrial and personnel psychologists who developed the Armed Services Vocational Aptitude Battery that is used to select applicants for military service and assign them to jobs. The battery includes both general literacy (vocabulary; paragraph comprehension; arithmetic operations and reasoning) and specific literacy tests (e.g., automotive and shop information; mechanical comprehension; electronics information). In use, applicants for service who score too low to meet standards on general literacy tests may frequently be admitted if they have scores meeting standards in one or more of the special knowledge tests (which all require reading ability) (see Eitleberg, Laurence, Waters, & Perelman, 1984, for a description of military aptitude tests and their uses in screening for service).

Although special literacy ability may offset low general literacy skills, it must be recognized that people who develop higher levels of literacy in the school years are able to perform a wide array of practical literacy tasks, as illustrated by the work of Sticht, Mikulecky, Kirsch, and their associates discussed above. The recent study of young adult literacy abilities by the National Assessment of Educational Practice shows that the more highly educated young adults achieve the highest levels of performance across tests of prose comprehension, document use (e.g., forms, maps, tables, etc.), quan-

titative literacy tasks (e.g., reading a dinner check and figuring out the cost of a meal), and grade-school-oriented reading (i.e., "general" literacy as indicated by the NAEP reading proficiency scale) (Kirsch & Jungeblut, 1986). Generally speaking, the more education a person has, the more "generally literate" he or she is as indicated by the wide variety of reading tasks they can perform.

Literacy and Productivity. Further evidence suggests that persons with higher levels of general literacy, as indexed by academically oriented tests, standardized and normed on grade-school children, tend to use their literacy skills more often in work settings and perform job sample tests better than the less literate. Sticht presents data for military personnel performing clerical job sample tests and automobile mechanics job sample tests (1975, pp. 53–54). The data indicate that (a) for reading levels as low as fourth grade, if people used the available technical manuals to help them in performing the simulated job tasks, they performed better; and (b) the higher one's general literacy level the better the tasks were performed regardless of whether the manuals were used, but if used, the higher-literacy workers made even better scores than the lower-literacy workers who used the manuals.

The foregoing are the only data found that directly reflect the effects of measured literacy level on productivity as indicated by the performance of simulated job tasks. These data suggest that if one both possesses higher levels of academic literacy skills *and* uses them, then more productive job performance may result. However, to date no studies have been found that confirm these findings from test situations with naturalistic observations of people at work.

The Functioning of "Functional Illiterates." Despite the data relating literacy *test* scores to job reading task and job sample *test* scores, it should not be assumed that people who measure low on literacy tests necessarily perform poorly in real-world settings, either on the job or in the community. Test-taking ability can enter into any assessments that place the person in a test-like situation, and may unduly bias results toward those more comfortable with test situations.

A large body of evidence has recently been compiled that suggests that many people whose literacy skills are declared too low for employment or military service may, in fact, be successful if given an opportunity to work or to serve in the military (Sticht, Armstrong, Hickey, & Caylor, 1987). This conclusion was suggested by research on the effectiveness of low aptitude, "functionally illiterate" military personnel in World War II, the Vietnam war, and from 1976 through 1980. The period from 1976 through 1980 is of special significance because during this time the armed services aptitude battery was miscalibrated, permitting over 300,000 lower-aptitude people who would have been rejected to enter the military without the services being aware that they were getting "functionally illiterate" personnel.

Data indicate that in terms of success in completing their military training

and job technical training and receiving satisfactory job ratings, some 80 percent of the low-aptitude, functionally illiterate personnel in all three time periods performed 80–95 percent as well as average-aptitude personnel (Sticht et al., 1987, p. 79). These data suggest that great caution ought to be exercised in declaring people functionally incompetent because of their performance on literacy or other types of aptitude tests.

Social Networks. The fact that many so-called "functionally illiterate" adults may, in fact, function quite well despite their limited literacy ability may be explained to some degree by research in real-world settings. In the work by Sticht and his colleagues in military settings, reviewed above, it was noted that work is not generally accomplished alone. People work in social groups and draw on the competence of others in the group; they may ask for information rather than read for information (Sticht, 1975b, pp. 52–53). Similar conclusions regarding the social nature of workplace literacy were reached by Mikulecky and Diehl (1980) in their studies of literacy use in civilian workplaces.

Fingeret (1983) has described social networks that adults with low literacy skills participate in and benefit from in accomplishing reading-mediated activities in their communities. She notes the common sense, abstract reasoning, and problem-solving abilities that many illiterate adults display in accomplishing work and community activities in collaboration with others. These adults are frequently quite skilled in finding and utilizing what Reder and Green (1985) refer to as "literacy helpers."

In a series of comparative studies of literacy practices in three different cultural contexts, Reder (1987) reaffirms the research in job settings that shows the social nature of literacy in use in real-world settings. He points out that while the specific literacy activities may differ in different cultural groups, a salient finding is that literacy tasks may, at times, be shared among two or more people in a collaborative manner to accomplish some socially defined goal. Additionally, within a particular social group, different members of the group may have specialized knowledge about literacy that contributes to the overall accomplishment of tasks. For instance, one member of a group may possess *technological knowledge* about how to read and write, while the others do not. Yet one of these others may possess *functional knowledge* about when to use a particular format, such as a business letter, and possess critical information for producing the letter, and a third may have knowledge of the significance of the *social meaning* of the act of literacy, as in demonstrating the commitment of the community to a particular goal, even though the person is not technologically or functionally knowledgeable about the uses of literacy.

The social nature of the uses of literacy may account, at least in part, for why many of those with low literacy skills as assessed by standardized tests may, in fact, perform quite well in settings in which the literacy demands for

tack accomplishment would seem to ensure failure. For instance, both Sticht (1975) and Mikulecky and Diehl (1980) note that, as measured by readability formulas, job reading materials may be at difficulty levels two to five grade levels above the reading levels of the workers, and yet workers may, with social interactions, use the materials productively in accomplishing work.

Additonally, the workplace studies indicate that job-related reading is frequently repetitive and circumscribed in content. People who use their literacy skills primarily for this kind of reading develop specialized bodies of knowledge that help them comprehend the relatively narrow domain of job literacy materials. Sticht and his associates (1986) developed special readability formulas for job incumbents having greater or lesser amounts of job knowledge and used these formulas to estimate the reading grade levels of general literacy needed to produce 70 percent comprehension on job reading task tests. They found that by taking job-related prior knowledge into account, they could reduce estimates of general reading skills needed to comprehend the job reading materials by five grade levels, from the 11th to the 6th grade.

Issues in Counting "Illiterates." The data of Appendix 1 and the research reviewed above reveal something of the complexity of defining and counting "illiterates" or "functional illiterates." The motives for the counting exercise come mostly from a social group, i.e., "society," and the elected officials in government who must justify to constituents the spending of hundreds of millions of taxpayers' dollars for adult literacy education. The argument is generally made that society has needs for certain numbers of citizens who have given levels of abilities and skill in applying those abilities. The needs of the society thus affect the individual. Children are compelled to go to school. Adults may be excluded from certain socially valued positions if they do not possess the skills, demonstrated in some socially defined and acceptable manner, that society thinks they should possess as individuals, not in collaboration with others.

A major issue for adult literacy education is how to reconcile the needs of society with the commitment to respect for individual freedom and choice extended to adults in the United States. Should adults, like children, be compelled to undertake literacy education if their scores on certain tests are not high enough? There are welfare programs in place today, and more being planned, that require adults to engage in education if they wish to continue to receive welfare benefits (GAIN, 1987).

The validation of criterion scores on the tests used to certify adults as "functionally illiterate" and hence "unemployable" and in need of adult basic education has yet to be accomplished. The questions raised regarding the social practices of literacy, the role of special knowledge in particular domains on literacy task performance, and the conditions of use of literacy in workplaces and other social settings suggests that such validation will be difficult.

It seems likely that the issues and debates regarding the definition and

counting of "illiterates" or "functional illiterates" for various social programs, as illustrated for past decades in Appendix 1, will persist into the decades ahead.

Conflicting Objectives of Adult Literacy Education

In the decade following 1910, when the Moonlight Schools of Kentucky were started, materials for adults were used that reflected the life needs of adults (health, farming, homemaking, etc.) The goal was to make it possible for adults to read the kinds of materials useful in their community life, and to do this it was recognized that they needed a relevant base of content knowledge. Hence, adults were taught to read, write, and compute in the contexts of materials dealing with situations in which adults would function. Both the Civilian Conservation Corps and the U. S. Army followed this practice of using functional materials in their adult literacy programs of the 1930s and 1940s.

With the shift toward the use of grade levels of education completed to indicate degrees of literacy came the shift to the use of materials and methods oriented toward the grade school system rather than the adult's community life. The development of the high school equivalency test and courses aimed at "completing my education" served to further orient the adult literacy curriculum toward a replication of the grade school and secondary school curricula, aiming more at certification of formal education than guaranteeing the development of specified functional literacy skills.

The "decontextualization" of adult literacy education from community life and "contextualizing" it within public elementary and secondary education forms a major issue in adult literacy education today. There is much debate about whether adult literacy programs should be of a "general" nature, which usually means related to academic-oriented contents and tasks leading to a secondary school diploma or equivalency certificate, or of a "functional" nature with a narrower focus than is expected of children who complete the 13 years of education as outlined earlier. (See Sticht et al., 1987, pp. 132–134, for further discussion of the "functional" versus "general" literacy debate; see also the section on Philosophical and Theoretical Views in Part II).

The "General" Literacy Dilemma. Chall (1987) catches the spirit of the conflicting objectives of programs aimed at the development of broad levels of general literacy leading to secondary degrees, and the needs of adult literacy students to quickly attain skills for functioning successfully in some defined, circumscribed areas. She notes that "if reading is seen as a broad, developing process in adults as in children, it requires more than a few weeks or months of intensive instruction. . . . To reach a stage of literacy that is of use for work, citizenship and one's own personal needs—and for continued learning from print—considerably more time for learning and practice is needed" (p. 73).

The dilemma for adult literacy educators is that while long periods of study are required to develop high levels of ability, with adults having to process millions of words to develop large vocabularies, semantic networks, and automaticity, as in our model of the child's development of literacy given at the beginning of this section, research suggests that adults will not attend literacy programs for long periods of time.

Attrition from Programs. Data from California's state-funded competency-based adult basic skills programs show that in 1984–85, attrition rates for over 980 classes averaged about 50 percent per class by the end of 100 hours of instruction (Alamprese et al., 1987, p. 33). In New York City, programs serving some 40,000 adult literacy students showed 50 percent attrition following 75–80 hours of instruction, while for more than 200 programs throughout the nation serving out-of-school youth and adults in employment-oriented education and training, data for 8,641 students showed that 49 percent received less than 25 hours of basic skills instruction before leaving the literacy component of the programs (Taggart, 1986, p. 39). Even one-on-one tutoring programs like the National Affiliation for Literacy Advance (NALA) have reported median numbers of hours of tutoring received to be well below 50 (Stauffer, 1973).

Darkenwald (1986) reviews research on attrition in adult basic education programs. He reports that one generalizable finding may be that attrition results largely from conflict between job and class schedules, discouragement, and lack of progress (p. 13). Class and work schedule conflicts were reported as contributors to attrition in the early, seminal work of Mezirow, Darkenwald, and Knox (1975, p. 69).

However, in recent work, over 400,000 enrollees in ABE and ASE programs in 42 states in 1985–86 were asked their reasons for leaving programs before completing their objectives, and of the various reasons given, only 3.1 percent cited class scheduling conflicts (Pugsley, 1987). Problems with day care, transportation, and location of the class accounted for 12 5 percent of the reasons for leaving. Health and family problems made up 10.4 percent of the reasons for leaving, and lack of interest accounted for 5.6 percent of reasons for leaving. The largest category of reasons for leaving (55.4 percent) was "other," leaving a high degree of uncertainty regarding reasons for attrition from the federal and state programs (see Smith-Burke, 1987, for results of extensive, one-on-one interviews with 48 literacy students whose stated reasons for missing classes are like those for dropping out in the national data).

For whatever reasons, adult literacy students do not generally participate in programs for extended periods of time. This, coupled with the evidence cited above that many adult literacy students may not possess as much "potential" as has been thought, thwarts the goal of having adult literacy students rapidly develop the broad vocabulary and conceptual knowledge, the strategies for

information processing, and the automaticity of processing that characterize the more highly literate adults in our society. Clearly, there is a need for much more research to increase our understanding of why adults do not choose to participate in adult literacy programs in large numbers or for very long periods of time.

Development of Literacy in Social, Functional Contexts. The failure of current adult literacy education programs to attract large numbers of students and to then retain them long enough to develop high levels of "general literacy" has led to the search for alternative ways to encourage the development of adult literacy skills. For instance, Reder (1987) has suggested that efforts to improve adult literacy skills could build on the research in three different cultural settings that found that adults naturally learn many literacy tasks. These tasks may be gradually learned through participation in community activities. If adults could be encouraged to participate in more contexts where literacy is an integral part of social activity, and if literacy helpers were available to offer guidance and assistance, much as in apprentice-master craftsperson relationships, less literate adults might develop new literacy abilities while achieving some real-world goals of immediate concern. Presumably, a higher level of "general literacy" would result as the adults participated in more and more functional "literacy-inducing" activities. While progress in acquiring higher levels of literacy might be slow, progress would be achieved while other important goals were also being achieved.

Principles for developing literacy within a functional context are discussed by Hamadache and Martin (1986) based on the international experiences of UNESCO, while empirical research showing that literary skills can be developed within the context of learning job technical information is reviewed by Sticht and his colleagues (1987) and Sticht and Mikulecky (1984). The research reviewed by Sticht et al. indicates that in programs integrating literacy with job knowledge development, gains in job-related reading were two to three times the gains made in "general" literacy. Importantly, however, the gains made in "general" literacy were about as large as, and sometimes larger than, such gains made by "general" literacy programs. The opposite was not true. That is, "general" literacy programs made almost no improvement in job-related reading.

These findings are important because of the concern that has been expressed regarding whether functional literacy education will generalize to other content domains (Chall, 1987, p. 72). The limited evidence suggests that there may, indeed, be some generalizability or "portability" (Brizius & Foster, 1987, p. 109) from one specific domain to another more broadly defined domain. If future research substantiates these findings, then support for an approach to adult literacy education that simultaneously develops both domain-focused content knowledge and literacy skills, and knowledge and skills more generally useful in processing information in a variety of domains,

will offer one way of helping adults achieve two valued goals in one program. This increased efficiency might encourage adult learners to stay with the programs longer.

Adult Literacy Education and Investment in Human Capital. From the mid-1960s to the present, the expenditure of public funds on adult literacy education has been rationalized as an investment in human capital formation. The goals of ABE as originally formulated in the Equal Opportunity Act were explicitly stated in terms of helping adults secure gainful employment and lead more productive lives. The latter would, of course, lead to fewer persons on the welfare rolls, and return society's investment in increased tax revenues.

A recent cost-benefit analysis by the United States Department of Education reveals that while the state and federal costs for adult education programs exceeded $405 million in fiscal year 1985–86, the potential economic return to society on this investment was estimated at less than $380 million (Pugsley, 1987, pp. 8, 37b).

The findings of the Department of Education's cost-benefit study, though it is only the first such attempt and involves several assumptions that bear further analysis, seem to reflect the fact that the objectives of many adult literacy students are not economically motivated (Fingeret, 1985; Mezirow, Darkenwald, & Knox, 1975). Many wish simply to improve themselves, to read the Bible, to read to their children or grandchildren, and so forth.

Many participants in adult literacy education neither seek nor obtain the high school diploma or its equivalent as a "ticket" to employment. In 1985–86 there were 3.1 million participants without high school degrees in the federal- and state-supported adult literacy and English as a second language (ESL) programs. This number represents 6 percent of the adult population over age 16 in the United States that did not possess a high school diploma. During the 1985–86 fiscal year, about 8.4 percent of participants (230,000) in adult literacy and ESL programs obtained a high school diploma or GED (general education equivalency) certificate (Pugsley, 1987).

The national statistics suggest that the federal and state adult literacy and ESL programs fell far short of reaching the target population in 1985–86, and that the vast majority of participants (92 percent) did not obtain a secondary certificate that year.

Two important questions are raised by this initial cost-benefit study by the U. S. Department of Education and the studies of adult literacy students' reasons for participation. What should the objectives of publicly funded adult literacy education programs be, and how should the programs be evaluated to determine whether the public's monies are well spent? There is a trend today for states and the federal government to evaluate programs in terms of whether or not program participants complete their objectives, whatever they may be. In the recent national study, out of 1.7 million students in 42 states, 844,000 left the program during fiscal year 1985–86. Of these leavers,

400,000 (47.4%) stated that they had achieved their objectives and 444,000 (52.6%) left before completing their objectives (Pugsley, 1987).

The high rates of attrition and failure to achieve self-stated objectives, and the preliminary findings that the federal and state adult literacy education programs may not be cost beneficial from a human capital investment strategy, suggest the need for a more thorough study of the objectives of adult literacy education in the nation. This is particularly important given the concerns expressed by national commissions (e.g., *A Nation at Risk*, 1983, p. 11) that many high school graduates are not sufficiently literate.

Recruiting New Students. If we assume that the foregoing is an accurate appraisal, and that many adults possess credentials, but lack the competence suggested by the credential, the question arises as to whether the present adult literacy education system can attract these "new illiterates" to attend programs to work for competence, not credentials. This is an issue not previously encountered in the history of adult literacy education as summarized in Appendix 1. It is an issue that will become more important as the nature of work in various regions of the nation changes, and new needs for higher levels or different types of literacy skills emerge. The limited research available on displaced workers, their literacy skills, and propensity to engage in additional literacy education suggests that the current system is not adequate (Park, Storlie, & Dawis, 1987).

PART II
RESEARCH RELATED TO ADULT LITERACY EDUCATION

As noted, this chapter is not a comprehensive review of all the research that has been done that is relevant to understanding adult literacy. The focus of the review in Part I was on research related fairly directly to understanding adult literacy education issues and problems. Even there, however, considerable selectivity was exercised. Part II presents a summary of other sources that readers may wish to review.

Historically Important Sources

Several historically important works on adult literacy in the United States includes Yerkes' (1921) account of the development of the Army's Beta Test for illiterates in World War I; Goldberg's (1951) account of the Army's training of illiterates in World War II; Ginzberg and Bray (1953) on the military performance of the uneducated and illiterate soldiers of World War II. Other notable works are Buswell's (1937) classic study of how well adults of various education levels read, in which he describes the development of "functional" reading tests using "real-world" materials and studies of the eye movements of adults as they read the materials; the Gray and Rogers (1956) study of maturity in reading; and the *Fifty-Fifth Yearbook* of the National Society for

the Study of Education that is devoted to a review of research on adult reading (Henry, 1956).

Recent Reviews

There have been more recent reviews of adult literacy issues and research. They include:

- Chapters by Bormuth, Weber, and Ryan and Furlong in Carroll and Chall's (1975) report for the National Academy of Education about the U. S. Office of Education's Right to Read program of the 1970s.
- Sticht and Zapf's (1976) edited collection of papers that review reading and readability research in the armed services up to 1974.
- Hunter and Harman's (1979) analysis of the extent of adult illiteracy in the United States, the types of programs for adult literacy education, and directions for policy and practice in adult literacy education.
- Crandall's (1983) review and annotated bibliography for linguists.
- Fingeret's (1984) review of literature concerned with definitions of literacy, the nature of reading and the learning to read process as applied to adult literacy students, and the characteristics of adult illiterates and the purposes of literacy programs.
- Duffy's (1985) review of literature research and programs in the armed services.
- The reviews by Park (1980) and Mikulecky (1986) on adult literacy research for the yearbooks of the National Reading Conference.
- Darkenwald's (1986) summary and critique of research focused on adult literacy programs and their evaluation.
- Stedman and Kaestle's (1987, 1986) critiques of historical methods and research in counting illiterates, assessing literacy, and relating literacy to functioning in society.

Lack of Research. Both Fingeret (1984) and Darkenwald (1986) make the point that, following extensive searches of data bases such as ERIC, Dissertation Abstracts, and bibliographies in books, one finds a large number of program descriptions, "how-to-do-it" articles, and some manuals for program operators, but very little research. For instance, Darkenwald (1986) noted that, following a computerized search that spanned the period from 1975 through 1980, 236 journal articles were found that dealt with adult literacy education, but "fewer than a dozen qualified as research" (p. 5). Additional resources for delving into the adult literacy education literature include the annotated bibliographies of Kazemak & Rigg (1984) and the Adult Performance Level Project (1987).

Cross-Cultural Research

Work of an international, cross-cultural nature can be accessed through Bhola's (1984) account of major mass literacy campaigns in the 20th century:

Hamadache and Martin's (1986) synthesis of theory and methods from the experiences of the United Nations Educational, Scientific, and Cultural Organization (UNESCO); Wagner's (1987) edited volume on literacy, development, and technology in international perspective; and Scribner and Cole's (1981) study of the effects of literacy and schooling in an African nation. Gray's (1956) text for UNESCO on the teaching of reading and writing is a classic.

Analytic and Theoretical Works

Critical analyses, philosophical, political, and theoretical discussions, and debates regarding the aims of adult literacy education and the motivations of governments and adult educators can be found in Street (1984), Levine (1986), Hamadache and Martin (1986), Freire (1971), Kozol (1985), and Graff (1979). For the most part, these sources debate the question of whether adult literacy education should be pursued primarily as a functional, utilitarian means to human capital formation promoting economic develpment for the individual and the state, or primarily as a means of empowering socially disadvantaged adults to liberate themselves from the hegemony of the governing political and economic social groups.

A body of literature sometimes referred to in the foregoing debates (e.g., Street, 1984) combines anthropological, historical, psychological, and sociolinguistic studies concerned with the "cognitive consequences of literacy." A succinct yet thorough overview of much of the literature that contributes to this debate is given by Gee (1987). In summary, the argument on one side of the debate is that as societies and cultures shift from being based primarily on oral means of communication to the use of literacy, fundamental changes take place in human cognitive abilities. The latter permit the development of history from myth, science from mysticism, and technology from science. Hence, it is argued, a nation that wishes to develop technologically should invest in literacy education (see Fuller, Edwards, & Gorman, 1987, for a further exposition of this positon and for some empirical data for Mexico showing mixed relationships among literacy and economic development).

The opposition argues primarily from the results of UNESCO's studies of functional literacy education in Third World countries. This work demonstrated that introducing literacy into a community did not necessarily lead to improved economic conditions (Hamadache & Martin, 1986, pp. 29–31; Street, 1984).

In addition, opponents cite research on the everyday uses of cognitive skills, including oral and written language use (e.g., Heath, 1983; Rogoff & Lave, 1984; Sternberg & Wagner, 1986) and the work of Scribner and Cole (1981) on the use of literacy among the Vai people of West Africa. These studies suggest that literacy skills may become specialized for a given purpose and not necessarily generalize to form a "critical mass" for technologically

based development or "modernization" to take off. This was demonstrated especially well by the work of Scribner and Cole (1981) that showed that although the Vai people had developed an indigenous literacy, they had not gone on to develop history, science, and technology as a consequence of their use of literacy. Hence literacy does not necessarily lead to modernization.

At the present time, a reasonable position seems to be that while literacy may be necessary for the development of history, science, and technology as these are found in contemporary "information age" societies, it is not sufficient. Cultural, societal, and community values and social expectations regarding who should acquire what kinds of competence in the use of graphic symbols, symbol systems, and devices influence the kinds of practices to which literacy will be put, and, in turn, this influences the kinds of cognitive consequences literacy will engender. Of course, one can not rule out the role of individual creativity and invention in the use of literacy. It may be that, if English schools had not existed for the Vai to attend, someone among the Vai would have created history and science using Vai literacy. In short, both the idiosyncracies of a social group and an individual within the group might influence what cognitive consequences literacy has.

Literacy and Productivity at Work

A final body of research that contributes to our understanding of adult literacy education, because it offers insights into the relationships of literacy to productivity at work, is that by industrial and human factors psychologists. Many of the latter have studied aptitude requirements of various jobs and developed methods for job and task analysis to economically identify communication (including literacy) and cognitive skills requirements of job training programs and the jobs themselves. In addition they have developed literacy and technical training programs, and designed practical written materials and graphic displays (such as computer screens) to be read in accomplishing work (e.g., Sticht, Chang, & Wood, 1986). This line of research had its origins before the turn of the century, yet it has been largely ignored by contemporary researchers concerned with workplace literacy (Scribner, 1984), real-world cognition (Rogoff & Lave, 1984) or "practical intelligence" (Sternberg & Wagner, 1987).

Though largely ignored by literacy researchers, the work of industrial psychologists has not been ignored by government or industry. Such literacy-loaded assessment batteries as the Armed Services Vocational Aptitude Battery (ASVAB) of the Department of Defense and the General Aptitude Test Battery (GATB) of the Department of Labor determine the literacy levels needed for thousands of jobs in the military and civilian contexts, and permit or refuse access to these jobs and their associated benefits for hundreds of thousands of adults each year.

Perhaps because these test batteries have their origins in work on intelli-

gence, and have been called "aptitude" rather than "literacy" assessment batteries, their applicability to understanding the extent of and nature of literacy in the United States has not been well explored. There are indications that a broader understanding of literacy is being developed. In this connection, see the recent work of Olson (1986) that defines "intelligence" in terms of competence with communication and cognitive technologies (including literacy), and the observation by Carroll (1987) that at the more demanding levels, the literacy tests of the National Assessment of Educational Progress appear to resemble the more traditional measures of "verbal intelligence" or "verbal aptitude." This may bring more scholars of adult literacy to consider the work of industrial psychologists more closely.

At present, work that relates this body of research to youth and adult literacy issues is being pursued by labor economists and workforce specialists concerned with poverty (Berlin, 1983; Butler, Hahn, & Darr, 1985; Taggart, Sum, & Berlin, 1987). The volume by Sticht, Armstrong, Hickey, and Caylor (1987) relates military research on aptitude testing, the training of lower-aptitude youth and adults, and cognitive science to adult literacy education in civilian settings.

PART III
NEW DIRECTIONS

Although, as noted, the research on adult literacy education is extremely limited, the work that has been done on it has had some impact. There are several new directions that have been taken in the 1980s. Among these new directions are competency-based education, intergenerational literacy, and workplace literacy.

Competency-Based Adult Literacy Education

One new direction for adult literacy education is related to the problem of adults with credentials, but low competence. There is an active movement of competency-based adult literacy education that focuses on the assessment of competence in performing simulations or answering questions about real-world tasks and providing instruction aimed at developing such competence where it is found to be absent or weak. The state of California has been experimenting with competency-based education of this nature for several years (Alamprese, 1987).

Recently, a program was initiated in California that uses the Comprehensive Adult Student Assessment System (CASAS) to assess the literacy competence of welfare recipients. In preliminary findings for over 2,200 high school graduates, it was found that 6 percent scored low enough in reading to be referred to basic education, while almost 30 percent scored low enough in mathematics for referral to basic education (GAIN, 1987).

Management Information Systems

A salutary consequence of the move toward competence rather than (or perhaps in addition to) credentials as a goal for adult literacy education is the implementation of management information systems for collecting, analyzing, and acting on the basis of data. The California competency-based program has had such a system in place for several years. More recently, New York City created the Literacy Assistance Center (LAC) to coordinate and facilitate the development and operation of adult literacy programs in the city. The LAC has developed an extensive information collection and analysis capability that provides much useful demographic information as well as program test scores for informing decisions for program revisions and extensions (Literacy Assistance Center, 1986).

A major accomplishment has been the establishment of a systematic approach to adult literacy education and management in over 300 community-based employment centers (Taggart, 1986). For the first time, a coherent body of information is being obtained from this disparate group of programs that have traditionally eluded the attention of mainstream adult literacy educators.

The Department of Defense has joined the move toward demanding test-score evidence of competence in audition to credentials. For instance, in a recent policy shift, holders of the GED high school equivalency certificate no longer qualify for military service in the same manner as do genuine high school diploma holders (AAACE, 1987). The GED certificate holders must score higher on additional aptitude tests to make up for their lack of a genuine diploma. Ironically, it was the military that first promoted the development of the GED high school "equivalency" for those whose educations were disrupted by service in World War II.

As other states and the federal government move to implement a version of the GAIN (Greater Avenues for Independence) competency-based assessment and mandatory basic education approach to welfare, and as businesses and colleges come more and more to question the high school diploma or GED certificate as certifications of competence, the constituency for adult literacy education seems destined to change. The effects of such changes should be the object of future study.

Intergenerational Adult-Child Literacy Education Programs

In a review of the performance of 17-year-olds and young adults on the reading tests of the National Assessment of Educational Progress for 1971, it was observed that "the higher the education level of the respondent's parents, the better the respondent's reading performance" (Sticht, 1975b, p. 155). In subsequent reviews, these earlier observations were found to hold true for all age groups in the 1971 National Assessment of Educational Progress, all sub-

tests of the Armed Services Vocational Aptitude Battery normed in 1980, and the 1986 National Assessment of Educational Progress survey of the reading skills of young adults (Sticht, 1979; 1983; 1987a).

The positive relationship between parents' (and especially mothers') education level and the performance of their children on these various literacy tests holds across age groups from 9- to 25-year-olds, and across black, white, and Hispanic groups. One correlational analysis has suggested that a one-year gain in mothers' basic skills may lead to better than half a grade gain in the skills of offspring (Taggart, Sum, & Berlin, 1987, p. 17).

This relationship between parent's education level and the achievement of the parent's children is currently being explored in the first generation of research on adult literacy programs that aim explicitly at improving both the literacy skills of parents and the subsequent achievement of literacy skills in the parents' children (Askov, 1987; Nickse & Englander, 1985; Nickse, Speicher, & Buchek, 1988). Although it is still much too early for reliable results to be available, preliminary findings suggest that, in programs using either computers (Askov, 1987) or college work students (Nickse, Speicher, & Buchek, 1988) to deliver instruction, the literacy skills of parents can be modified to a moderate degree, and parents and teachers report changed attitudes and school performance on the part of the adults' children. No quantitative data are available at this writing regarding the effects of these programs on children's achievement test scores.

Despite the paucity of information regarding the feasibility of accomplishing significant changes in either parents' or children's cognitive skills through such intergenerational programs, the United States Congress has passed legislation to create the Even Start program. This program will provide some $50 million a year for parent-child literacy programs in fiscal years 1988–1993 (a minimum of some $300 million). The General Assembly of Kentucky in March 1986 reported a bill called the Parent and Child Education (PACE) program that aims " . . . to break the intergenerational cycle of undereducation by uniting parents and children in a positive experience that can improve" parents' basic skills and attitudes toward education, children's learning skills, and parents' child care skills (Sticht, 1987c).

There is great difficulty in conducting longitudinal research of the type needed to demonstrate the effectiveness of intervention programs. This is indicated by the still-debated research on the effectiveness of preschool programs such as Head Start on children's cognitive skills (Spitz, 1986; White & Buka, 1987). A research project was initiated in 1987, however, to review the success of various past and ongoing intervention programs for children, youth, and adults, examine the conceptual and empirical findings from much of the cognitive science research on intellectual skills development in childhood and adulthood, and formulate a research plan that will permit the re-

search on intergenerational parent-child literacy education to avoid the pitfalls of earlier intervention studies (Sticht, 1987).

Workplace Literacy

Reports such as *A Nation at Risk* (The National Commission on Excellence in Education, 1983) and *Literacy: Profile of America's Young Adults* (Kirsch & Jungeblut, 1986) have suggested that because of the low level of literacy of its workforce, and the negative effects this has on productivity, the United States is losing its competitive edge in the international marketplace.

The concern for workforce literacy has led to many operational activities by business and industry to support adult literacy programs and to provide literacy education for workers. The best source of information regarding such activities is the newsletter of the Business Council for Effective Literacy in New York City.

While there are many operational activities to provide literacy education to workers, there is very little by way of research underway to understand the nature of workplace literacy, the skills of workers in various industries, their needs and desires for literacy training, and cost-effective ways to develop work-related literacy skills.

Reviews of past research on job-related literacy are available (Sticht, 1975b; Nielsen & Hjelm, 1975; Ryan & Furlong, 1975; Auten, 1980; Sticht, 1983; Sticht & Mikulecky, 1984; Stedman & Kaestle, 1986, 1987; Sticht, Armstrong, Hickey, & Caylor, 1987). Most of the research relates to reading, though access to research on work-related writing can be had through Kern, Sticht, Welty, and Hauke (1975), Gentry (1982), Duffy and Waller (1985), and Wright (1987).

A review and critique of methodologies for identifying literacy requirements of jobs is given by Sticht, Fox, Hauke, and Zapf (1977a,b). The review comments on the use of readability formulas for estimating reading levels needed for work and notes their limitations in not being applicable to figures and tables (which may make up two-thirds of the types of materials read in workplaces) and in not being able to assess the writing demands of work. The use of inventories and interviews of workers and supervisors to identify literacy demands of tasks is reviewed, as is the use of predictive validity studies to relate literacy skills to reading task performance, job knowledge, and job proficiency indexed either by job sample performance tests, supervisor ratings, or existing personnel records of the satisfactoriness of performance.

A general conclusion is that all these various methods are incommensurate and may give different estimates of the literacy demands of jobs. Therefore, the purpose of the enquiry must guide the selection of the methodology to be applied. If the research is to result in the development of criteria for selection and classification purposes, then the predictive validity approach would seem

the method of choice. If the development of job-related literacy training is the goal, then the task inventory and interview approaches provide relatively inexpensive methods of obtaining samples of job-related literacy materials and an understanding of the tasks performed with such materials. These materials can then be used to develop instructional materials and job-related literacy task tests to determine if job-related literacy skills have been improved by the literacy program (Sticht, 1987a).

Ethnographic studies of the uses of cognitive skills, including literacy, in workplaces may provide additional information for better understanding the literacy demands of work and how work-related literacy skills may be efficiently developed (Scribner, 1984). The latter is of special importance given the recent and important findings of Park, Storlie, and Dawis (1987) regarding the literacy and job retraining needs of displaced workers in Minnesota. These authors report that although many displaced workers express the need for additional literacy (including mathematics) education, they tend to not take advantage of the programs that are offered. Park and associates suggest that new approaches, perhaps those that integrate literacy and technical training (Sticht et al., 1987) are required to attract the participation of displaced workers.

The work of Park and colleagues (1987) also addresses the question of whether the displaced workers who had found new jobs encountered the same, more, or fewer literacy demands in the new jobs than in their old jobs. Those reporting more demands for reading, writing, and mathematics ranged from a low of 7 percent among workers displaced from the steel industry to 33 percent for workers displaced from the lumber industry.

Future research is needed to determine if the demands for workplace literacy are actually increasing, as suggested by numerous reports (see the various issues of the newsletter of the Business Council for Effective Literacy), if the skills of workers are actually lower than required, and if approaches to worker literacy education can be developed that are attractive to both industry and the work force.

CONCLUSIONS

The history of adult literacy education (Appendix 1) reveals a "crisis mentality" toward the literacy education of adults that has hindered the development of a cadre of professionals trained in adult literacy education and a body of research-based knowledge about the development of literacy in adulthood.

Too often understandings of literacy education derived from experience with children in the elementary schools are applied to the literacy education of adults, with disastrous effects. These effects include the misidentification of the literacy skills of adults and the development of programs inappropriate for the adults' life context. Under such circumstances, adults "vote with their

feet" and walk away from programs in large numbers (over half) in just a few hours of instruction (less than 50 to 100).

Several new directions have emerged as a result of the current wave of interest in adult literacy that may have salutary consequences for adult literacy education and the prevention of literacy difficulties among future generations of adults. These directions include a focus on competence and its assessment, in addition to credentials and their award; attention to the intergenerational transfer of parents' literacy and the effects of parents' attitudes toward literacy on the development of their children's literacy; and increased attention to the role of literacy in the workplace and how adult literacy education can be made cost-effective to management and attractive to labor.

There appears to be movement both in the theoretical and operational domains to understand childhood and adulthood literacy development within a common framework. In the theoretical domain, Chall (1987) has formulated an understanding of adult literacy development within the same stages of reading development that she has conceived for children. At the operational level, the Even Start legislation unites the literacy development of children and their parents.

Research Directions

Future research should explore more fully the implications of theory, policy, and practice that brings together childhood and adulthood literacy development, areas that have previously been decidedly different and separate realms of thought and action.

We should acknowledge that children *are not* just little adults, and that adults *are* grown-up children, and that some unified theory of cognitive development should be sought that includes the cognitive growth of both children and adults. At the same time, we must realize that the functional contexts of childhood and adulthood are not the same. These contextual differences and their implications for literacy education for both children and adults need to be better understood.

APPENDIX: Historical Perspective on U. S. Adult Literacy Education (Part 1)

1900–1909 Americanization and Literacy Education	1910–1919 Concern for the Native-Born Illiterate	1920–1929 Prosperity and Progress	1930–1939 New Deal America
Social Climate			
Illiteracy rises, in part because of: (1) large influx of illiterate immigrants; (2) attitude that no one is compelled to do anything in U. S., including attend school; (3) people unwilling to submit to intervention in education.	Spirit of reform, which included education, in first half of decade. WWI resulted in attempts to "Americanize" the foreign-born, and the draft revealed that illiteracy was a national concern when 25% of the men tested were near-illiterate.	This decade experienced an early depression, followed by a strong recovery. It was also a time of lawlessness, suspicion, and intolerance. Concern over the Bolshevik Revolution resulted in further action against immigration. There was national concern over illiteracy, but only the states took action.	Great Depression followed by the New Deal, a reform program with very controversial legislation like work relief and direct relief payments. Work relief included the National Youth Administration, which provided non-instructional work for those in school and part-time jobs for youth not in school.
Statistics			
Illiterate: 10 yrs. or older who's unable to read or write native language. In 1900, 10.7% (6,180,069) people classified as illiterate. 51.8% were Caucasians (20.8% foreign born), and 48.2% were non-white.	In 1910, 7.7% (5,516,163) counted as illiterate. 40.4% black, 27.8% native white, 29.9% foreign-born whites, 1.9% other minority groups. Decline in illiteracy due to improvement in educational opportunities, not the efforts of federal, state, or local governments.	In 1920, 6% (4,931,905) counted as illiterate, with illiteracy decreasing in all subgroups except the foraign-born; this points to the large foreign influx in prewar years. The Census Bureau named improved education as the factor responsible for declining illiteracy.	In 1930, 4.3% (4,283,753) illiterates. Drop from 4.0% to 2.7% for whites, 22.9% to 16.3% for blacks from 1920 to 1930. Effects of quota system (which favored immigrants from northern and western Europe) seen as illiteracy among foreign-borns dropped from 13.1% to 9.9%.
Legislation			
Some states implemented legislation aimed at preventing illiteracy by making school attendance compulsory for children.	In 1917, law passed which prohibited immigrants from entering country if they were 16 or older and couldn't read some language. In 1910, no state had any laws concerning adult illiteracy, but by 1920 some states had laws providing for programs for the adult illiterate.	National concern, but little actual national support for illiteracy programs. The Sterling-Reed Bill proposed a Dept. of Education which would conduct research on illiteracy, but the bill was defeated. Meanwhile, 60% of the states had legislation encouraging adult education by 1927.	Legislation of the 1930s centered on relief, recovery, and reform. No legislation dealing specifically with illiteracy, but several programs related to illiteracy were the results of "relief legislation" (see Programs section)
Programs			
Illiteracy not yet seen as national social problem, but labor unions and industry realized the value of educated workers, and thus implemented illiteracy programs.	Kentucky "moonlight schools" were perhaps the official beginning of literacy education in the U. S. Taught basic language, history, sanitation to adults in the evening. Began in 1911, idea spread to other states, and by 1918, special moonlight schools to prepare men for draft. First illiteracy commission	Hundreds of individual community efforts. In 1924, 25 states had 286,000 students in classes for adult illiterates and the foreign-born.	States continued to run literacy programs, and new work relief programs affected literacy education. Work Relief in Education used the unemployed to teach the unemployed. Programs by the Federal Emergency Relief Administration provided work relief for teachers and general adult education in

	ever established was in Kentucky in 1914; received no government support.		areas with many unemployed. WPA provided work relief for adult education teachers. Civilian Conservation Corps provided basic education.
Professional Activities			
_____	1915–1919, Federal Bureau of Education funded immigrant education programs for the purpose of Americanizing the foreign-born, but funding stopped in 1919	Illiteracy campaigns and commissions established in many states. The National Education Association organized a Dept. of Immigrant Education in 1920, changed name to National Dept. of Adult Education in 1924. National Illiteracy Conference on 1/11/24, result was a program outline for use with native illiterates. In 1929, Hoover set up an Advisory Committee on National Illiteracy.	First attempts at research in literacy education during 1930s, although the investigations were sporadic. The Advisory Committee on National Illiteracy conducted seven studies on illiteracy from 1930–1933, from causes of illiteracy to techniques for teaching illiterates to illiteracy and crime. This was first sustained and coordinated effort to assess the problem of illiteracy.
Methods and Materials			
Very little done in the area of curriculum materials; existing materials designed for foreign-born illiterate. Poor methods based mostly on drills, recitation, and repetition	A lot of material available for the foreign-born illiterate, but nothing for the native-born until the start of the moonlight schools.	Several bibliographic sources available for both foreign-born and native illiterates, but instructional materials still difficult to obtain. Concerning instructional methods, choral recitation still much used, but more emphasis on recitation with "understanding."	The need for materials was stressed by educators, but publishers did little. Low-readability materials for adults were available only if those involved in the programs produced them.
Summary			
This decade saw heavy immigration, with many illiterate immigrants. Little concern about illiteracy; just a few scattered efforts nationwide.	Spirit of reform resulted in first efforts toward native-born illiterates. Two other motivations spurring literacy efforts were the desire to Americanize foreigners and concern over the large number of illiterate American soldiers (both motives were the direct result of U. S. involvement in WW I).	Decade overall was one of propserity, so people turned attention to social problems like illiteracy. Federal government provided professional advice, states showed more commitment with aid and special teachers. Decade saw first National Illiteracy Conference, National Illiteracy Crusade (little evidence of success) and Advisory Committee on National Illiteracy.	States continued developing illiteracy commissions, but at slower pace, federal programs primarily designed for work relief, with some educational opportunities provided. Definition of illiteracy was questioned, more stringent criteria suggested. First attempts at research made. Became clear that campaigns by volunteers weren't enough to solve illiteracy, professional help was needed.

APPENDIX: Historical Perspective on U. S. Adult Literacy Education (Part 2)

1940–1949 The World in Crisis	1950–1959 A Period of Adjustment	1960–1969 A Decade of Revolution	1970–1979 Time of Turmoil and Uncertainty
Social Climate			
WW II reemphasized problem of illiteracy. In 1941, directive issued requiring inductees to be functioning at at least 4th grade level, but the large number of inductees refused (38/1,000 whites, 112/1,000 blacks) forced the military to accept and then train illiterates.	No major federal legislation concerning adult literacy education, but increased awareness of need for basic education in industrial society. Motivations for literacy efforts included growing awareness of educational and economic inequality, need to compete with Russia to maintain position of power, and continuing problem of the illiterate soldier during Korean conflict.	With election of Kennedy, attention focused on social problems like the neglect of poor and old. Blacks rioted throughout country, protesting prejudice, injustice, and poor education. In 1965, American troops sent to reinforce the Vietnamese army.	Nixon administration ends U. S. involvement in Vietnam, but Watergate confirms the public's doubt of the government. Ford faced with economic instability, a race revolution expanding to include Hispanics and Puerto Ricans, and high unemployment (which emphasized the need for functional literacy to hold jobs with more security during an economic crisis).
Statistics			
In 1940, the census' literacy question replaced by data on highest grade of school completed. But Census Bureau also collected data specifically on literacy in 1947, using the term "functional illiterate" for those with less than five years of elementary school. According to census data, 4.2% (4,218,000) over age 14 couldn't read or write any language, applying the more rigorous 1947 definition of functional illiteracy to 1940 data, 13.5% (10 million) of adults over 25 were functionally illiterate.	In 1950, no actual count of illiterates taken, but estimate of 3.2% (3,600,000) age 14 and over unable to read or write in any language was derived from 1947 and 1952 surveys on illiteracy. Using 1940s definition, 11% of population over 25 were functionally illiterate. 1959 survey showed 2.2% over 14 unable to read or write a simple message in any language, but survey had sampling error and didn't include those in armed services or institutions.	In 1960, census asked questions only on grade completion. 2.2% of those 14 and over had no schooling. Despite percentage drop, actual number of illiterates rose. Using 1940s definition, 8.3% (8 million) people over 25 functionally illiterate. If 1960s data is analyzed in terms of a more recent "functionally illiterate" definition, 22 million over 25 had less than 8th grade education.	In 1970, census had no question on literacy, but 1969 survey showed 1.9% of those 14 and over couldn't read or write a simple message in any language. Drop in illiteracy due in part to fewer immigrants, more schools and compulsory school laws, and mortality of the less educated. But number of functional illiterates reveals there's still serious problem. Complexity of today's world requires perhaps a 9th grade education, but 31 million do not have it.
Legislation			
Some states provided aid and supervision for adult education programs, but two federal literacy bills were defeated. Only federal legislation significantly related to illiteracy was Serviceman's Readjustment Act of 1944, which offered education or training to dischargees whose education or training was impeded by the war.	This decade showed some reform in education, as the Supreme Court struck down segregation in 1954, but no federal legislation passed which related to literacy education. By 1959, every state but Kansas had legislation pertaining to general adult education. However, states authorizing aid didn't always appropriate the money for the programs.	Federal government had the most interest ever in adult literacy education during this decade. Legislation included the Manpower Development and Training Act of 1962 (further education to prepare the unemployed for vocational programs), Economic Opportunity Act of 1964 (first direct allotment of federal funds to literacy education), Adult Basic Education Act of 1966 (available to adults	Adult Education Act Act had extended eligibility to adults with less than 12th grade educations (people potentially affected rose from 24 million to 69 million) and provided more funds for adult basic education programs and research. Education Amendments of 1974 extended Elementary and Secondary Act of 1965 by granting reading skill statutory recognition and funding programs to

		with less than 8th grade education), and Adult Education Act of 1969.	strengthen reading skills at all ages. Section 723 provides for reading academics for youth and adults who wouldn't otherwise receive instruction
Programs			
War again forced the military to deal with illiteracy Army and Navy set up programs to educate illiterates and prepare them for service. Army program, particularly successful, provided unlimited funds for materials, had highly skilled teachers, and had more motivated students than civilian programs. Selective Service asked state and local officials to help provide literacy classes for registrants Only major civilian effort was a push for literacy for blacks funded by Carnegie Corporation for three years	Military once again required to provide literacy training, this time because of Korean War (although military continued to feel that responsibility for these men's education really rested with the states) For civilian illiterates, TV was used for the first time as an instructional medium in Memphis in 1957 (not very successfully). Many prisons provided some form of literacy instruction, but industry showed little concern for illiterates during the 1950s.	Many Adult Basic Education programs through active groups, legislation, and funds. In 1968, 450,000 adults were involved in programs, a 17% increase over 1959 Public libraries increasingly involved in helping illiterates More programs using TV New programs for migrant workers, Indians, and prisoners. Project 100,000 was Defense Dept program to raise education level of the disadvantaged by lowering entry requirements to the service and providing pre-basic training.	Present programs serve a greater variety of people than in the past, so more flexibility and more program models are necessary. National Right to Read Effort was a nationwide, 10-year attack (1970-1980) on illiteracy which involved both state and federal funding Libraries continued to increase their involvement in adult basic education programs, and the military financed programs to identify and then teach the literacy skills needed for military jobs
Professional Activities			
———	Some of first professional programs, materials, and studies appeared At 1951 UNESCO conference, U S pledged to extend educational opportunities to adults Office of Education set up Adult Education Section, Adult Education Association set up Committee on Adult and Fundamental Education, both designed to investigate adult illiteracy Baylor provided first undergrad curriculum in literacy education National Commission for Adult Literacy set up by Adult Education Association to stimulate government support at all levels	National Teacher Training Adult Basic Education Program had a national council prepare a curriculum for a teacher training program, which was then used as a guide in teacher training institutes Literacy research increased rapidly and became more sophisticated, and literacy classes teaching rudiments were replaced by classes emphasizing adult basic education	Increased attention to the need for qualified and competent adult education instructors, and also the need for more quantifiable research on which to base literacy programs Clearinghouse facilities have been established to gather and distribute literacy education information

APPENDIX: Historical Perspective on U. S. Adult Literacy Education (Part 2)

1940–1949 The World in Crisis	1950–1959 A Period of Adjustment	1960–1969 A Decade of Revolution	1970–1979 Time of Turmoil and Uncertainty
Methods and Materials			
Army and Navy had to develop materials for use in their illiteracy programs, including filmstrips, texts, workbooks, and comic strips—all of which related to life in the service. The civilian push to increase black literacy resulted in a set of basic readers.	Adult literacy materials remained inadequate during the 1950s. Children's materials were adopted (often unsuccessfully) for adults, although a few materials specifically designed for adults were produced. The Laubach method became popular in the 1950s.	For the first time, lack of suitable materials wasn't a major problem. Extensive bibliographies of the materials available began to appear, as did testing instruments designed specifically for adults and books dealing with the issue of adult illiteracy.	The two key words for the materials and methods of the 1970s are variety and individualization. The current programs use a variety of materials, often including AV equipment like computers, in an attempt to teach a student at an individual level
Summary			
The war created renewed awareness of the illiteracy problem as thousands of registrants were identified as illiterates. Most literacy efforts were military programs to prepare men for service, so most of the materials produced were for military use—forerunners of later civilian materials. This was incubation period for ideas which would emerge in the next two decades	From 1870–1959, white illiteracy dropped from 12% to 2%, and black illiteracy from 80% to 8%, but old definitions of illiteracy were being replaced by idea of functional illiteracy. Programs continued to be conducted at the state and local level, but the National Commission for Adult Literacy was created to increase government involvement at all levels to help solve illiteracy	The term "functional illiteracy" gained more acceptance as the percentage of absolute illiterates dropped. The federal government finally supplied financial support, which resulted in major advances in adult literacy education—including extensive programs, teacher training, materials preparation, and a shift in curriculum from reading, writing, and math to more diverse skills	More progress in the 1960s than in the previous 60 years, but the question is whether the 1970s will show a sustained and continuous effort in literacy education. Author calls for a unification of existing programs and a clearinghouse to share ideas on literacy education

Source Constructed from Cook (1977), by Debra Vella, Applied Behavioral & Cognitive Sciences, Inc

REFERENCES

AAACE Newsletter (1986, December). *DOD study; Adult diploma graduates leave military service*. Washington, DC: American Association for Adult and Continuing Education.

Adult Performance Level Project (1987). *Functional literacy project: An annotated bibliography*. Austin: University of Texas.

Alamprese, J., and Associates (1987). *CBAE evaluation study report: Investing in change, competency-based adult education in California*. San Diego, CA: CASAS, San Diego Community College District Foundation.

Askov, E. N. (1987). *Final report: Penn State adult literacy courseware: Impact on parents and children*. University Park: The Pennsylvania State University, Institute for the Study of Adult Literacy.

Association for Community Based Education (1983). *Adult literacy: Study of community based literacy programs*. Washington, DC: Author.

Auten, A. (1980). The challenge: Job literacy in the 1980s. *Journal of Reading, 23*, 750–754.

Berlin, G. B. (1983). *Not working: Unskilled youth and displaced adults*. Working paper. New York: The Ford Foundation.

Bhola, H. S. (1984). *Campaigning for literacy: Eight national experiences of the twentieth century, with a memorandum to decision makers*. Paris: UNESCO.

Boraks, N., & Schumacher, S. (1981). *Ethnographic research on word recognition strategies of adult beginning readers*. Richmond: School of Education, Virginia Commonwealth University.

Bowren, F. & Zintz, M. (1977). *Teaching reading in adult basic education*. Dubuque, IA: Brown.

Brizius, J., & Foster, S. (1987). *Enhancing adult literacy: A policy guide*. Washington, DC: Council of State Policy & Planning Agencies.

Business Council for Effective Literacy (1985, July). *The case for computers*. New York: BCEL Newsletter for the Business Community.

Buswell, G. T. (1937). How adults read. *Supplementary educational monographs (45)*. Chicago: University of Chicago Press.

Butler, E. P., Hahn, A., & Darr, J. (1985). *The literacy-employment equation: Education for tomorrow's jobs* (A Policy Options Monograph). Boston: Brandeis University, Center for Human Resources.

Carroll, J. B. (1987, February). The national assessment in reading: Are we misreading the findings? *Phi Delta Kappan*, 424–430.

Carroll, J. B., & Chall, J. S. (Eds.). (1975). *Toward a literate society*. New York: McGraw-Hill.

Chall, J. S. (1987). Developing literacy . . . in children and adults. In D. Wagner (Ed.), *The future of literacy in a changing world* (Vol. 1). London: Pergamon.

Cook, W. D. (1977). *Adult literacy education in the United States*. Newark, DE: International Reading Association.

Crandall, J. (1983). Adult literacy. *Annual Review of Applied Linguistics* (pp. 162–180). Rowley, MA: Newly Home.

Darkenwald, G. G. (1986). *Adult literacy education: A review of the research and priorities for future inquiry*. New York: Literacy Assistance Center, Inc.

Darling, S. (1982). *Submission to the Joint Dissemination Review Panel*. Washington, DC: U.S. Department of Education.

Duffy, T. M. (1985). Literacy instruction in the military. *Armed Forces in Society, 11*, 437–467.

Duffy, T., & Waller, R. (Eds.) (1985). *Designing usable texts*. New York: Academic Press.

Durrell, D. D., & Brassard, M. B. (1970). *Durrell listening-reading series: Intermediate level*. New York: Harcourt, Brace, Jovanovich.

Eggert J. D. (1984, January). *Concerns in establishing and maintaining a community-based adult literacy project*. Paper presented at the National Adult Literacy Conference, Washington, DC.

Eitelberg, M., Laurence, J., Waters, B., & Perelman, L. (1984). *Screening for service: Aptitude and education criteria for military entry*. Alexandria, VA: Human Resources Research Organization.

Fingeret, A. (1983). Social networks: A new perspective on independence and illiterate adults. *Adult Education Quarterly, 33*, 133–146.

Fingeret, A. (1984). *Adult literacy education: Current and future directions*. Columbus, OH: ERIC Clearinghouse on Adult, Career, and Vocational Education.

Fingeret, A. (1985). *North Carolina adult basic education instructional program evaluation*. Raleigh: Department of Adult and Community College Education. North Carolina State University.

Freire, P. (1971). *Pedagogy of the oppressed*. New York: Herder and Herder.

Fuller, B., Edwards, J. H., & Gorman, K. (1987). Does rising literacy spark economic growth? Commercial expansion in Mexico. In D. Wagner (Ed.), *The future of literacy in a changing world* (Vol. 1, pp. 319–340). Oxford: Pergamon.

GAIN (1987, April). *GAIN appraisal program: Field test report*. San Diego: CASAS, San Diego Community College District Foundation.

Gee, J. P. (1987). Orality and literacy: From the savage mind to ways with words. *Teachers of English to Students of Other Languages*, 21, 719–746.

Gentry, L. (Ed.). (1982). *Research and instruction in practical writing*. Los Alamitos, CA: SWRL Educational Research and Development.

Ginzberg, E., & Bray, D. W. (1953). *The uneducated*. New York: Columbia University Press.

Gold, P. C. (1984, January). *Literacy training in penal institutions*. Paper presented at the National Conference on Adult Literacy, Washington, DC.

Goldberg, S. (1951). *Army training of illiterates in World War II*. New York: Teachers College, Columbia University.

Graff, H. J. (1979). *The literacy myth: Literacy and social structure in the 19th century city*. New York: Academic Press.

Graves, M. F. (1986). Vocabulary learning and instruction. In E. Rothkopf (Ed.), *Review of research in education, 13* (pp. 49–89). Washington, DC: American Educational Research Association.

Gray, W. S. (1986). *The teaching of reading and writing*. Chicago: University of Chicago Press.

Gray, W. S., & Rogers, B. (1956). *Maturity in reading*. Chicago: University of Chicago Press.

Guthrie, J., Kirsch, I., & Love, M. A. (1984, September). *Reading competencies and practices* (Technical Report #7). Newark, DE: International Reading Association.

Hamadache, A., & Martin, D. (1986). *Theory and practice of literacy work: Policies, strategies, and examples*. Paris: UNESCO.

Harman, D. (1987). *Illiteracy: A national dilemma*. New York: Cambridge Book Company.

Harris, L., and Associates, Inc. (1970). *Survival literacy study*. Washington, DC: The National Reading Council.

Harris, L., and Associates, Inc. (1971). *The 1971 national reading difficulty index: A study of functional reading ability in the United States, for the National Reading Center*. Washington, DC: National Reading Center.

Heath, S. B. (1983). *Ways with words*. New York: Cambridge University Press.

Henry, N. B. (Ed.). (1956). *Adult reading. Fifty-fifth Yearbook of the National Society for the Study of Education*. Chicago: University of Chicago Press.

Huff, K. H., Sticht, T. G., Joyner, J. N., Groff, S. D., & Burkett, J. R. (1977, May). *A job-oriented reading program for the Air Force: Development and field evaluation*. Technical Report: AFHRL-TR-77-34. Lowry Air Force Base, CO: Air Force Human Resources Laboratory.

Hunter, C., & Harman, D. (1979). *Adult illiteracy in the United States*. New York: McGraw-Hill.

Kazemek, F. E., & Rigg, P. (1984). *Adult literacy: An annotated bibliography*. Newark, DE: International Reading Association.

Kahn, M. E. (1986, May). *Literacy management information project report, Vol. 1*. Washington, DC: U.S. Department of Education.

Kent, W. P. (1971). *Job-related adult basic education: Vol. II*. Falls Church, VA: Systems Development Corporation.

Kern, R. P., Sticht, T. G., Welty, D., & Hauke, R. N. (1975). *Guidebook for the development of Army training literature*. Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Kirsch, I. S., & Jungeblut, A. (1986). *Literacy: Profiles of America's young adults*. Princeton, NJ: National Assessment of Educational Progress and Educational Testing Service.

Kozol, J. (1985). *Illiterate America*. New York: Doubleday.

Levine, K. (1986). *The social context of literacy*. London: Routledge & Kegan Paul.

Literacy Assistance Center, Inc. (1986). *New York City adult literacy initiative final report for fiscal year 1985*. New York: Author.

Mason, J. M., & Allen, J. (1986). A review of emergent literacy with implications for research and practice in reading. In E. Rothkopf (Ed.), *Review of research in education, 13* (pp. 3–47). Washington, DC: American Educational Research Association.

Mezirow, J., Darkenwald, G. G., & Knox, A. B. (1975). *Last gamble on education*. Washington, DC: Adult Education Association.

Mikulecky, L. (1986, December). *The status of literacy in our society*. Paper presented at the National Reading Conference, Austin, TX.

Mikulecky, L. & Diehl, W. (1980). *Job literacy*. Bloomington: Reading Research Center, Indiana University.

Nagy, W. E., Anderson, R. C., & Herman, P. A. (1987). Learning word meanings from context during normal reading. *American Educational Research Journal, 24*, 237–270.

National Commission on Excellence in Education (1983). *A nation at risk: The imperative for educational reform*. Washington, DC: U.S. Government Printing Office.

Nickse, R., & Englander, N. (1985). At risk parents: Collaborations for literacy, An intergenerational reading project. *Equity and Choice, 6*, 11–18.

Nickse, R., Speicher, A., & Buchek, P. (1988). An intergenerational adult literacy project: A family intervention/prevention model. *The Journal of Reading, 31*, 634–642.

Nielsen, D. M., & Hjelm, H. F. (Eds.). *Reading and career education*. Newark, DE: International Reading Association.

Northcutt, N. W. (1975). Functional literacy for adults. In D. Nielsen & H. Hjelm (Eds.), *Reading and career education* (pp. 43–49). Newark, DE: International Reading Association.

Olson, D. R. (1986). Intelligence and literacy: The relationship between intelligence

and the technologies of representation and communication. In R. F. Sternberg & R. K. Wagner (Eds.), *Practical intelligence* (pp. 338–360). New York: Cambridge University Press.

Park, R. J. (1980, December). *A critical review of developments in adult literacy.* Paper presented at the annual meeting of the National Reading Conference, San Diego, CA.

Park, R. J. (1983). Language and reading comprehension: A case study of low reading adults. *Adult Literacy and Basic Education, 7,* 153–163.

Park, R. J., Storlie, R. L., & Dawis, R. V. (1987, January). *The educational needs of dislocated workers in Minnesota.* Minneapolis: University of Minnesota, Center for Urban and Regional Affairs.

Pugsley, R. S. (1987). *National data update, annual conference, state directors of adult education.* Washington, DC: Office of Vocational and Adult Education.

Reder, S. M. (1987). Comparative aspects of functional literacy development: Three ethnic communities. In D. Wagner (Ed.), *The future of literacy in a changing world* (Vol. 1, pp. 250–270). Oxford: Pergamon.

Reder, S. M., & Green, K. R. (1985). *Giving literacy away: An alternative strategy for increasing adult literacy development.* Portland, OR: Northwest Regional Educational Laboratory.

Rogoff, B., & Lave, J. (Eds.). (1984). *Everyday cognition: Its development in social context.* Cambridge, MA: Harvard University Press.

Ryan, T. A., & Furlong, W. (1975). Literacy programs in industry, the armed forces, and penal institutions. In J. B. Carroll & J. S. Chall (Eds.), *Toward a literate society.* New York: McGraw-Hill.

Schrank, R., & Stein, S. (1970, June). Basic education: What are the realistic possibilities? *Training in Business and Industry.*

Scribner, S. (1984). Studying working intelligence. In B. Rogoff & J. Lave (Eds.), *Everyday cognition* (pp. 9–40). Cambridge, MA: Harvard University Press.

Scribner, S., & Cole, M. (1981). *Psychology of literacy.* Cambridge, MA: Harvard University Press.

Spache, G. D. (1972). *Diagnostic reading scales (rev. ed.).* Monterey: California Test Bureau, McGraw-Hill.

Spitz, H. H. (1986). *The raising of intelligence: A selected history of attempts to raise retarded intelligence.* Hillsdale, NJ: Erlbaum.

Stauffer, J. M. (1973). *The NALA study: A description of the National Affiliation for Literacy Advance (NALA).* Syracuse, NY: New Readers Press.

Stedman, L. C., & Kaestle, C. F. (1986, May). *An investigation of crude literacy, reading performance, and functional literacy in the United States, 1880 to 1980* (Program Report 86-2). Madison: Wisconsin Center for Education Research, University of Wisconsin-Madison.

Stedman, L. C., & Kaestle, C. F. (1987). Literacy and reading performance in the United States. *Reading Research Quarterly, 22,* 8–46.

Sternberg, R. F., & Wagner, R. K. (Eds.). (1986). *Practical intelligence* (pp. 338–360). Cambridge: Cambridge University Press.

Sticht, T. G. (1975a). *A program of Army functional job reading training: Development, implementation, and delivery systems* (Final report). HumRRO-FR-WD(CA)-75-7. Alexandria, VA: Human Resources Research Organization.

Sticht, T. G. (1975b). *Reading for working: A functional literacy anthology.* Alexandria, VA: Human Resources Research Organization.

Sticht, T. G. (1979, May). *The cycles of marginal literacy and marginal living.* Paper presented at the annual meeting of the Association of American Publishers, Palm Beach, FL.

Sticht, T. G. (1982). *Evaluation of the "reading potential" concept for marginally literate adults*. Washington, DC: Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics).

Sticht, T. G. (1983, February). *Literacy and human resources development at work: Investing in the education of adults to improve the educability of children* (Professional Paper 2-83). HumRRO-PP-2-83. Alexandria, VA: Human Resources Research Organization.

Sticht, T. G. (1985). Understanding readers and their uses of texts. In T. Duffy & R. Waller (Eds.), *Designing usable texts* (pp. 315–340). New York: Academic Press.

Sticht, T. G. (1987a, March). *Functional context education: Workshop resource notebook*. San Diego, CA: Applied Behavioral & Cognitive Sciences, Inc.

Sticht, T. G. (1987b, March). *Solving the basic skills crisis: Comments on the paper by Robert Taggart*. Paper prepared for the W. T. Grant Foundation, Commission on Work, Family and Citizenship, Washington, DC.

Sticht, T. G. (1987c, August). *The intergenerational transfer of cognitive skills: Knowledge synthesis with policy, practice, and research recommendations (a research project)*. San Diego, CA: Applied Behavioral & Cognitive Sciences, Inc.

Sticht, T. G., Armijo, L., Koffman, N., Roberson, K., Weitzman, R., Chang, F., & Moracco, J. (1986). *Teachers, books, computers, and peers: Integrated communications technologies for adult literacy development*. Monterey, CA: U.S. Naval Postgraduate School.

Sticht, T. G., Armstrong, W. B., Hickey, D. T., & Caylor, J. S. (1987). *Cast-off youth: Policy and training methods from the military experience*. New York: Praeger.

Sticht, T. G., & Beck, L. J. (1976). *Experimental literacy assessment battery*. AFHRL-TR-76-51. Brooks Air Force Base, TX: Air Force Human Resources Laboratory.

Sticht, T. G., Beck, L. J., Hauke, R. N., Kleiman, G. M., & James, J. H. (1974). *Auding and reading: A developmental model*. Alexandria, VA: Human Resources Research Organization.

Sticht, T. G., Chang, F. R., & Wood, S. (Eds.). (1986). *Cognitive science and human resources management: Advances in reading/language research, Vol. 4*. Greenwich, CT: JAI Press.

Sticht, T. G., Fox, L. C., Hauke, R. N., & Zapf, D. W. (1977a). *The role of reading in the Navy* (Technical Report NPRDC TR 77-40). San Diego, CA: Navy Personnel Research and Development Center.

Sticht, T. G., Fox, L. C., Hauke, R. N., & Zapf, D. W. (1977b) *Integrated job skills and reading skills training* (Technical Report NPRDC TR 77-41). San Diego, CA: Navy Personnel Research and Development Center.

Sticht, T. G., Hooke, L. R., & Caylor, J. S. (1981). *Manual for the administration and interpretation of the Literacy Assessment Battery (LAB)*. HumRRO FR-ETSD-81-10. Alexandria, VA: Human Resources Research Organization.

Sticht, T. G., & Mikulecky, L. (1984). *Job-related basic skills: Cases and conclusions*. Columbus, OH: National Center for Research in Vocational Education, ERIC Clearinghouse on Adult, Career, and Vocational Education.

Sticht, T. G., & Zapf, D. W. (Eds.). (1976). *Reading and readability research in the Armed Services*. HumRRO FR-WD-CA-76-4. Alexandria, VA: Human Resources Research Organization.

Street, B. V. (1984). *Literacy in theory and practice*. Cambridge: Cambridge University Press.

Taggart, R. (1986). *The comprehensive competencies program: A summary*. Washington, DC: Remediation and Training Institute.

Taggart, R., Sum, A., & Berlin, G. (1987). The consequences of deficient skills. *Youth & Society, 19*, 3–21.

Tinker, M. A. (1965). *Bases for effective reading*. Minneapolis: University of Minnesota Press.

Wagner, D. (Ed.). (1987). *The future of literacy in a changing world* (Vol. 1). Oxford: Pergamon.

Weber, R. M. (1975). Adult illiteracy in the United States. In J. B. Carroll & J. S. Chall (Eds.), *Toward a literate society* (pp. 147–164). New York: McGraw-Hill.

White, S. H., & Buka, S. L. (1987). Early education: Programs, traditions, and policies. In E. Rothkopf (Ed.), *Review of research in education, 14* (pp. 43–91). Washington, DC: American Educational Research Association.

Wright, P. (1987). Writing technical information. In E. Rothkopf (Ed.), *Review of research in education, 14* (pp. 327–385). Washington, DC: American Educational Research Association.

Yerkes, R. M. (Ed.). (1921). Psychological examining in the United States Army. *Memoirs of the National Academy of Sciences, Vol. 15*. Washington, DC: National Academy of Sciences.

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Chapter 2
Overview of NALP Study

In an original planning document, the National Adult Literacy Project (NALP) set three major tasks for itself:

- provide information on effective instructional techniques and materials to a wide array of public and private adult literacy programs
- conduct short-term research and development projects to identify important knowledge gaps about effective adult literacy instruction that will contribute to the improvement of materials and practices currently in use
- conduct a data-gathering effort to collect the best information on the nature and extent of illiteracy and report that information to practitioners and to the public

The memorandum went on to declare: "All project activities will be aimed at maximizing the practical effectiveness of literacy training efforts and at supporting practitioners' efforts to provide services to educationally disadvantaged adults."

To ensure that any information or technical assistance that NALP staff might provide would be firmly grounded in the reality of actual practice, the researchers chose to use practitioners in the field (rather than university-based theoreticians) as their primary source of information about promising practices. However, recognizing that programs operating out of different institutional bases would face differing design and implementation constraints and opportunities, the NALP study undertook to identify and solicit information from programs in the following six categories: (1) state and local public adult education programs, (2) community-based programs, (3) programs operating within correctional institutions, (4) programs within the military, (5) programs operating within postsecondary education institutions, and (6) employment and training programs.

The NALP staff then went on to identify eight components of program operation about which practitioners would need information: (1) recruitment; (2) orientation; (3) counseling; (4) diagnostic testing; (5) assessment of student skill achievement; (6) instructional methods, materials, and management systems; (7) student follow-up systems; and (8) program evaluation. In addition, NALP staff compiled data on program management, including staff development and evaluation.

To identify programs with exemplary practices in any or all of these eight components that might serve as models and to obtain detailed information from these programs, the NALP study proceeded in three stages:

- *Nomination of programs*—Members of the NALP senior policy group,

directors of adult education in state departments of education, experts within the U.S. Department of Education, members of the Coalition for Literacy, and other acknowledged literacy experts were asked to nominate those programs that, in their opinion, exemplified "promising practices" in the field of adult literacy education. By March 1984, a total of 335 programs had been nominated, representing the following sections:

state/local public education programs	130
community-based programs	93
correctional institution programs	15
military programs	15
postsecondary education programs	32
employment and training programs	50

- *Survey of nominated programs through questionnaire*—The questionnaire shown in Exhibit 2.1 was mailed to all 335 nominated programs. Of these, 225 programs completed and returned the questionnaire by the July 1984 cutoff date; these programs are listed in Section IV.

- *Field site visits*—After an analysis of the survey questionnaires, some thirty-eight programs were chosen for site visits, during which data provided on the survey questionnaire would be explored in further detail. Interviews were conducted during the site visits with the program director, teachers, counselors, and students. Interviewers used the guidelines shown in Exhibit 2.2 as the basis for gathering desired information, though interviewees often volunteered information far beyond the scope of the questions shown in the guidelines. A list of the programs that volunteered information during site visits is given at the end of the chapter.

The 225 programs that responded to the national survey were from forty-three states, the District of Columbia, Puerto Rico, and the Virgin Islands, and included one program in Canada. An analysis of the survey questionnaires shows the following data:

- 45% of the surveyed programs are located in the eastern United States.
- 45% of the surveyed programs operate in an urban environment.
- 33% of the surveyed programs are state or local public education programs.
- 29% of the surveyed programs are community-based programs.
- 42% of the surveyed programs reported having students thirty years of age or older. (This is an aggregate figure; in fact, community-based programs in the main reported older average student age, while employment and training programs indicated they served primarily younger adults.)
- 53% of the surveyed programs reported that, on the average, their students read at the fourth to seventh grade level at program entry.
- 23% of the surveyed programs reported that they serve only those students who read below the third grade level.
- 50% of the programs that reported serving only nonreaders are community-based programs.
- 86% of the surveyed programs reported they offer basic skills education.

- 68% of the surveyed programs reported that they offer English as a second language.
- 62% of the surveyed programs reported that they offer adult secondary education or GED preparation.

Although programs were asked to supply demographic data and information on such aspects of program operation as sources of funding, hours of operation, use of credentialed instructors, average cost per learner, and estimated dropout rate, the size of the sample and the wide variations in reported data (and in some cases, the absence of data) make a computation of statistical averages relatively meaningless. For example, given the fact that the programs surveyed reported a range in the number of students served from 9 (for Minnesota Mutual Life Insurance Company's ESL program) to 70,500 (for South Carolina's statewide adult education program), a statistical average would not represent a national average against which programs could measure their relative effectiveness. Such information was useful chiefly in helping the researchers maintain a balanced perspective in making recommendations about practices found in specific programs that might contribute to the improvement of the field in general. It was also useful in selecting programs for site visits that would represent a number of different viewpoints.

Chapter 11
Conclusions from the NALP Promising Practices Search

As we stand back and survey our findings, we recognize the unique opportunity we have had to observe and report on the current state of adult literacy instruction and practice. Our central mission was to describe program instruction and operation, and we have painted that picture in rich detail. What emerges from the description is that "what works"—or the most effective literacy practices—results from a systems approach to program design and implementation. Successful programs have been designed as total educational systems under which there is a balanced emphasis on (1) clearly stated learning objectives, (2) assessment of learner needs and progress, (3) instructional processes, (4) guidance and counseling, and (5) program management and evaluation.

Specifically, successful programs have the following characteristics:

- They are clear about their overall goals and their philosophy of instruction.
- They develop measurable goals for every component of the program (e.g., recruitment, orientation, counseling) so that they can monitor their success in meeting these goals.
- They assist potential learners in determining if the program is well suited to the learners' goals and expectations.
- They are explicit about intended learning outcomes for participants and their standards for judging success in achieving outcomes, and this information is shared with program participants.
- They carefully diagnose each learner's educational needs and strengths and develop an individually tailored learning plan for each participant.
- They tie learning objectives to instructional methods and materials and to assessment strategies.
- They provide frequent feedback to learners on their progress in mastering their learning objectives, and they carefully document that progress.
- They frequently evaluate their program's effectiveness in meeting its goals in each of the component areas, and they use this evaluation data to improve their literacy program.

The greatest strength of such educational systems is that they produce observable results for participants and yield management information for staff, thus enabling programs to measure and document their success. Key to this determination of effectiveness, however, is the explicitness of program and learner goals and the systematic and thorough documentation of progress in meeting those goals.

It is on this key point that we discovered one of the greatest problems facing the field of adult education. Our conversations with literacy educators underscore the fact that they generally share no common criteria for evaluating their performance. Standards of success range from such limited though concrete definitions as the numbers of students served to such broad and vague definitions as making fundamental changes in people's lives. The problem is exacerbated by the fact that adult educators are often not trained in evaluation methods. In fact, as we have pointed out, adult educators are often not trained in their profession at all. In addition, the demands of developing instructional strategies and tailoring materials to provide services to learners consumes so much of the staff's energy that little time is allocated to the kinds of evaluation activities that would result in improved practice.

Nonetheless, most of the literacy practitioners we interviewed stated that they both want to and need to document their program's success. In the current competitive funding arena in which resources are scarce and the demands on those resources are numerous, the lack of documented effectiveness data severely reduces opportunities for programs to develop a stable and secure funding base. Further, the lack of evidence about the results of practice lends credence to the view that adult literacy educators are less than "professional" or "creditable."

Despite the need to implement improved evaluation procedures and generate more substantial effectiveness data, there is much that we do know about what works, and we *have* identified successful practices and programs. One characteristic successful programs have in common is the clarity of their statements about program purpose, learning objectives, and the means of measuring learners' mastery of those objectives. A second characteristic these programs have in common is the use of a structured management system that integrates the program components so that all are focused on the learners' achievement of the stated objectives. We believe that programs that adopt these characteristics within a systems approach will be able to produce the effectiveness data they need to substantiate their claims for scarce resources and to allow their staff to feel secure about their competence as literacy service providers.

However, there is still a great deal to be done to package and widely distribute "best of breed" curricular materials, promising practices, and complete educational systems. Also, to reach more people more effectively, there is a need for more wholesale development efforts that incorporate new technologies for instruction and management.

If we are to disseminate such knowledge and if we are to achieve the goal of extending opportunity to those who may be currently disenfranchised, there is a need for large investments in the literacy and adult education infrastructure and longer term investments in the education of individuals. We know that there is no quick and simple means of providing functionally illiterate adults with the skills they need to compete effectively. Short-term interventions that do not have sequential activities and follow-up support to reinforce instruction, to apply skills in real-life contexts, and to expand the opportunities open to the learners are by themselves not effective in producing lasting achievement for program participants.

Consequently, the development of a pyramid of opportunities and services for educationally disadvantaged adults is critical to the success of large investments in adult education. We must maximize what existing programs do well and avoid stretching

them beyond their capabilities to provide effective services; rather, we must capitalize on the natural system of service providers who serve distinct constituencies by developing brokering or referral services among programs and looking to a broader and more collaborative alignment of interested parties. Also critical to the success of such a system is investment both in the validation and packaging of model programs and in the creation of a technical assistance system to help programs adapt model systems to local needs and preferences.

We should not be discouraged. The NALP Promising Practices Search suggests that past investment in basic skills, work/education opportunities, and remediation efforts for adults have had substantial payoffs for society. With more effective systems design, increased human and financial resources, and the possibility of more reasoned implementation and better management of educational systems, the rate of return on the money, time, energy, and commitment should be increased. In our view, there can be few more profitable investments for the future of America.

From *Journal of Reading*, vol. 31, April 1988, pp. 624-630. Reprinted with permission of the International Reading Association.

An appraisal of adult literacy programs: Reading between the lines

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■ With a few exceptions (Kavale and Lindsey, 1977; Lindsey and Jarman, 1984; Pasch and Oakley, 1985), published evaluations of adult literacy training have presented an overly optimistic view of the effectiveness of these programs. This is understandable, given the natural tendency to focus on our successes and play down our failures, but it means that needed changes have been slow in coming. As Sork (1981, p. 6) has noted:

> Improvement in the quality of educational programs for adults is largely dependent on the willingness of adult educators to analyze carefully both their programming successes and failures. The literature of adult education seems replete with case studies of successful programs, but reports of programming failures are quite uncommon.

The inflated view of the success of adult literacy training that emerges from the literature is not a consequence of formal research design problems. That is not to say that studies in this area are free from such flaws; important research seldom is. Obvious methodological difficulties surround attempts to evaluate adult literacy training (Cranney, 1983; Fischer and Evanson, 1979; Hamilton, 1981). But the collective conclusions of researchers in an area can generally be accepted as valid even though no single study is capable of standing alone.

This is the power of convergence.

Overestimates of the effectiveness of adult literacy training have not resulted from how the data are collected, but rather, from how those data are interpreted and by the very nature of the data. Each of these sources of distortion will be discussed and examples provided in this article. The literature reviewed here is not meant to be taken as exhaustive. It is, however, representative.

Data Interpretation: Statistical vs. Practical Significance

There is little doubt that the average literacy program participant achieves a statistically significant improvement in reading skill as a consequence of participating in literacy training. But this statistically significant improvement is often only on the order of one or two reading grade levels. The majority of adult literacy participants do not accomplish meaningful, practically significant reading improvements and leave training without having achieved "functional literacy," however one may choose to define it (Rush, 1985; Valentine, 1986).

In a study completed for the U.S. Office of Education, Griffith and Kent (1974) gathered interview and test data from students in a variety of ABE programs. In a pretest-posttest comparison, students who read initially at the 5th grade level showed a reading gain of half a grade level over a 4 month period. While statistically significant, this translates to only a 1.5 reading grade level improvement per year. Unfortunately, the majority of ABE students persist in training for less than 1 year, with only 20% maintaining enrollment for longer than that (Darkenwald and Valentine, 1985; Development Associates, 1980; Diekhoff and Diekhoff, 1984; Pasch and Oakley, 1985).

Darling (1982) evaluated the reading progress of students in several Kentucky adult literacy programs. Statistically significant improvements in average reading grade levels were linked to training through a significant correlation between the amount of improvement shown and the number of hours of training received. However, the data provided by Darling show that little of practical significance was achieved. On average, students showed an entering reading grade level of 3.38 and left with average reading gains of only 1.35 grade levels after receiving 82.6 hours of instruction. Thus, the average student left the program still unable to read at the 5th grade level. Despite this, Darling entitled her report "Adult Education Projects That Work."

In a second study of 4,000 adults enrolled in various Kentucky literacy programs, Darling (1984) reported that the average student entered reading at about the 2nd grade level and gained a statistically significant 1.5 reading grade levels for every 75 hours of instruction. Students' average exiting reading level is not clear, however, because Darling does not indicate how much instruction was received by the typical program participant. Applying the 82.6 hour figure given in her earlier study (Darling, 1982), we can estimate that the average student left the Kentucky literacy programs with a reading gain of 1.65 grade levels and a reading grade level between the 2nd and 3rd grades. Although this improvement is statistically significant, it is not enough to make much of a practical difference.

Pasch and Oakley (1985) reported similar results in their evaluation of project LEARN. In this community-based literacy program, the average student

spent 267 days in training, received 51 hours of instruction in 30 lessons, and showed a statistically significant reading gain of about one grade level before leaving the program. In one of the few frank assessments that appear in this literature, the authors concluded that they were "unsure about the prospects of (these) students becoming independent learners" (p. 1).

Diekhoff and Wigginton (1987) recently reviewed the records of 194 former participants in a community-based adult literacy program in Texas. The average reading gain from entry to exit for this group was a statistically significant 1.6 grade levels, accomplished over a period of 9.8 months. However, the authors identified only 24 students (12.3%) who they considered "successful" program completers. The average "successful" student showed an exiting reading grade level of 7.5 and had improved 4.2 grade levels over a period of 23.5 months. If the average literacy program participant did as well as this select group, there would be no question as to the effectiveness of adult literacy. Literacy training *can* produce meaningful reading gains, but these gains are found in only a small number of cases, even in programs which report statistically significant gains for the average student.

Some studies that report statistically significant reading improvements fail to provide the additional information needed to evaluate the practical significance of those gains. Norman and Malicky (1982), for example, compared the reading grade levels of students as they entered and exited each of three 10-week treatment periods. They concluded from these comparisons that "the treatment provided in this project resulted in statistically significant improvement in reading achievement" (p. 67). However, the reading test scores provided are not expressed in terms of reading grade level, making the practical significance of gains difficult to evaluate.

Gorman's (1981) evaluation of British literacy efforts also presents data in a form that makes determining the practical significance of reading gains impossible. In this study, changes in specially designed reading and writing tests were evaluated in a pretest-posttest design. On the basis of this comparison, Gorman concluded that 25% of the students made "rapid progress," by showing gains of 5 or more "scaled units" on the tests. The relationship between these "scaled units" and reading grade levels is not explained.

In conclusion, the literature evaluating the effectiveness of adult literacy training has too often failed to distinguish between statistical and practical significance of reading gains. In some cases, data are presented in such a way as to make it impossible for the critical reader to determine if reported improvements are of any practical consequence. Only a relatively small minority of students achieve at practically significant levels, a fact which is seldom reported in the literature.

The nature of the data: Inappropriate measures of program effectiveness

A reviewer of an earlier draft of this article stated "Improvements in reading are not the only legitimate way of evaluating literacy because there are so many different political, social and educational purposes foundational to the various programs." Cranney (1983) too has pointed out that evaluations of adult literacy may involve several types of useful data, including usage data, self-reports, pretest-posttest reading

score comparisons, case study data, etc. Each source of information provides a unique view of literacy that contributes to a complete understanding of program effectiveness. It must be remembered, however, that the primary goal of literacy training is to teach people to read. Any evaluation that fails to document reading improvements has failed to document program effectiveness. While this seems obvious, many published evaluations make exaggerated claims for the effectiveness of literacy training on the basis of criterion measures that are not directly related to reading improvement.

Data documenting program need. Some authors have cited data bearing on the need for effective adult literacy training in attempting to validate the effectiveness of existing programs. Bedenbaugh and Rachal (1985), for example, cite statistics showing that, in comparison to their fully literate counterparts, undereducated Americans make less money, collect more welfare, are more likely to end up in prison, and so forth. Data such as these provide a compelling case for the development of adult literacy programs, but they are presented in such a way as to imply that existing programs are effectively serving this need.

In a similar vein, Webb's (1980) call for increased spending on ABE programs is based on the economic hardships that face the undereducated. Webb points out, correctly, that this group earns far less than their better educated counterparts. Even more dramatically, Webb has computed that the lifetime incomes of 139,045 undereducated Arkansas males would be increased by $6 billion if these individuals received an 8th grade education through ABE. Webb's calculations, however, are based on the assumption that all 139,045 adults would be successful in ABE programs. As seen previously (e.g., Diekhoff and Wigginton, 1987), only a small fraction of those involved in adult literacy training ever achieve at the 8th grade level. Webb's computed benefits are, therefore, substantially exaggerated and the costs involved per student brought to the 8th grade level of competency are grossly underestimated. What Webb has shown is that effective adult literacy training programs would be enormously cost-effective. He implies, however, that current programs have this same cost-effectiveness. They do not.

Program usage and growth data. Other program evaluations have emphasized usage and growth data in attempting to demonstrate program effectiveness. Henneberg (1986) provides a good example of evaluations which attempt to equate program growth and effectiveness: "the ABLE program was a success from the beginning. We placed four instructional aides in the already existing adult learning center...We bought four microcomputers....The aides received training working with adults....A coordinator was hired...." (p. 55). All that such data prove is that there was a program and that it spent a lot of money. No data were offered in this evaluation that had any bearing on the author's initial assertion concerning the program's success. Usage and growth data alone do not document a program's effectiveness.

Anecdotal, case study data. As Sork (1981) has noted, there is no shortage of positive case study evidence for adult literacy. Nickse and Englander (1985) quote one student: "I get a thrill in reading to my children. I enjoy sittin' 'em on my lap, 'cause this (illiteracy) is something that I pray they don't have

to go through" (p. 17). Also typical is this quotation from a tutor interviewed by Henneberg (1986): "As students gain mastery over reading and writing, I have seen them lose their passivity and feelings of powerlessness..." (p. 55).

Anecdotal, case study data like these support the contention that adult literacy training can have the life-changing impact that is the ultimate goal of these programs. An earlier draft of this article led one reviewer to comment that " 'subjective' evaluations have, in many cases, been developed as an alternative to the statistical evaluations due to the issues that have been raised about the usefulness of currently available indicators." Fischer and Evanson (1979) echo this sentiment by pointing out that "test scores don't tell the whole story" (p. 29), and their case studies fill a gap that is often left empty by purely objective, quantitative approaches to evaluation. All too often, however, case studies seem to support the effectiveness of literacy training by presenting the successes of the few as representative of the accomplishments of the many. In so doing, a distorted picture emerges in which the effectiveness of literacy training is overstated and failures are hidden from view. Case study data are not inappropriate in the evaluation of literacy training. Such data serve best, however, when used to supplement, not replace, more objective data.

Student and tutor self-reports. It is a rare individual who can invest time, money, and effort in an enterprise, only to judge subsequently that enterprise to be a failure, a waste of time and effort. Reduction of dissonance is a fundamental factor in shaping (and distorting) perceptions, including those of literacy students and tutors. Self-report data from students and tutors must therefore be considered suspect, yet some claims for program effectiveness are based exclusively on such self-reports (e.g., Darkenwald and Valentine, 1985).

Boggs, Buss, and Yarnell (1979) conducted a telephone survey of ABE program participants in Ohio. Over 95% of those interviewed felt that, in general, their English usage, math skills, and reading skills had improved as a consequence of their participation in the ABE programs. However, questions concerning specific improvements in students' life styles revealed only very modest improvements and only two-thirds of those students who had hoped to obtain the GED through their involvement in ABE classes were successful in achieving that goal.

Gorman (1981) used both reading skills tests and tutor questionnaires in evaluating several adult literacy programs in Great Britain. Although students' test score improvements from pre to posttest were found to be correlated with tutor judgments of their students' progress, Gorman noted that the tutors' perceptions of student achievements were somewhat inflated: "To some degree, however, the questionnaire data can be assumed to overrepresent the learners' levels of attainment in literacy skills as compared to the test assessment" (p. 193).

Dissonance reducing tendencies predispose both students and tutors to exaggerate the perceived value and effectiveness of literacy training. That is not to say that self-reports are of no value in evaluations of literacy programs. In fact, such data have their place, since students' perceptions of their progress in the programs have an important motivational effect (Diekhoff and Wigginton, 1987). However, a pro-

gram evaluation based entirely on self-reports is likely to present a misleading, overly optimistic view of the success of the program being evaluated.

Quality of life measures. It is generally agreed that the ultimate goal of adult literacy training is to improve people's lives. In keeping with this fact, many recent studies of adult literacy have included criterion measures that assess quality of life. Improved employment, increased community involvement, home ownership, heightened parental involvement in children's education, and increased use of books, magazines, and libraries are just a few of the criteria that have been studied. In some cases, claims for literacy program effectiveness are based almost entirely on improvements in these quality of life measures (e.g., Boggs, et al., 1979; Fischer and Evanson, 1979).

If the quality of the lives of program participants improves subsequent to their involvement in literacy training, is it not safe to assume that heightened literacy must have been responsible? No, because literacy and quality of life are more independent than might be expected. Shipp et al. (1977) found that adults who successfully completed ABE classes (i.e., obtained the GED) subsequently scored significantly higher on almost every indicator of positive life style change than did noncompleters. However, Shipp et al. found that a group of adults who were eligible for ABE classes, but who did not participate in these classes, showed a pattern of life style improvement almost identical to that of the ABE completers over the same period of time. Boggs et al. (1979) also found that objective indicators of reading and math improvement showed small *negative* correlations to life style improvements among participants in Ohio ABE programs. These authors concluded "Prolonged attendance and maximum achievement may not be necessarily linked to positive benefits in other life areas" (p. 133).

While these results are unexpected, they do illustrate the fact that one cannot use life style changes alone in evaluating the degree to which literacy training achieves its primary objective of enhancing reading skills. Life style improvements may occur with or without improvements in reading skill.

Conclusions

Adult literacy training programs have failed to produce the life-changing improvements in reading ability that are often suggested by published evaluations of these programs. It is true that a handful of adults do make substantial, meaningful improvements, but the average participant gains only 1 or 2 reading grade levels and is still functionally illiterate by almost any standard when he or she leaves training. But published literacy program evaluations often ignore this fact. Instead of providing needed constructive criticism, these evaluations too often read like funding proposals or public relations releases.

The misimpression that "everything is fine" in adult literacy stems not so much from research design flaws as from a consistent unwillingness on the part of researchers in the area to criticize efforts in service to a cause as important as adult literacy. As a result, data which are most favorable to the programs are presented; those which are less positive are buried. Data are interpreted so as to put the programs in the best possible light; critical alternative interpretations are not explored.

Until the need for adult literacy training was widely recognized, little effort

was expended in meeting that need. Until there is a greater recognition that what we are now doing is not working, it is unlikely that we will identify and eliminate the barriers to more effective programs.

References

Bedenbaugh, Edgar H., and John R. Rachal. "The Economics of Adult Basic and Secondary Education." *Lifelong Learning*, vol. 9 (September 1985), pp. 26-27.

Boggs, David L., Terry F. Buss, and Steven M. Yarnell. "Adult Basic Education in Ohio: A Program Impact Evaluation." *Adult Education*, vol. 29 (Winter 1979), pp. 123-40.

Cranney, A. Garr. "Two Decades of Adult Reading Programs: Growth, Problems, and Prospects." *Journal of Reading*, vol. 26 (February 1983), pp. 416-22.

Darkenwald, Gordon, and Thomas Valentine. "Outcomes of Participation in Adult Basic Skills Education." *Lifelong Learning*, vol. 8 (February 1985), pp. 17-22.

Darling, Sharon. "Adult Education Projects That Work." Unpublished manuscript, 1982.

Darling, Sharon. "Illiteracy: An Everyday Problem for Millions." *Appalachia*, vol. 18 (September 1984), pp. 21-28.

Development Associates. *An Assessment of the State-Administered Program of the Adult Education Act*. Final Report. Arlington, VA: Development Associates, 1980.

Diekhoff, George M., and Karen B. Diekhoff. "The Adult Literacy Program Attrition Problem: Identification at Intake." *Adult Literacy and Basic Education*, vol. 8 (1984), pp. 34-47.

Diekhoff, George M., and Phil K. Wigginton. "Factors of Success in an Adult Literacy Program." Unpublished manuscript, 1987.

Fischer, Joan K., and Jane L. Evanson. "Test Scores Don't Tell the Whole Story." *New Directions for Continuing Education*, vol. 3 (1979), pp. 29-36.

Gorman, T.P. "A Survey of Attainment and Progress of Learners in Adult Literacy Schemes." *Educational Record*, vol. 23 (June 1981), pp. 190-98.

Griffith, William, and William P. Kent. *Longitudinal Evaluation of the Adult Basic Education Program*. Paper presented at the Adult Education Research Conference, Chicago, Illinois, April 18, 1974.

Hamilton, Jack A. "Promoting National Dissemination of Exemplary Adult Basic Education Projects." *Lifelong Learning*, vol. 4 (March 1981), pp. 14-16.

Henneberg, Susan. "What Do You Mean, You Can't Read?" *English Journal*, vol. 75 (January 1986), pp. 53-55.

Kavale, Kenneth A., and Jimmy D. Lindsey. "Adult Basic Education: Has It Worked?" *Journal of Reading*, vol. 20 (February 1977), pp. 368-75.

Lindsey, Jimmy D., and Leesa T. Jarman. "Adult Basic Education: Six Years after Kavale and Lindsey's Literature Review." *Journal of Reading*, vol. 27 (April 1984), pp. 609-13.

Nickse, Ruth S., and Nancy Englander. "At-risk Parents: Collaborations for Literacy, an Intergenerational Reading Project." *Equity and Choice*, vol. 1 (Spring 1985), pp. 609-13.

Norman, C.A., and G.V. Malicky. "Application of Adult Learning Principles to Literacy Instruction." *Adult Literacy and Basic Education*, vol. 6 (1982), pp. 61-72.

Pasch, Marvin, and Nancy Oakley. *An Evaluation Study of Project LEARN. Students and Tutors 1982-84*. Paper presented at the 69th Annual Meeting of the American Educational Research Association, Chicago, Illinois, April 1985.

Rush, R.T. "Job Skills: Basic Literacy and Related Competencies." *Adult Literacy and Basic Education*, vol. 9 (1985), pp. 31-44.

Shipp, Travis et al. *Changes in Life Styles of West Virginia ABE Students Caused by Participation in the ABE Program*. Unpublished manuscript, 1977.

Sork, Thomas J. "The Postmortem Audit: Improving Programs by Examining 'Failures'." *Lifelong Learning: The Adult Years*, vol. 5 (November 1981), p. 31.

Valentine, Thomas. "Adult Functional Literacy as a Goal of Instruction." *Adult Education Quarterly*, vol. 36 (Winter 1986), pp. 106-13.

Webb, L.D. "Investments in Adult Education: A Cost-Benefit Analysis." *Adult Literacy and Basic Education*, vol. 3 (1980), pp. 114-19.

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Recruitment and retention in adult basic education: What does the research say?

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■ To identify practices that foster the progress of ABE students, a survey of the research and writings of practitioners and scholars of ABE was carried out under the auspices of the New York State Education Department through its Adult Beginning Reader Project. The survey, which culminated in a detailed report (Balmuth, 1987), focused on programs located in the United States, for English-speaking adults, aged 17 or older, who read below the 5th grade level. From the variety of instructional and administrative aspects of ABE addressed in the original report, two key aspects are here examined: recruitment and retention.

Recruitment

On the question of what strategies seem to work best for recruiting ABE students, there is consensus that "among undereducated adults, personal sources are more effective than non-personal [e.g., media] sources" (Bock, 1980). Thus, Stauffer (1973) found that "a total of 40% of the students first heard about volunteer literacy lessons through a friend or relative" (p. 80).

Irish (1980) reports the results of POR-FIN study in which paraprofessional recruiters, selected and trained to build rapport, made home visits to an experimental group of 80 potential students. A control group of 85 received information about the ABE program solely through fliers or by word of

mouth. Thirty of the 80 in the home-visited experimental group enrolled while only 2 of the 85 in the control group enrolled. (This particular study, incidentally, pointed up the fact that recruitment isn't all: the subsequent dropout rate was significantly high, apparently related to the instructional quality of the class attended.)

Reporting another study, Project REACH, Irish describes a combination of door-to-door canvassing and personalized TV spots by ABE program participants. This approach accounted for the great majority of enrollees in the program. Radio messages and newspaper advertisements were useful only occasionally, as reinforcements of information.

Among the most effective recruiters are those directly associated with the ABE program: successful students and, in some instances, teachers. Darling (1983) recommends using students as part of recruitment teams, to tell of their own successful experiences.

Greenleigh Associates (1969) evaluated 13 New Jersey ABE programs and found that although a variety of community and governmental agencies had promised to recruit, they did not, on the whole, fulfill their promises. Instead, "Adults attending classes were the best recruiters and...word of mouth was the best recruitment technique" although those, too, fell short of the programs' goals. The Greenleigh evaluators recommend that a set of guidelines be developed to improve cooperative relations with the community.

It appears that referrals from established institutions are effective when such sources are first thoughtfully solicited and oriented to the ABE program and are then continually followed up. Simply relying on initial agreements to refer prospective students does not seem to work. In her report on the Adult Education Dropout Project, Long (1981) describes an elaborate recruitment program for high school dropouts, ages 16-24, which used high school guidance and attendance personnel as well as various programs and outside agencies: When a source was asked merely to send lists of names to be contacted, almost no lists were sent. Long's report outlines the special techniques used to set up ongoing links—including in-service sessions for the ABE teachers on the topics of referral and dropout.

August and Havrilesky (1983) list specific techniques for networking with various agencies, a source they found valuable. Vorst and Lucey (1982), too, give a very detailed, practical listing of ways to develop and maintain links with resources on local through national levels.

Retention

High rates of absenteeism and dropout plague ABE programs everywhere. On absenteeism, the New York State ABE study (1968) found "There is a direct relationship between regular systematic attendance and reading achievement" (p. 70). August and Havrilesky (1983) point out, "Although programs with as little as 50 percent retention often consider themselves effective, teachers are unable to carry through a sustained and logically sequenced instructional plan when half the class is absent" (p. 14).

To deal with excessive absenteeism among ABE students, a number of strategies have been found helpful. Thus, Darling (1983) reports that the JCARP (Jefferson County Adult Reading Project) built its entire, reportedly successful, program, around efforts to

reduce absenteeism through comprehensive counseling techniques.

Verner and Booth (1965) report research findings of significantly better attendance from participation in planning by community members. Over and above any specific features introduced by the planning, the implied sense of ownership may have helped bind students to the program.

Another approach is extrinsic motivation. Gold (1984) reports that with students in certain penal institutions where such incentives as time credits against sentences were offered for attendance and achievement, "incentive pay tends to stabilize students in the program, reducing both absenteeism and attrition and increasing interest" (p. 19). While the logistics of incarceration make it easier for such students to attend if their motivation is high than it is for free students with their many problems of daily living, the use of extrinsic motivation may be seen as another way to deal with the problem of ABE attendance. Yet other ways include having the teacher follow up on absentees with phone calls or letters (Long, 1981) or having a "buddy system" as some JCARP teachers had, with buddies reporting to a group about a student's absence (Darling, 1981).

At least as distressing as excessive absence is total withdrawal from an ABE program. One approach to reaching dropouts is active follow-up. Among the many recommending such follow-up are Heathington, Boser, and Salter (1984) who also note the problem of inadequate staff to do the necessary follow-up of dropouts.

Patterson and Pulling describe a frequently encountered pattern of high student dropout at certain intervals: right after the first week, "because students panic over the threatening prospect of failure," and at 3 and 9 months "because their motivation has been reduced once they are reassured they are not stupid or because they don't feel they are making any progress." Darling (1981) reports a big dropout time for JCARP students in January. As a preventive measure, individual student conferences are planned for that time.

Gold, too, refers to plateaus of progress, when ABE students are vulnerable to dropping out of the literacy program (1984). She recommends self-help support groups of ABE students to help deal with the frustration at such times.

Others have also referred to the usefulness of group feeling in ABE programs, some going even further, stressing the value of deliberately providing a pleasurable social environment for ABE students.

Thus, Darling recommends that reading class should be a "pleasant social experience" (1981), while Jones and Petry advocate the planning of social activities (1980). Newman (1980), discussing ABE students in general, states: "Adult basic education students meeting together in classes often find much enjoyment in the social times made available before, during, and after class" (p. 96).

Anderson and Darkenwald (1979) found, for their whole sample of 9,173 adult education student respondents, that the most powerful predictor of persistence in adult education programs was "satisfaction with the learning activity in terms of the 'helpfulness' in meeting one's objectives" (p. 17). Finding fault with the program, however, was just a small part of what accounted for the dropout: "Only 11 percent of the participants reported be-

ing dissatisfied." Like most researchers on the subject, Anderson and Darkenwald conclude that withdrawal is less often a failure of the program itself than a result of outside forces, although factors within the program may play a part.

A more subtle and perhaps more revealing questioning by Russell is reported in the Portage Township study: only 30% of his subjects indicated factors outside of the classroom when asked why they thought others dropped out. (When asked why they themselves dropped out, the overwhelming majority of dropouts give reasons that relate to out of the class problems.) The Portage Township study led to a conclusion that is consonant with Russell's findings: "Instead of fixating on the turnover rate (of low education level students) one should try to establish the 'optimum learning conditions' for adult learning in one's center. The measure of one's success should be such conditions and not the capricious variables which control the lives of many of our most under educated clientele" (Unmet Needs, 1981, p. 37).

The foregoing findings were based on the experiences of past ABE programs. With the current expansion of interest and of resources for such programs, it is hoped that more research will be undertaken to add to our understanding of how to engender successful recruitment and retention among ABE learners.

References

Adult Basic Education New York State, A Two Year Study. Title III, P.L. 89-750, 1965-67. Albany, NY: The State Education Department, Bureau of Basic and Continuing Education, 1968

Anderson, Richard E., and Gordon G. Darkenwald. *Participation and Persistence in American Adult Education.* New York, NY: College Entrance Examination Board, 1979. (ED 181 186)

August, Bonne, and Catherine Havrilesky. *A Youth Literacy Program Manual.* New York, NY: Literacy Assistance Center, The Fund for the City of New York, June 1983.

Balmuth, Miriam. *The Roots of Phonics: A Historical Introduction.* New York, NY: McGraw-Hill, 1982. Reissued, Teachers College Press, 1986.

Balmuth, Miriam. *Essential Characteristics of Effective Adult Literacy Programs: A Review and Analysis of the Research.* Albany, NY: The Adult Beginning Reader Project, New York State Education Department, Bureau of Adult and Continuing Education Program Development, 1987.

Bock, Linda K. "Participation." In *Developing, Administering, and Evaluating Adult Education,* edited by A. Knox and Associates. San Francisco, CA: Jossey-Bass, 1980.

Darling, Sharon. *Jefferson County Adult Reading Project: Final Report.* Louisville, KY: Jefferson County Board of Education, Youthwork, Inc., Washington, DC, June 1981. (ED 204 600)

Darling, Sharon. *Jefferson County Adult Reading Project: Final Report.* Louisville, KY: Department of Adult and Continuing Education, Jefferson County Public Schools, Kentucky State Department of Education, June 1983.

Gold, Patricia Cohen. *Literacy Training in Penal Institutions.* Paper presented at the National Adult Literacy Conference, Washington, DC, January 1984. (ED 240 292)

Greenleigh Associates. *Adult Basic Education in New Jersey, An Evaluation of Selected Programs of the State Departments of Education and Community Affairs.* New York, NY, April 1969.

Heathington, Betty S., Judith A. Boser, and Thomas Salter. "Characteristics of Adult Beginning Readers Who Persisted in a Volunteer Tutoring Program." *Lifelong Learning: The Adult Years,* vol. 7 (February 1984), pp. 20-22.

Houle, Cyril. "Who Stays and Why?" *Adult Education,* vol. 14 (Summer 1964), pp. 225-233.

Irish, Gladys H. "Reaching the Least Educated Adult." *New Directions for Continuing Education,* (1980), pp. 39-53.

Jones, Paul L., and John R. Petry. *Evaluation of Adult Basic Education in Tennessee, 1980.* Memphis, TN: Memphis State University, College of Education, 1980. (ED 204 497)

Long, Patricia. *Adult Education Dropout Project/310 Project Report: Evaluation Report, July 1, 1980-June 20, 1981.* Kansas City, MO: Kansas City School District, 1981. (ED 203 026)

Newman, Anabel P. *Adult Basic Education: Reading.* Boston, MA: Allyn and Bacon, 1980.

Patterson, Oliver, and Louis L. Pulling. "Critical Issues in Adult Literacy." In *Outlook for the 80's: Adult Literacy,* edited by L. Y. Mercier. Washington, DC: U.S. Department of Education, Basic Skills Improvement Program, September 1981.

Stauffer, John M. *The NALA Study, A Description of the National Affiliation for Literacy Advance (NALA).* A Laubach Literacy Occasional Paper. Syracuse, NY: New Readers Press, 1973.

Unmet Needs of Low Academic Level Adult (0-4th Grade Level) Students: A Follow Up Study, A Special Demonstration/Teacher Training Project: Final Report. Portage Township Schools, IN, 1981. (ED 210 480)

Verner, Coolie, and Alan Booth. *Adult Education.* Washington, DC: The Center for Applied Research in Education, 1964.

Vorst, JoAnn, and Mary E. Lucey. *Strategies for Obtaining Financial and Non Financial Support: An Analysis Based on Experience.* Lafayette, IN: Lafayette Reading Academy, 1982.

Intergenerational and Family Literacy

OVERVIEW

Intergenerational and family literacy are in one sense the "new kids on the block." The Family English Literacy Program, Office of Minority Education and Bilingual Languages Affairs, the Federal Libraries Service and Construction Act, and some Section 310 grants of the Adult Education Act have each funded intergenerational and family literacy programs. Support for Even Start began in 1990. This list of new efforts demonstrates the variety of funding and contracting agencies involved. Contractors who often have provided parallel services are beginning to combine their efforts. The rationale behind these programs is that literacy can best be promoted within families and that the cycle of underliterate parents raising the next generation of underliterate children may be interrupted if both parents and children become involved together in new literacy activities for both generations.

Adult learners often express concerns about their children. Underliterate parents typically feel uncomfortable communicating with their children's teachers and administrators. The schoolhouse looms as the institution where the insufficiently literate themselves failed in earlier years and where they were never at home. Some intergenerational and family programs take place outside the school setting, others are held right inside elementary and secondary schools.

Ruth Nickse's paper is a review of rationales, target populations, program designs and administrations, and the research base. She categorizes the different types of programs and makes recommendations for future programs. As a pioneer of the intergenerational literacy effort, Nickse, the director of Collaborations for Literacy in Boston, makes her contribution with the special insights of one who has "been there."

While we frequently focus on students as individuals, we must also be aware of the social contexts of students, parents, teachers, and schools. Elsa Auerbach's paper is a critical analysis of the family literacy programs aimed solely at bringing the school into the home. She reviews research that disputes many commonly held assumptions about the literacy-poor environment of children from homes considered to be disadvantaged. She encourages family literacy work to include parents studying reading and writing independently, using literacy to address family and community problems, parents addressing child-rearing concerns through family literacy class, supporting the development of the home language and culture, and interacting with the school system.

Nickse, Ruth S. "The Noises of Literacy: Intergenerational and Family Literacy Programs." Paper originally commissioned by the Office of the Secretary of Education, Office of Educational Research and Improvement, Washington, D.C.: U.S. Department of Education and summarized here by Michael Ginsberg with the permission of the author. Reprinted by permission.

The Noises of Literacy: Intergenerational and Family Literacy Programs

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Paper Commissioned by
Office of the Secretary of Education
U.S. Department of Education
Office Of Educational Research and Improvement
Washington,D.C.
March 3, 1989
ERIC ED 308415

Summarized for this volume by Michael Ginsberg
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Section I Background and Overview

Introduction -- Intergenerational and family literacy programs are specially designed efforts to improve the literacy of educationally disadvantaged parents and children. They are based on the recognition that children are more likely to read and write when their parents read and write. It is hoped -- and research seems to support the hope -- that literacy development might be increased with "at risk" populations when family and extended family members are involved together. There are many variations in program design, but all of the programs view educationally disadvantaged parents and children as a learning unit (Nickse, 1985) that can benefit from shared literacy experiences.

This approach appeals to theorists, program designers, administrators, and policy makers, but the outcome is largely speculative: there is little evidence at this early date (Sticht, 1988), but plenty of reason to persist (Sticht and McDonald, 1989).

Background of programs -- The early development of, and surge in programs has been a grass roots movement, formalized at the federal level within the last five years through several legislative initiatives, including Even Start legislation. Even Start funded 76 programs in 44 states in the fall of 1989, with demonstration grants to local education agencies in Chapter 1 elementary school attendance areas and to state departments of education in migrant areas. Even Start also includes funds for a national evaluation of the projects.

Pioneering projects have been developed in Massachusetts (Nickse & Englander, 1985) and in Pennsylvania (Askov, et al, 1986). The State Legislature in Kentucky sponsored a comprehensive program (PACE) that began in 1986.

Private organizations also have become involved in intergenerational and family literacy programs, including the Kenan Trust Family Literacy Project, which has funded seven projects in North Carolina and in Louisville, Kentucky. The American Bar Association and the American Association of Retired People have indicated interest in developing projects. The Barbara Bush Foundation for Family Literacy also is supporting family literacy, by providing financial support, documenting successful programs and publicizing the efforts of volunteers and professionals.

The movement toward intergenerational and family literacy programs is small but growing, with a collection of first generation programs in several parallel, but rarely convergent, sectors. This paper discusses

programs in four sectors: adult basic education; bilingual education; early childhood and elementary school education; and city and county library programs.

Expectations -- Intergenerational and family literacy programs are appealing to those of us who are readers. We remember the joy we felt when our parents read to us and when we read to our children, and many of us believe that teaching literacy by reading to children is easy, that anyone can do it. However, not all who wish to be involved have the skills or temperament to be effective, and all need supervision by professionals in adult basic education and reading (Nickse and Paratore, 1988).

Administrators also have high expectations. Some think a combined program for children and adults is less expensive than separate programs and produces greater results, including: a break in the cycle of intergenerational and low literacy; improved parenting, education, training and employment opportunity for parent; and improved achievement in school for their children, resulting in a lower dropout rate and a literate work force.

Target Populations -- Intergenerational literacy programs are designed to serve "at- risk" adults who are educationally disadvantaged, their families, newly literate adults, adult literacy students, teenage parents and welfare families, and mothers in prisons. Parents of children in Head Start, Chapter 20 and Chapter 1 programs are also targeted for services.

Adult participants in intergenerational programs may vary. Some programs pair volunteers outside the family (e.g., senior citizens and /or literacy tutors) with children. Others recruit members of the immediate or extended family. Some target only mothers, reflecting research that highlights the mother's special importance in the development of literacy (Kirsch, 1986; Sticht, 1989). However, such a practice may produce disappointing results (Walker & Crocker, 1988).

Adult participants range in age from teenagers to grandmothers, and the children involved from birth to middle school age. Recruitment is sometimes aimed at specific combinations, such as low-literate Chapter I parents and their children, (Nickse and Paratore, 1988) or mothers without high school diplomas and their 3- or 4-year-old children (PACE, 1988). Design and Administration -- Family literacy programs can be best characterized as diverse in design and administration. They are located in diverse settings -- in adult basic education and literacy programs, in early childhood centers and elementary schools, in prisons, libraries and community centers, and, in a new kind of facility specially designed as a family learning center (Nickse, 1989).

Some programs involve several agencies in partnerships, some receive both public and private money. Funding often is minimal and short-term, which jeopardizes their chances for success.

These programs vary in design, but most share a philosophy -- strongly supported by research -- that literacy improvement is best accomplished through a shared social process. This theoretical concept is reflected in techniques that stress interaction; for example, paired reading, read-alongs and story hours, peer group discussions of reading with practice, and a variety of other socially oriented techniques. Within this framework, program activities range on a continuum from a simple focus on pleasure reading to complex academic objectives. Other academic or functional skills are also taught, along with a variety of individual and family related educational goals --improved writing, better nutrition, parenting skills and child development understanding, computer skills, better attitudes and values toward reading, schools and education, increased self-esteem, and added responsibilities. In addition, good programs provide counseling and group discussion when there is a clash between long-held family and community values and the psychological and behavioral changes that accompany improved literacy.

Section II Research Base and Motivation.

Educational changes are often slow to be adopted; yet the idea of intergenerational and family programs seems to have gained rapid acceptance due to a combination of national concerns. These include: the state of adult literacy; perceived failures in the education of our children; the health and stability of families; the strength and cohesion of communities; and the economic health of the nation. In the past, we have addressed each concern separately, but there is evidence that interventions aimed at discrete age groups produce little or no sustained growth in cognitive development (Sticht and McDonald, 1989).

On the local level, there is now a small movement toward cooperation and collaboration in delivery of services to families, but such a trend is not in evidence at the state or federal levels. Intergenerational and family literacy programs can provide a vehicle for more coordinated policy and practices in the service of educationally and economically disadvantaged citizens. However, comprehensive programs are not necessarily quicker or less expensive; perhaps they will be more effective . There are too few research-based programs to provide much evidence to support the benefits of family literacy programs, but research is beginning to show modest and positive effects. These findings are based on relatively unsophisticated evaluations from a limited number of

programs, but the programs spring from a substantial base of research in the diverse fields of reading, cognitive science, and child development.

Research on Adult Literacy Education -- The need to improve adult literacy is well documented, in research and in the popular press. Unfortunately, years of neglect and fragmented responsibility at the federal level have left adult basic education struggling for resources and for professional status. Now, when the need for both service and research is greatest, the national "system" for adult literacy education is still a cottage industry, with no strong research base.

In the absence of substantive empirical evidence about the learning patterns of adults, there are persistent efforts, often by experts in the children's reading field, to extrapolate from the known (research on children's literacy) to the unknown (adult literacy). Sticht (1989) states:

> History ... reveals a 'crisis mentality' toward the literacy education of adults that has hindered the development of a cadre of professionals trained in adult literacy education and a body of research-based knowledge about the development of literacy in adulthood. Too often understandings of literacy education derived from experience with children in elementary schools are applied the literacy education of adults, with disastrous effects. These include misidentification of adult literacy skills and the development of programs inappropriate for adults' life context. Research, policy and practice, now decidedly different and separate, should bring together adults' and children's literacy development, and seek some unified theory of cognitive growth for both adults and children. (Sticht, 1989).

While we may not know yet how best to teach adults to read, there is evidence that intergenerational and family programs retain adult students longer (Nickse, 1988; Heathington, et. al., 1984). This finding is encouraging, for adult new readers need extensive instruction and practice if skill levels are to be increased to an effective literacy level: some say 12th grade. For low-literate adults, this may take six to eight years or more of intense, professionally supervised instruction.

Research on Emergent Literacy -- Research establishes the importance of the social context -- and, the literacy of parents -- in the development of children's literacy, from the first years of life. Parents are children's first teachers. Research shows that parents can create a literacy-rich environment supplied with books and everyday materials; they share reading and writing activities; as reading models, they demonstrate the function of literacy in their own lives; and they demonstrate positive attitudes toward education (Nickse et al, 1988). There is compelling evidence that -- for better and worse -- the educational level of the parent, particularly the mother, is related to the school achievement of the child (Sticht, 1988), and that family characteristics "contribute more directly to early reading achievement and account for considerably more variance than socioeconomic status " (Mason and Allen, 1987).

In middle class homes, such family characteristics may include structured interactions with questioning, comments about the children's experience, and labeling. Preschoolers enjoy bedtime stories, read cereal boxes, stop signs, ads, sing alphabet songs, and experience a variety of opportunities to use language in interaction with adults. In working class black and white homes, parent-child literacy events may be less frequent, or absent, and other forms of verbal behavior may prevail. These forms may be different from "school literacy" that children are expected to know when they begin formal education (Heath, 1983).

Early intervention -- with an emphasis on pre-school family literacy projects -- is the guiding theme of the research concerning emergent literacy. Unfortunately, few such projects are in operation. (Dickinson, 1988; Sticht and McDonald, 1989).

Research from Cognitive Science -- A multidisciplinary and relatively new area of study, cognitive science holds the greatest potential value for intergenerational and family literacy programs (Sticht and McDonald, 1989) and is the least well known. Cognitive science aids understanding of the interaction of knowledge and context in learning and in the transfer of learning to other settings. It posits that knowledge and information-processing skills are socially developed and distributed, both in and out of school, and that cognitive ability is shaped significantly by the culture and society into which the child is born and reared. Social groups direct the cognitive development of members through values placed on the learning of skills, and provide the motivation for the kinds of learning valued by them. The success and value of school-based, formal education is, then, a product of the belief system of the group. While the importance of the individual's intellectual inheritance is not overlooked, individual achievement can be inhibited or enhanced by these social factors.

The group itself can embrace new values and pass them on to their children. However, people change slowly. Program planners and evaluators must respect both families and traditions. Within this framework, Sticht and McDonald (1989) present three themes that contribute to an understanding of the limited successes in previous educational interventions and the promise of future programs. They say that such programs must consider the cross - generational consequences of programs, must recognize and incorporate the social nature of cognitive development, and must consider the contexts in which programs are implemented and evaluated.

Research on the Role of the Parent -- Research points to the potential value of parent involvement in the education of their children and to the difficulty of engineering successful involvement (Dickinson, 1988). Pitfalls include these: changing the ways in which parents think and act about child development; supporting parents in

maintaining new behavior patterns and helping them adjust their strategies as their children grow; breaking down structural tensions around the roles of teacher and mother; and overcoming conflicts about power relationships between parents and educators.

Effective family literacy programs can teach specific behaviors while providing the rationale for them. However, it appears that long term interventions may be necessary to make new behaviors and attitudes stick. Strategies that incorporate a wide range of activities for adults and children seem to have the most significant effects on children's progress.

Dickinson and others (Weiss and Jacobs, 1988) warn of the difficulty in evaluating the results of programs, including the problem of identifying relationships between program -induced maternal behaviors and child outcomes, and the difficulty of establishing causal relationships.

Research from Family Systems Theory -- Walker and Crocker (1988) contribute two important notions to adult and intergenerational literacy. First, family members are driven to maintain the stability of the family unit, which helps to explain why family literacy behaviors are difficult to change. Second, the theory of recursive causality explains that children shape family life and influence parental behaviors at least as much as the family influences children.

One implication of the study of family dynamics is clear: The more family members involved in literacy programs, the better. Programs that only serve a subset of the family -- e.g., children and mothers -- are less likely to succeed than programs that broaden their contact. Administrators must be aware of the degree to which program goals are consistent with the values of others in the "family" (which can include neighborhoods, communities and religious groups), so that the progress of individual family members won't be undermined by others. Influential family members can discourage or even forbid attendance. The chances for a program's success are even broadened through such events as pot-luck dinners, family parties and outings.

A separate, but related issue is that of cultural differences. Since many intergenerational and family programs serve minorities, insights into the cultures being served are critical to program success. Slaughter, (1988) writing about programs for black families, could easily have been addressing all minorities:

> Too often we have not asked ourselves what we know, historically and culturally, about the families we intend to serve and what we need to know in order to design programs effectively for them. At best, we have relied on a few informants in the immediate community rather than conducting systematic studies..... about the group.

MOTIVATIONS FOR FAMILY LITERACY PROGRAMS

Common Assumptions -- There is something appealing and logical about the idea of adults and children reading together. But common sense can be overruled by mitigating factors.

First, adults with low literacy development may also lack the skills and habits to read to children, to model reading behavior, to visit libraries. Second, literacy is often an economic problem as well as an educational challenge. In the pantheon of priorities, concerns about adequate housing, nutrition and income compete with literacy learning. No matter how carefully crafted, the success of intergenerational and family literacy programs is offset by persistent poverty (Rodriguez, 1988).

Political Appeal -- Concern about "the family" has broadened the political appeal of intergenerational and family programs. However, Grubb and Lazerson (1982) note the central policy dilemma: how can the state assume some responsibilities for children, when childrearing is still considered a private responsibility? The question underlines a critical issue in the design of dual literacy programs. How can professionals enhance the well-being of families and children without diluting parental control and contributing to feelings of powerlessness? Further, how can program designers of intergenerational and family literacy programs respect cultural differences while changing them through improved literacy? Weiss (1988) writes that the political climate is changing from wariness and reluctance about getting involved with so-called "family business" to support for preventative interaction. Carefully designed programs can break the cycle of intergenerational illiteracy and help to reduce family stress.

Section III: Types of Programs

In describing programs in the four sectors -- Adult Basic Education, library programs, family English literacy and preschool and elementary -- their great variety is apparent -- as are their similarities.

Similarities include concern for literacy development, and more broadly, for human development. Dimensions on which they vary include: program goals -- narrow or broad; settings; nature of the intervention -- direct or indirect; targeted beneficiaries and eligibility; funding, sponsorship and administrative responsibility; degree of collaboration with other agencies; program content and activities; nature of instruction used; and the use of evaluation and types of methods employed.

Diversity is healthy, but there is a need for a systematic way to collect and disseminate information about

programs and a means to provide technical assistance by professionals across a variety of fields. Information from early childhood development, adult development, cognitive science, family systems theory, and bicultural awareness would help ensure quality programs.

This convergence of discipline fields is an opportunity for multidisciplinary efforts -- collaborations which are rare in the history of social service interventions -- but now seem essential both for better quality (and perhaps when reorganized, less expensive) services.

A. Adult Basic Education Programs -- These programs are primarily funded through the Special Projects section of the Federal Adult Education Act, administered by competitive grants through the states. Generally, parents are offered instruction in basic skills and parenting. A program may enroll parents during the day, or in the evening if they are employed. Children may also receive instruction, sometimes by an early childhood specialist; they also may spend time with their parents and program staff to enhance communication and interaction. The parents need basic skills instruction, may be receiving public assistance, or may be parents of Head Start or Chapter I children. Some are refugees; and all of them have pre-school or young school-aged children.

Cooperation between adult educators and early childhood educators is considered important for effective service. Programs may involved collaboration with other agencies, e.g., public schools, libraries, universities. Features may include: basic skills instruction in Adult Basic Education (ABE) or English as a Second Language (ESL) for parents; tutor/child/parent activities; special family events, such as storytelling, read-alongs, book talks; computer programs; tutoring for parents; distribution of family literacy materials; parenting instruction; parent/child field trips; book giveaways; writing projects; minicourses for parents in a variety of topics; GED instruction; parent training in school-related and home reading; and parent training in coping with school-related problems of children.

Program data are sparse, but there are indications that programs can modify the literacy skills of parents and change attitudes and school performance of their children. Askov, et al. (1986) reported that Chapter I children and their parents benefitted from using a computer reading program. In another study, Chapter I parents improved scores on a standardized reading test after working with tutors. About 75 percent of parents remained in the program, a high rate that was attributed program's emphasis on parent/children literacy events at home (Nickse, et al, 1988). The children showed no significant gains in reading but anecdotal evidence from parents

suggests that they benefitted indirectly (Nickse & Paratore, 1988).

In its first 10 months, a storefront family learning center attracted more than 80 adults for daily ABE/ESL instruction and weekend family literacy events sponsored by the Boston Public Library (Nickse, 1989). In an earlier study using Reading Rainbow books and audiotapes and specially designed activities based on the books, adults were found to enjoy reading books to children with themes that appealed to both adult and child. Neither fantasy books, nonsense books nor viewing Reading Rainbow television shows had much appeal (Nickse and Englander, 1985; Nickse, 1989).

The PACE program in Kentucky reported that more than 75 percent of parents and children completed at least one program cycle during the first year of the program. Communication between parents and schools improved; and more than 50 percent of adults received their GEDs.

Handel and Goldsmith (1988) reported that participation in the Parents' Readers Program resulted in more home use of books and increased use of the library. Parents who were attending college improved their own reading score on a criterion based test. Results from the Kenan Trust Family Literacy programs (Darling, 1989) suggest a variety of positive outcomes for both parents and children involved in this intensive intervention. Community based programs report enthusiasm for materials developed especially to aid new families with developing literacy (PLAN, 1989).

Despite their successes, intergenerational and family literacy programs face a variety of challenges, including these: the need for long-term funding, which builds trust with families and program and staff continuity; collaboration with other agencies, especially the public schools, and better sharing of information across programs; recruitment and retention of parents, who often think they don't need parenting skills; development of counseling services for parents and dual instructional programs for adults and children; recruitment of staff with both early childhood and adult basic education background; staff development in family literacy techniques; provision for materials and sites; and improved evaluation techniques.

Family literacy programs are in their infancy. Isolated from each other, with no system for technical assistance, each new program must find its own way. The resulting variations in service are important to appeal to a broad group of adults and children; the challenge is to improve program effectiveness while preserving the variety.

B. Library Intergenerational/Family Literacy Programs --Libraries have traditionally nurtured and

fostered reading and have maintained book collections. Effective libraries have often collaborated with public schools, have employed children's librarians who conduct story hours and construct children's areas. Unfortunately, libraries have been frequented most often by readers, and have not attracted low-literate parents and their children, nor have staff been trained to work with them. These libraries are in danger of losing touch with their communities. The federal government has provided funds for adult and family literacy programs, and several states -- notably California, Massachusetts and New York -- have developed strong, innovative programs. Libraries are involved in providing sites and literacy classes for adults (including reading and writing programs); training for volunteer literacy tutors; family and children's hours; special book collections for new adult readers; collections of books on parenting; and a wide range of other features, including computers, audiovisual equipment, read-alouds, read-in sleepovers, and programs by authors and storytellers.

Seldom are the effects of these activities evaluated rigorously. In some cases, little more than attendance is noted and anecdotal evidence is collected. Libraries have had neither the training nor the staff for complicated evaluation. However, a new assessment tool has been developed in California, and New York reports descriptive results for 17 federally funded projects, including: increased service and memberships to populations of low, or aliterate families; enriched children's book collections; new library patrons among poor and minorities; increased book circulation; increased awareness among library staff of families with low literacy ; and first attempts by some libraries to offer special programming.

While it appears that little harm can be done by these programs and that, at the least, they promote reading enjoyment, there are questions about their effectiveness. Lacey (1988) notes that reading to children can dampen their enthusiasm if poorly done. Further, some programs promote unrealistic expectations with such programs as read-aloud contracts that ask parents to pledge to read to children a minimum of three times or 30 minutes a week. Many of these programs also suffer from brevity of service.

Libraries face challenges in operating programs of this type: they need new kinds of collaborations, for example, with adult learning centers, ABE programs, public schools, community agencies, universities and colleges; they need new models for staffing and training; recruitment of new library users takes greater effort and new approaches; and libraries must reorganize their physical space for adult/child programming. (Nickse and Paratore, 1988; Quezada, 1989).

While the entire community can benefit from opportunities to improve literacy, care must be taken so

that outreach efforts recruit those new readers for whom the library is a new experience and resource -- those who are in most need. It will take time and a new commitment to build this new constituency, to reshape the image of the library as an egalitarian community resource that serves many populations.

C. Family English Literacy Programs -- An early sponsor of intergenerational projects are those supported by the Family English Literacy Programs, begun in fiscal year 1985 under the aegis of the Office of Bilingual Education and Minority Languages Affairs (OBEMLA) of the U.S. Department of Education. The act provides grants to local educational agencies, institutions of higher education, and private non-profit organizations. The primary purpose of OBEMLA is to serve children: The Family English Literacy program is focused, however, on non-native adult speakers. The purpose of the awards is to establish, operate and improve family English literacy programs, and to promote English literacy by helping parents help their children. Presently, there are 35 programs in 15 states and 3 territories, serving about 7,000 persons, with 23 language groups represented. It is not clear whether adults and children receive services at the same time individually, or together at any time. The projects are targeted at parents and their children who are currently receiving services through Title VII; they are primarily in grades K-12.

Project activities include: adult literacy, including ABE and ESL instruction; parenting; acculturation; computer literacy; instructional TV; informal training sessions; collaborations with other agencies, e.g., libraries; survival skills; competency based instruction; community outreach; writing projects; counseling and referral; curriculum development; vocational training; pre-school and parent child activities; home tutoring; and ethnographic studies. These programs are in their early stages. No formal evaluations have been completed.

These programs experience some problems that are similar to those confronted by ABE programs: difficulty in recruitment, danger of premature dropouts; and mobility of families. In addition, programs for non-English speaking adults and their children offer special challenges. Mahoney notes that many participants have limited formal schooling and also need to learn skills as parents. Sensitivity to cultural differences and to family dynamics is important. Small-scale programs are preferable. Materials must be developed specifically for this group. Partnerships must be forged between schools and community agencies, and information must be shared between programs. In some cases where such cooperation has been built up over several years, this is a natural alliance. Without such linkages, however, family oriented programs become fragmented and lose some of their potential power.

D. Pre-School and Elementary School Programs -- Only eight programs match Dickinson's (1988) definition of an intergenerational program: one that serves preschool or elementary school children and "older tutor" at the same time. The eight programs vary by goals, sponsorship, administration, and target population.

Activities include: Home visits to improve parenting; coaching in home literacy activities; child care when parents are in class; parent cluster and dinner meetings; workshops; distribution of reading materials; library memberships and summer reading programs in conjunction with libraries; parent education, including ABE, ESL, GED, and community college classes for parents; child development classes; field trips; toy making and lending; father/father figures programs (e.g., carpentry); computer instruction; information that explains how schools work; coaching in playing with children; book and game clubs; and music and art activities.

Funding sources include federal, city and state, public and private, local school districts, private foundations, and United Way agencies. The target populations are mostly urban families, AFDC recipients, and low-income, mostly urban families; and a variety of ethnic and language groups. The ages of children served ranges from birth to junior high school children. Some are targeted at particular age groups. Program length varies from daily to weekly meetings; some require a specific number of hours of participation. Program size varies; one reports serving 4,000 between the years 1981-1987; another served several hundred over a five year period.

As with other programs, formal evaluation data are scarce. However, results are summarized here for three programs: The Family English Literacy program, in an earlier format, noted significant changes for all aspects of parent knowledge and for degree of parental involvement (except for attendance at PTA meetings). Some slight differences were found in children in math, and in behavior (Reyes-Gavilan, et al., 1987). The Family Learning Center in Boston reports modest success in improving adult reading achievement, retention, and in parents' literacy-related behaviors. Children's gains in reading were not significant, although parents reported some positive changes in their attitudes (Nickse, et al., 1988; Nickse and Paratore, 1988; Nickse, 1989). PACE notes preliminary results from an assessment of the first year of the program revealed that more than 75 percent of the parents and children completed at least one cycle of the program, and more than 50 percent of the adults received a GED (compared to 15 percent of a comparable group of non-PACE parents selected through random sampling).

Dickinson reports that he found few programs that emphasize facilitation of literacy acquisition; those

that do have such a focus are most often geared to low-income groups and minorities for whom English is a second language. Programs are especially scarce at the preschool level, although facilitation of literacy/language skills associated with emergent literacy is one of many topics in family-oriented programs; and programs with literacy focus often are narrow, with little emphasis on writing. Further, only exceptional programs link across institutions; many operate with little awareness of other programs and with minimal awareness of literacy research or the range of materials and programs already developed.

Dickinson's report didn't include the Parent Educational Opportunities Program, sponsored by the New York City Adult Literacy Initiative. It provides mini courses to parents of children involved in the city's early childhood program, Giant Steps. The parent program serves several hundred parents (Carothers, 1989).

Section IV: A Typology for Classification of Intergenerational and Family Literacy Programs

The theme of "intergenerational" and "family" literacy is a hot topic, but there is little agreement about the meaning of these two words. For some program designers, the term "intergenerational" limits participation to parents and children from the same family; for others it means someone older with someone younger. "Family" can mean parents and a child (or children), include caretakers, extended family members, and friends, or specifically target only mothers.

Less obvious than these distinctions is another: whether or not the adult and the child are present together for literacy development any or all of the time. The distinction is important: at this early stage, we do not know which interventions are more effective with particular populations or for particular outcomes, but the choice is crucial to program structure. The key question is this: What is the role of parents in intergenerational and family literacy programs? Are parents to be trained as surrogate teachers working on school- based literacy tasks, or are they to learn the social significance of literacy and then become transmitters of literacy to their children?

When discussing or evaluating programs, we need to know which philosophy guides the development of the intervention used. Some developers believe that highly structured models which train parents by very direct instruction as teachers of their children are the most valuable in changing skills, attitudes and behaviors. Others believe that the direct mode is "invasive" in its approach to changing the behavior of parents.

The question of focus is related to another problem faced by intergenerational and family programs: the

lack of a conceptual base. While intergenerational programs seem to be on the increase, conceptual and theoretical work lags behind . This section offers a conceptual model to organize programs by general types, and speculates on the advantages and disadvantages of each. While rather simple, the matrix provides an organizational framework to classify and examine program types broadly across two critical dimensions: type of intervention -- direct or indirect; and type of participant -- adults or children.

Table I -- Four Classifications for Intergenerational and Family Literacy Programs

(See Table 1 on page 22.)

Type 1. Direct Adults-Direct Children -- Educationally disadvantaged adults and their children are both required to participate directly. Parents attend literacy instruction and may also participate in parent training, vocational training, etc. Parents are taught to interact with their own children, to play and read to and with them, and do so with supervision and modeling. Children receive pre-school or other direct instruction. Participation is supervised by professional adult basic education and early childhood teachers; there are established cycles for participation and it is intense. Validated curriculum might be used. Example: PACE (Kentucky). Kenan Family Trust Literacy Project.

This is the most intensive program, particularly if it includes daily instruction. Interactions between parents and children can be observed by professionals and immediate feedback provided. This is a good model for non-working parents with preschool-aged children. The family dynamic is highlighted.

However, there are possible disadvantages: the site must be appropriately furnished for both adult and child learners; dual programming and staffing are needed; the model is problematic for working adults or for adults who are housebound for any reason; and the programs are most effective for parent(s) with one child. Child care must be arranged to keep additional children from becoming distractions.

Type 2. Indirect Adults-Indirect Children -- Both adults and children are invited to participate. Literacy development is limited to the support of reading for enjoyment. There is little or no direct literacy instruction for adults or children. Special literacy events include read-alongs, lap-sits and story telling. Example: Library

programs.

These programs offer several advantages: they may require short time commitments for parents and children; since their objective is enjoyment, they may improve attitudes toward literacy; if both parents are involved some or all of the time, family dynamics are powerful; and the programs do not require full programming, permanent renovation of a site or permanent professional ABE or ECE staff.

However, Type 2 programs do not directly teach reading skills to adult or child and may not have professionals in either early childhood or adult basic education involved at all.

Type 3. Direct Adults-Indirect Children -- Adults are the main target for service; children participate intermittently, if at all. Literacy instruction is directed at parents, who may also participate in a number of other activities, including parenting instruction. Literacy instruction is structured, whether didactic or participatory. Example: Family English Literacy Programs; Parent Readers Program.

These programs offer the following advantages: adults are not distracted by the presence of children; parents can practice with each other; parents take materials home to their children; and there may not be much need for early childhood specialist on the staff.

However, these programs offer no direct observation of adult/child interaction to determine if the instruction is affecting home behaviors.

Type 4. Indirect Adults--Direct Children -- Children are the main targets for service. The adult component involves help for adults to help their children. Some may teach literacy or other skills to parents, but it is the child's literacy development that is primary. Example: Pre-school and elementary programs: New York City Parent Education Opportunity Program

Type 4 programs can be housed in school buildings, where children are captive audiences and the programs can be integrated into regular school work; However, the children may not take their work home to their parents, and the literacy of parents may not be directly addressed.

CRITICAL QUESTIONS

1. Which of the four program types are effective for specific groups of adults and children?

2. What program components contribute to the effectiveness of each type? Are there common components and some that are contextually specific?

3. What problems face administrators and staff in conducting each type of program and what kinds of technical assistance is needed?

4. What outcome measures are appropriate for adults and for children for each program type? What kinds of assessments are feasible, given the primitive nature of most programs?

5. How can collaborations be established and maintained between service providers -- ABE, ECE, libraries, public schools, associations, workplace sites?

6. Are family literacy programs cost-effective ? By what measures?

The answers to these questions frame the agenda for key policy decisions in the design and funding of family literacy improvement programs for the year 2000.

Section V -- RECOMMENDATIONS

1. Establish a national clearinghouse to assist in program development across discipline lines (ABE, ECE,libraries, bilingual associations). At a minimum, the clearinghouse should identify and catalog intergenerational and family literacy programs and establish a data base; create a dissemination network to provide information for technical assistance; organize regional workshops and summer institutes for staff training; and provide continuing support through a monthly newsletter or a computer hookup.

One encouraging response to this need is the establishment of the National Center for Family Literacy. The center, funded by the Kenan Family Trust, is undertaking training programs and technical assistance to family literacy initiatives across the country.

2. Provide professional assistance to organizations outside of education that are interested in assisting in the improvement of literacy. These include the American Association of Retired People (AARP), the American Bar Association, and the United Way (Brown, 1989).

3. Establish an interagency link at the federal level, an advisory group composed of program personnel from Adult Basic Education, the Even Start program, libraries and the Family English Literacy programs. Enlist the cooperation of programs that strengthen families and that already offer educational activities to aid in child literacy development.

4. Consider a technical amendment to the Even Start Bill. First, require ABE participation in the program planning and implementation, to assure that the spirit of the legislation is followed in fact. Second,

mandate a five percent set-aside for third-party evaluation of Even Start.

5. Mandate professional collaborations for planning and administering services. Many programs suffer from too little knowledge because they are initiated in one sector (ABE, ECE, bilingual education, libraries).

6. Develop new evaluation techniques that take into account the complexity of intergenerational and family literacy and the cultural appropriateness of research methods.

7. Develop a system to define "family literacy" programs. Use a typology, such as that suggested in this report, to clarify program structure and thus the range of possible measurable outcomes.

8. Reconsider the current research approach to adult, child and family literacy, focusing particular attention on convergences and divergences between them.

9. Develop models for service delivery to at-risk families that combine education, (elementary, preschool and early childhood, adult basic education and bilingual and minority programs) with appropriate health care initiatives, libraries, family support programs and job training initiatives.

There are models that try to do this on a small scale . For example, Maryland has formed a partnership between the Department of Human Resources and several foundations to create an independent entity, Friends of the Family, to administer 11 Family Support Centers, providing a core set of services for children and adults, in literacy and basic education, health, parenting, peer support activities, job preparation and skill development to prepare for employment (Weiss, 1988). Multidisciplinary and coordinated projects such as these are pioneers in creative cross discipline planning and administration to assist families to help themselves and each other.

BIBLIOGRAPHY

Ada, Alma Flor. (1987). The Pajaro Valley Experience: Working with Spanish Speaking Parents to Develop Childrens' Reading and Writing Skills in the Home through the Use of Children's Literature. San Francisco: University of San Francisco.

Askov, E.& Maclay and Bixler. (1986). "Final Report: Penn State Adult Literacy Software: Impact on Parents and Children." University Park: Pennsylvania State University. Institute for the Study Of Adult Literacy.

Balmuth, M. (1986). "Essential Characteristics of Adult Literacy Programs: A Review and Analysis of the Research." Unpublished Paper. The Adult Beginning Reader Project, Kingsboro Community College, City University of New York.

Barbara Bush Foundation for Family Literacy. Community Foundation of Greater Washington, Inc. Washington, DC.

Bristow, P. (1989). Personal Communication.

Brown, D. (1989). List of Adult Basic Education Programs - and personal communication. Business Council for Effective Literacy Newsletters. (1987-89) New York, NY.

Carothers, S. (1989). Personal Communication.

Chisman, F. (1989). Jumpstart: The Federal Role in Adult Literacy. Final Report of the Project on Adult Literacy Southport, Conn.:Institute for Policy Analysis.

Darling, S. (1989). Personal Communication.

Dickinson, D.K. (1988). An Examination of Programs that Involve Parents in Efforts to Support Children's Acquisition of Literacy. Final Report. W.T. Grant Foundation, Worcester, MA: Clark University.

Fingeret, A. (1984). Adult Literacy Education : Current and Future Directions. Columbus, OH: ERIC Clearinghouse on Adult, Career and Vocational Education. (ED 246 308)

French, J. (1987). Adult Literacy: A Source Book and Guide. New York, NY: Garland Press, Inc.

Grubb, W.N. and Lazerson, M. (1982). Broken Promises: How Americans Fail Their Children. New York, NY: Basic Books, Inc.

Handel,R. & Goldsmith, E.(1988). "Intergenerational Literacy: The Parent Reading Program ." Paper, presented at Annual Meeting of the American Educational Research Association. New Orleans, LA.

Handel, R. (1989). "The Family Reading Partnership." Families as Educators Newsletter. Oliver C.Moles, Editor. Rockville, MD.

Harmen, D. (1987). Illiteracy: A National Dilemma. New York, NY: Cambridge Book Company.

Heath, S.B. (1983). Ways with Words: Language, Life and Work in Communities and Classrooms. Cambridge, England.: Cambridge University Press.

Heathington, B., Boser, J. & Satter, T. (Feb. 1984). "Characteristics of Adult Beginning Readers W h o Persisted in a Volunteer Tutoring Program". Journal of Life Long Learning: The Adult Years, pp 20-22,28.

Fox, Mike (1987). The Ladder. A Newsletter. Washington, DC: Project PLAN.

Kaiser, J. & Gonzalez,I.(undated). "HOMETEAM: A Computer -Based Writing Program." Andover, MA.:The NETWORK.

Kiely, P. (1989). Personal Communication.

Kirsch, I.S. & Jungeblut, A. (1986). Literacy:Profiles of America's Young Adults. Princeton, NJ: National Assessment of Educational Progress and Educational Testing Service.

Kozol, J. (1985). Illiterate America. New York: Doubleday.

Lancy, D. (April, 1988) ."Parents Strategy for Reading to and With Their Children." Paper presented at the Annual Meeting of the American Educational Research Association, New Orleans.

Mahoney, M. Personal Communication.

Mason, J. M. & Allen, J. (1986). "A Review of Emergent Literacy with Implications for Research and Practice in Reading." In E. Rothkopf (ed.) Review of Research in Education 13, (3-47). Washington, DC: American Educational Research Association.

Nash, A. (1987). English Family Literacy: An Annotated Bibliography. English Family Literacy Project, University of Massachusetts, Boston, MA.

NEWS (1989) Cavazos Announcement. Newsletter. United States Department of Education. October 27, 1989.

Newsletter, 1989. News from the National Center for Family Literacy. Fall/Winter, 1989. Louisville, Kentucky.

Nickse, R. (February, 1990.)"Envisioning Family Literacy Programs: Some Ideas for Action." Adult Learning, AAACE. Washington, DC.

Nickse, R. (February, 1990) "Family Literacy and Community Education: Prospects for the '90's". Journal of Community Education, Coventry, England.

Nickse, R. (1989, in press) "Family Literacy Practices at the Family Learning Center." In The Intergenerational Transfer of Cognitive Skills, Sticht, T., McDonald, B.A. and Beeler, M.J. (Eds.) Norwood, NJ: Ablex.

Nickse, R. (October, 1989). Forward. In Family Literacy in Action: A Survey of Successful Programs. M. McIvor, Ed. Syracuse, NY. New Readers' Press.

Nickse, R. & Paratore, J. (1988). An Exploratory Study Into the Effects of an Intergenerational Approach to Literacy. Washington, DC: Office of Educational Research and Improvement.

Nickse, R., Speicher, A.M. & Bucheck, P. (1988). "An Intergenerational Adult Literacy Project: A Family Intervention/Prevention Model." Journal of Reading, 31, 634-642.

Nickse, R & Englander, N. (1985). Administrators Handbook for Collaborations for Literacy: An Intergenerational Reading Project. Boston, MA: Trustees of Boston University.

Nickse, R. and Englander, N. (1985). "At- Risk Parents : Collaborations for Literacy." Equity and Choice, Vol 1. (Spring) Institute for Responsive Education, Boston, MA, 11-18.

Quezada, S. (1989). Personal Communication.

Reyes-Gavilan, M., Garcia, D.C., & Diaz, V.T. (1987, April). "Parents Assisting In Learning: Educational Implications for Bilingual Education." Paper presented at the Annual Convention of the American Educational Research Association, Washington, DC.

RMC Research. Even Start Questions and Answers. Parents In Education Project. Hampton, NH.

Rodriguez, G.,& Cortez, C.P. (1988). "The Evaluation Experience of the AVANCE Parent-Child Education Program." In Evaluating Family Programs, H.B. Weiss, & F. Jacobs (Eds.) Hawthorne, NY: Aldine de Gruyter.

Slaughter, D., (1988). "Programs for Racially and Ethnically Diverse American Families: Some critical Issues." In Evaluating Family Programs. H.B. Weiss, & F. Jacobs (Eds). Hawthorn, NY: Aldine de Gruyter.

Sherer, C.(1989). Personal communication.

Staryos, M. & Winig, L. (R. Nickse, Ed.) Tutors Handbook. Collaborations for Literacy: An Intergenerational Reading Project. Trustees of Boston University.

Sticht, T., & McDonald. B. (1989). Making the Nation Smarter: The Intergenerational Transfer of Cognitive Ability. San Diego, CA: Applied Behavioral &Cognitive Sciences, Inc.

Sticht, T. (1988). "Adult Literacy Education." In E. Rothkopf, (Ed.), Review of Research in Education, 1988-89 (59-96). Washington, DC: American Educational Research Association.

Teale, W. & Sulzby, E. (Eds.). (1986). Emergent Literacy :Writing and Reading. Norwood, NJ:Ablex.

Tizard, J., Schofield, W., & Hewison,T. (1982). "Collaboration between Teachers and Parents in Assisting Children's Reading." British Journal of Educational Psychology, 52, 1-15.

Walker, D. & Crocker, R. "Measuring Family Systems Outcomes," In H.B. Wiess & F. Jacobs (Eds), Evaluating Family Programs, Hawthorne, NY: Aldine de Gruyter.

Weiss, H.B. (1988). Pioneering States: Innovative Family Support and Education Programs. Cambridge, MA: Harvard Family Research Project.

Weiss, H.B. & Jacobs, F.H. (Eds.) (1988). Evaluating Family Programs. Hawthorne, NY: Aldine de Gruyter.

Acknowledgements

The information about Intergenerational and Family Literacy Programs was difficult to locate. The investigator thanks the following for their assistance in the preparation of this report.
Dr. Constance Ackerman -ABE Consultant, Division of Educational Services, Ohio State Department of Education , Columbus, OH.

Dr. Eunice Askov-Director,Institute for the Study of Adult Literacy. Penn State University , University Park, PA.

Dr. Elsa Auerbach- Assistant Professor, University of Massachusetts, Boston, & Coordinator of English Family Literacy Project.

Dr. Page Bristow- Consultant, International Reading Association, Newark, Delaware.

Dr. Deborah Brown- Education Programs Specialist for Intergenerational/Family Literacy Programs , Division of Adult Education, U.S. Department of Education.

Dr. Suzanne Carothers- Adult Literacy Program Associate, NY City Adult Literacy Initiative

Ms. Sharon Darling, Director, Keenan Family Literacy Project. Louisville, KY.

Dr. David Dickinson - Director, Teacher Education, Department of Education, Clark University, Worcester, MA

Ms. Elizabeth Hastings, Family English Literacy Project, The Network, Andover, MA.

Dr. Mary Mahoney,- Program Director, Family English Literacy Programs, Office of Bilingual and Minority Languages Affairs, U.S. Department of Education.

Mr. Paul Kiely-Communications and Community Development Consultant, California State Libraries, California Literacy Campaign, Sacramento, CA.

Project PLAN - Mike Fox, Director, Washington, DC.

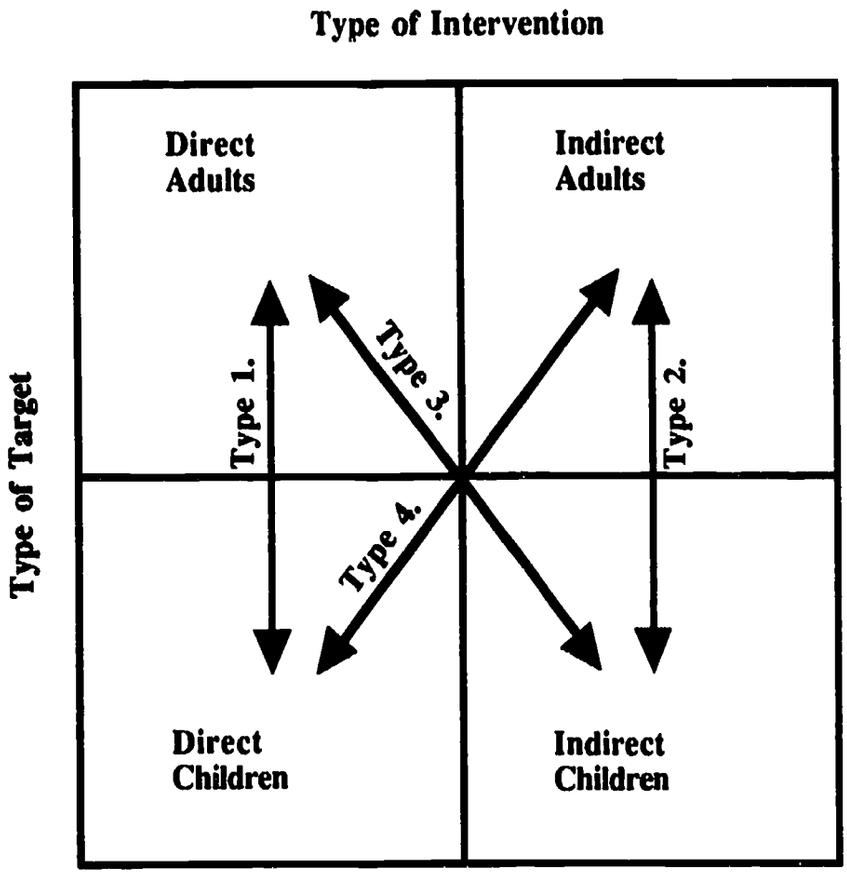
Ms. Shelly Quezada- Consultant to the Unserved, Massachusetts Board of Library Commissioners, Boston, MA.

Dr. Heather B. Weiss - Director, Harvard Family Research Project, Harvard, Cambridge, MA.

Ms. Carol Sheffer- Outreach Consultant, Division of Libraries, New York State libraries, State Education Department, Albany, NY.

Table 1

Four Classifications for Intergenerational and Family Literacy Programs



Toward a Social-Contextual Approach to Family Literacy

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The increasing realization that family members can contribute to children's literacy development has given birth to family literacy programs designed to support immigrant and refugee families' participation in their children's education. Elsa Auerbach critically analyzes those family literacy programs that focus on teaching parents to do school-like activities in the home and to assist children with homework. She contends that the theoretical stance of these programs is not based on sound current research. Furthermore, she argues that in practice these programs function under a new version of the "deficit hypothesis," which assumes that the parents lack the essential skills to promote school success in their children. The author proposes a broader definition of family literacy that acknowledges the family's social reality and focuses on the family's strengths. As an alternative framework to program design, the author presents a social-contextual approach in which community concerns and cultural practices inform curriculum development.

> Why I didn't do the homework
>
> Because the phone is ringing
> the door is noking
> the kid is yumping
> the food is burning
> time runs fast.
> *Rosa*

Rosa's writing is a window on her world. It reflects the tensions she faces as a young mother pursuing educational dreams in a new country. Given Rosa's strong motivation, her teacher was curious about why she hadn't done the homework. As Rosa explains, she is more than a student: she is also a parent, wife, cook, neighbor, member of an extended family and community, and someone who is trying to balance the demands of these many roles. Although she sees the importance of learning and has made the effort to enroll in English classes, she is asking her teacher to look at schoolwork in the context of her life and to understand the com-

Harvard Educational Review Vol. 59 No. 2 May 1989

0017-8055/89/0500-0165$01.25/0

plex set of demands that sometimes takes priority over assignments.

Rosa's voice is both her own and the voice of many immigrant and refugee students. Her dilemma is their dilemma: how can parents with low proficiency in English and literacy find ways to integrate learning into their busy lives and, at the same time, provide a context for literacy development in their children's lives?

This dilemma is a challenge to educators: how should we view Rosa's situation, and what can we do to support her efforts? Rosa's class, part of the University of Massachusetts (UMass) at Boston English Family Literacy Program, is one of many set up around the country in recent years to provide English literacy instruction to parents of bilingual students so that they, in turn, can support the literacy development of their children.[1] In the UMass/Boston Program my colleagues and I have found that the way family literacy is defined has critical implications for addressing Rosa's dilemma. If it is defined narrowly to mean performing school-like literacy activities within the family setting, the social-contextual demands on family life become obstacles that must be overcome so that learning can take place. In this view, successful literacy and language acquisition are closely linked to the culture of schooling and to mainstream literacy practices; life demands are seen as taking parents away from literacy development and as conflicting with the demands of schooling (such as doing homework). This view implies that it is the teacher's job to make work on academic skills manageable and the parents' job to set aside time to work on these skills (see, for example, Simich-Dudgeon, 1987).

If, on the other hand, educators define family literacy more broadly to include a range of activities and practices that are integrated into the fabric of daily life, the social context becomes a rich resource that can inform rather than impede learning. In this more inclusive view, doing formal schoolwork and developing literacy are not necessarily synonymous. The acquisition of literacy skills is seen in relation to its context and uses (Heath, 1983; Street, 1984): literacy is meaningful to students to the extent that it relates to daily realities and helps them to act on them (Freire, 1970); divorced from such contexts and purposes, however, it can become one more burden. In this view, the teacher's role is to connect what happens inside the classroom to what happens outside so that literacy can become a meaningful tool for addressing the issues in students' lives.

The difference between these two perspectives on Rosa's dilemma is important because of its potential effect on policy and practice, as well as on students' learning. As the national focus on family contributions to literacy acquisition intensifies with, for example, the establishment of the Barbara Bush Foundation for Family Literacy and the passage of Even Start legislation (see Business Council for Effective Literacy [BCEL], 1989), it will become increasingly important to ground program development in a sound conceptual framework, informed by research, theory, and practice.

The UMass/Boston English Family Literacy Project staff has developed its own conceptual framework by examining not only current models for family literacy programs, but also the ethnographic literature on family contributions to literacy

[1] Students in our classes reflect the diversity found in many immigrant and refugee communities: at any given time, there may be up to 25 language groups represented in the program. Students' first language (L1) and educational backgrounds range from no L1 literacy or ESL proficiency to strong L1 literacy and intermediate ESL proficiency – from students who sign their names with an X to students with teaching degrees in their homelands.

development as well as the evidence provided by the program's own students.[2] What we learned from students came not from formal "research" but from observing what they said, did, and showed in the course of day-to-day classroom interaction. The Project staff did not go into students' homes or communities to examine literacy uses and practices or to collect data; instead, we listened, read, and talked with students about literacy in their lives.

We found, as a result of this investigation, a gap between research and implementation: existing models for family literacy programs seemed not to be informed by ethnographic research or substantiated by what we learned from the students themselves. This article will discuss the results of this preliminary investigation and the assumptions behind current models for family literacy programs in light of recent research, both inside and outside the classroom; it will also suggest alternatives. While the perspective represented here focuses specifically on work with immigrant and refugee families, our sense is that the analysis and pedagogical implications may well be valid for other populations too (such as low literate native speakers of English), because it is informed by a broad base of research in a variety of cultural and economic contexts (Chall & Snow, 1982; Goldenberg, 1984; Heath, 1983; Taylor, 1983; Taylor & Dorsey-Gaines, 1988; Tizard, Schofield, & Hewison, 1982).

The Context for the Family Literacy Trend

The attention now being paid to parental roles in literacy development must be seen in the context of the current alarmist concern about the "literacy crisis," the drop-out rate, and declining academic achievement. This concern is often embedded in an analysis that links illiteracy and unemployment, claiming that inadequate literacy skills inhibit both personal and national economic advancement (see Shor, 1986, for an analysis of the context of this crisis). The makers of national educational policy argue that we must look beyond the school systems to the family in order to locate the cause of the problem. Former secretary of education Terrell Bell (1988) characterized this position with the comment: "Not even the best classroom can make up for failure in the family." The contention is that illiteracy breeds illiteracy: in an "intergenerational cycle of illiteracy," the "plague" passes from one generation to the next, creating a permanent, self-perpetuating "underclass" (see BCEL, 1989).

This analysis, in turn, is often justified by a series of studies on family literacy (although the authors of these studies may not agree with those who cite them); most of these focus on English-speaking families. One group of studies (Chall & Snow, 1982; Heath, 1983) examines a wide range of family literacy practices within and across social classes, showing that children whose home literacy practices most closely resemble those of the school are more successful in school. Other research (for example, Epstein, 1986; Topping & Wolfendale, 1985) indicates that

[2] Our annotated bibliography of English family literacy (Nash, 1987) lists sources used in addressing the following questions: What are the ways that families contribute to literacy development? How do their contributions vary according to class and culture? What models are now being used to involve families in children's literacy development? What assumptions are these models based on? What are the particular issues that must be addressed in programs for non-English-speaking families and how is this being done? What alternatives are there to the predominant models?

parental involvement in children's schooling has a positive impact on school achievement. Taken together, these studies suggest that one explanation for the relative success in school of middle-class Anglo students is that their home environments provide them with the kinds of literacy skills and practices needed to do well in school. The fact that their parents use and transmit literacy in the specific ways that schools expect gives these children an advantage.

But what about those children from homes that do not promote middle-class "ways with words," whose parents are not involved with their children's schooling or do not speak English? Despite some of the researchers' intentions, these studies are often interpreted to mean that nonmainstream families may lack appropriate environments for fostering literacy development because of inadequate parental skills, practices, and materials (Bell, 1988).

Furthermore, research indicates that until recently little systematic institutional support existed to help parents develop specific skills or take an active role in education (Moles, 1982). Traditional forms of parent involvement—such as creating a home atmosphere conducive to learning, responding to school communications, helping at school, performing academic tasks with children, and working in parent advisory groups—have been limited in scope and often have not included low-income or language-minority families (Epstein, 1986). Many policymakers (Home and School Institute, for example, and The Academic Development Institute) and program designers use this body of research to recommend a systematic, school-based attempt to structure parental participation in children's education. According to this formulation, parents are responsible for helping teachers do their jobs, and schools are responsible for showing parents how to do so (Epstein, 1986).

The "Transmission of School Practices" Model

The source of the problem is widely formulated as a lack of appropriate literacy practices in the home, and, further, in the case of bilingual families, lack of understanding of the language and culture of American schooling (see BCEL, 1989), compounded by a lack of institutional support for developing them. As a result, the solution is often formulated in terms of intervention programs that give parents specific guidelines, materials, and training to carry out school-like activities in the home. Simich-Dudgeon argues that parents with limited English proficiency must become their children's tutors, performing "structured academic activities that reinforce schoolwork" (1987, p. 3). Programs for these parents (see those described in *Issues of Parent Involvement and Literacy*, 1986) often focus on such practices as:

- Teaching parents about the American educational system and philosophy of schooling
- Providing parents with concrete methods and materials to use at home with children
- Assisting parents to promote "good reading habits"
- Training parents for home tutoring in basic skills (often extending a subskills approach to literacy with phonics, word-attack worksheets, and so on)
- Giving parents guidelines and techniques for helping with homework

—Training parents in how to read to children or listen to children read
—Training in "effective parenting"
—Giving parents a calendar or recipe book of ideas for shared literacy activities
—Teaching parents to make and play games to reinforce skills
—Teaching parents how to communicate with school authorities

While these programs take many forms (from competency-based behavior to behavior modification methods), what they have in common is their shared goal: to strengthen the ties between the home and the school by transmitting the culture of school literacy through the vehicle of the family. Parents are taught about mainstream ways of relating to print and about specific school literacy tasks that they can engage in with their children. The model starts with the needs, problems, and practices that educators identify, and then transfers skills or practices to parents in order to inform their interactions with children; its direction moves from the school/educator to the parents, and then to the children.

Examining the Assumptions

As our Project staff reviewed the ethnographic literature on family literacy, as well as evidence from our own students, it became clear that a number of the assumptions implicit in this "transmission of school practices" model do not correspond to the realities of participants' lives. The first assumption is that language-minority students come from literacy-impoverished homes where education is not valued or supported. The second assumption is that family literacy involves a one-way transfer of skills *from* parents *to* children. Third, this model assumes that success is determined by the parents' ability to support and extend school-like activities in the home. The fourth assumption is that school practices are adequate and that it is home factors that will determine who succeeds. And fifth, the model assumes that parents' own problems get in the way of creating positive family literacy contexts.

Taken together, these assumptions contribute to a new version of the deficit hypothesis, placing the locus of responsibility for literacy problems with the family. The danger is that, left unexamined, these assumptions will justify a model that blames the victim by attributing literacy problems largely to family inadequacies.

Assumption 1: Home Environments

The first assumption concerns the home literacy environments of language-minority students. The "transmission" model presents the homes of low-income and minority students and of students who speak English as a second language (ESL) as "literacy impoverished," with limited reading materials and with parents who neither read themselves nor read to their children, who do not provide models of literacy use and do not value or support literacy development (see, for example, BCEL, 1989).

A growing body of research, however, indicates that this does not reflect the reality of many low-income, minority, and immigrant families. Taylor and Dorsey-Gaines (1988) studied the literacy contexts of families living below the poverty level, in conditions where neither housing nor food could be taken for granted, where the parents often had not completed high school, and where families had been separated. They found that even in these homes where day-to-day

survival was a struggle, "families use literacy for a wide variety of purposes (social, technical, and aesthetic purposes), for a wide variety of audiences, and in a wide variety of situations" (1988, p. 202). Homes were filled with print, and literacy was an integral part of daily life.

The Harvard Families and Literacy Study (Chall & Snow, 1982; Snow, 1987) investigated the home literacy practices of successful and unsuccessful low-income elementary school students in order to identify those factors and patterns of interaction that contributed to the acquisition of literacy. This study also found a range of literacy practices and materials in the homes of working-class, minority, and ESL students:

> Perhaps the most surprising finding was the generally high level of literacy skill and literacy use among the parents of the children. For example, only twenty percent of the parents said they did not like to read and never read books. Thirty percent read factual books . . . and could name at least one favorite author. Fifty percent read a major newspaper on a regular basis and thirty percent could remember books from their childhoods. These low-income children also demonstrated considerable familiarity with literacy. The vast majority owned some books of their own and half owned more than 20 books. . . . *It seems then that explanations implicating the absence of literacy in low-income homes as the source of children's reading failure are simply wrong.* (Snow, 1987, p. 127, emphasis added)

In a study of the functions and meaning of literacy for Mexican immigrants, Delgado-Gaitan (1987) also found that each of the four families she investigated used a range of text types in a variety of ways that went beyond school-related reading. Despite the fact that parents had little prior schooling and did not perceive themselves as readers, they regularly used texts in English and Spanish (including letters from family members, newspapers, and their children's schoolbooks) as an integral part of daily life. Further, they wanted to develop their own English literacy as a way to support their children.

Study after study (for example, Chall & Snow, 1982; Delgado-Gaitan, 1987; Diaz, Moll, & Mehan, 1986; Goldenberg, 1984) has refuted the notion that poor, minority, and immigrant families don't value or support literacy development. In fact, often, quite the opposite seems to be the case for immigrants: those families most marginalized frequently see literacy and schooling as the key to mobility, to changing their status and preventing their children from suffering as they did. For some, the desire to get a better education for their children may even be the central reason for coming to the United States (Delgado-Gaitan, 1987).

Beyond a general recognition of the importance of literacy, parents support it in specific ways. Each family in the Delgado-Gaitan study, for example, systematically rewarded children for work well done, completed homework, and good grades. Moreover, these "illiterate" parents recognized that their support could extend beyond helping with skills:

> Some parents assisted their children in school work by sitting with them to do homework and working out the problem, showing them examples for solving their problems, encouraging them to do their homework before playing, reading to them, taking them to the community library and providing them with a space at the kitchen table to do their homework. (Delgado-Gaitan, 1987, p. 28)

Parents in each of these studies understood that supporting children academi-

cally went beyond helping with skills to include emotional and physical support. Our own students have repeatedly confirmed these findings. For example, one parent wrote:

> I help my kids by staying together with them, by talking to them. I help them by confronting them and telling them what's wrong or right just as they do me. I help them when they need a favor or money, just as they do me. It's just like you scratch my back, I scratch your back with my family.

Assumption 2: Directionality of Literacy Interactions

The phrase "you scratch my back, I scratch your back" points to a second false assumption of the predominant model—namely, that the "natural" direction of literacy learning is from parent to child, and, more narrowly, that the parent's role is to transmit literacy skills to the child. Interestingly, the example just cited was written through a collaborative mother-daughter writing process: the woman who wrote it was at a very beginning literacy level, and could only produce this text with the help of her daughter—it became a language-experience exercise for them.

This two-way support system characterizes the literacy interactions of many immigrant families. In fact, one study of parental involvement with very promising findings is based on a model of children reading to parents (Tizard, Schofield, & Hewison, 1982). This study found that children who read to their parents on a regular basis made significant gains, in fact greater gains than did children receiving an equivalent amount of extra reading instruction by reading specialists at school. Particularly significant was the fact that low parental English literacy skills did not detract from the results. This study suggests that the context provided by parents and their consistent support may be more important than any transfer of skills.

University of Massachusetts English Family Literacy Project work with immigrants and refugees indicates that the distribution and sharing of language and literacy practices in families is complex and by no means unidirectional from parents to children. Family members each contribute in the areas where they are strongest: instead of the parents assisting children with literacy tasks, the children help their parents with homework, act as interpreters for them, and deal with the outside world for them. Parents, in turn, often foster their children's first-language development and help in areas where they feel competent. One of the parents in our program wrote about how this works in her family:

> When I say some words wrong she corrects me. And sometimes I ask her how to say the word and she tells me. And I help her with her Spanish homework because she takes a class in Spanish in her school. I feel very happy that she helps me, and that she knows good English. Sometimes she laughs at me and I laugh too.

This uneven distribution of language and literacy skills in immigrant families often leads to highly charged, emotionally loaded family dynamics. The fact that the children's English and literacy proficiency may be more developed than the parents' can lead to complicated role reversals in which parents feel that respect for them is undermined and children feel burdened by having to negotiate with the outside world for their parents. Diaz et al. found that since children often took responsibility for conducting transactions with important social institutions (banks, schools, and so forth), "they assumed control and power usually reserved

for adults" (1986, p. 210).

A further example from one of our classes serves to illustrate the complexity of this parent-child role reversal. A teacher noticed that the handwriting in the dialogue journal of one of her students was not the student's own and, upon investigation, she learned that the student's daughter had written the journal for her mother. The teacher wrote back, inviting the daughter to keep a separate journal while letting the mother do her own work. The daughter responded with an entry about her own language use, ending with this:

> I'm glad my mother is going to school so she could speak English. It finally mean that I don't have to translate for her every time she watches a movie that she don't understand. I usually have to explain it to her. It must be hard for you to teach the students. You've also got to be patient. If one of your students don't understand what you mean then you have to explain it in a different way. I'll never be a good teacher because I'm not good at teaching.

Here the daughter is describing her own discomfort at being placed in the role of translator and teacher, a role she doesn't feel ready for. These comments suggest that in some families the power of the parents' learning may be that it reduces this parent-child literacy dependency, and frees the children to attend to their own development, including schoolwork.

What emerges from the composite of these studies and student writings is not at all a picture of deficit or literacy impoverishment, but instead a picture of mutual support—of family members working together to help each other in a variety of ways. Clearly a model that rests on the assumption of unilateral parent-to-child literacy assistance, with a neutral transfer of skills, misses important aspects of this dynamic and may in fact exacerbate already stressful family interactions.

Assumption 3: Family Contexts of Successful Readers

A third assumption concerns the nature of family contributions to literacy development. The recognition that certain ways of using literacy in the home may better prepare students for success in school is often accompanied by the assumption that children succeed because their families do specific school-like tasks with them—that home learning activities are the key to success for literate children and that literacy programs must provide support for this kind of interaction.

An examination, however, of the actual family contexts for the acquisition of literacy provides compelling counterevidence. Studies which examine the home literacy environments of successful readers (both lower and middle class) reveal a range of factors that contribute to literacy development. The Harvard study, for example, found no simple correlation between parents' literacy level, educational background, amount of time spent on literacy work with children, and overall achievement (Chall & Snow, 1982). Rather, the acquisition of literacy was found to be affected differentially by such factors. Indirect factors including frequency of children's outings with adults, number of maternal outings, emotional climate of the home, amount of time spent interacting with adults, level of financial stress, enrichment activities, and parental involvement with the schools had a stronger effect on many aspects of reading and writing than did direct literacy activities, such as help with homework.

Taylor's (1981, 1983) three-year study of six families of proficient readers pro-

vides further evidence that a wide range of home experiences and interaction patterns (rather than narrow, school-like reading and writing activities) characterizes homes of successful readers. Parents in this study often intentionally avoided "doing literacy" with their children in the ways they had been taught in school in order to avoid replicating what they remembered as negative experiences. The interactions around print varied from family to family and were, within each family, "situationally diffuse, occurring at the very margins of awareness . . . " (1981, p. 100). Specific types of interactions did not emerge as significant across families; rather, Taylor found that these interactions were *not* activities "which were added to the family agendas, but that they had evolved as part of everyday life" (1981, p. 100). She concludes:

> The approach that has been taken in recent years has been to develop parent education programmes which very often provide parents with a battery of specific activities which are designed to teach reading, and yet very little available information suggests that parents with children who read without difficulty actually undertake such "teaching" on any kind of regular basis. The present study suggests that there are great variations in approaches the parents have evolved in working with their children and that the thread that unites the families is the recognition that learning to read takes place on a daily basis as part of everyday life. (Taylor, 1981, p. 101)

A second study by Taylor and Dorsey-Gaines (1988) among poor urban families confirmed these findings, indicating that similar dynamics are at work across social classes. These studies indicate that successful readers' homes provide a variety of contexts for using literacy, and that literacy is integrated in a socially significant way into many segments of family life, and is not isolated as a separate, autonomous, add-on instructional activity. The more diverse the contexts for using literacy, the wider the range of literacy achievement factors affected.

Assumption 4: School Contributions to the Acquisition of Literacy

A further danger with the "transmission of school practices" model is that the focus may be shifted away from school roles and their interaction with home factors in literacy development. This view perceives what happens at home to be the key to school success, often assuming a direct correlation, even a cause-and-effect relationship, between home factors and school achievement. The flip side of this assumption is the claim that what happens at school is either less important or already adequate and need only be reinforced at home. Again, there is counterevidence from a variety of sources.

For instance, Heath's (1983) ethnographic investigations of three rural communities in the Piedmont Carolinas found not a lack of literacy practices in the two poorer, working-class communities, but a difference in the ways that literacy was used and perceived. In each community, there was a wide and different range of uses of literacy at home. The relationship between home and school literacy practices was significant: the ways of using print in middle-class homes were similar to those of the school. Since authority is vested in those belonging to the mainstream culture, the literacy practices of the mainstream become the norm and have higher status in school contexts. Heath's analysis suggests that the problem is not one of deficit in the family environment, but one of differential usage and power.

In case studies that examined both home and school contexts, Urzua (1986) contends that it is *school* rather than *home* factors that shape differences in attitudes and abilities relating to literacy. She reports that two refugee children who had homes seemingly less conducive to literacy acquisition were more successful in school. Although their mothers were illiterate in their first language, did not speak or read English, and provided no reading materials in the home, these children progressed greatly in reading and writing. In contrast, another child whose home was filled with reading materials (books, maps, newspapers, dictionaries, and so forth), who had his own study space and school supplies, and whose parents overtly supported his literacy development, had enormous difficulties with reading and writing. Urzua asks, "What makes children like Vuong, loved and encouraged by parents who have offered many possibilities for literacy events in their home, face school with rigidity and approach literacy with fear?" (1986, p. 108).

She suggests that the answer to this question may be found in the classroom experiences. Both of the children who came from less literate home environments were in classes where the teacher valued writing. In these classes writing took place nearly every day, a variety of writing genres (such as autobiographies, fables, journals) was offered, and subskills work (spelling, phonics) was subordinated to the expression of meaning. In the class of the child who came from a home providing more support for literacy acquisition, however, students never wrote more than one sentence at a time, filled in the blanks in workbooks, copied dictionary definitions, and so forth. Urzua then asks, "How powerful are the influences of curriculum and instructional techniques . . . . which either teach children to find their own voices, or discourage them from doing so?" (1986, p. 108).

The Harvard study (Chall & Snow, 1982) offers further support for the view that school factors account as much as home factors for the acquisition of literacy. Classroom factors that affected literacy included the availability of a wide variety of reading materials, the amount and nature of writing, the use of the library, and the quality of instruction. The researchers found that in the early grades, "either literate, stimulating homes or demanding, enriching classrooms can make good readers" (Snow, 1987, p. 128). However, while strong parental factors could compensate for weak schooling up to grade three, even those children with positive home literacy environments fell back after this point if school practices were deficient. While positive home factors were sufficient to carry a child in the lower grades, both positive home and school factors were necessary for literacy development in the upper grades.

One particularly interesting finding of the Harvard study (Chall & Snow, 1982) is that even with such family-based factors as parental aspirations, the interaction with school factors is critical. When the researchers investigated the validity of the commonly held view that parents' hopes for their children affect their children's school success, they found that although these aspirations per se did not influence achievement, parental willingness to advocate for their children (talking to teachers about academics, and so on) did. The authors link this finding to teachers' expectations: parental involvement in an advocacy role is important because it shapes teachers' perceptions, which in turn influence student achievement. One of our students expressed this understanding succinctly:

> The parents should go to all of the meetings of the parent-teacher organization

at the school one afternoon each month because you help your son's or daughter's progress in class. If you help the teacher, the teacher help your children.

The need to take on an advocacy role presents a particular challenge for low-income language-minority parents. They may, for cultural reasons, defer to the authority of the teacher and the school, assume that the teacher is always right, or feel unable to intervene on behalf of their children because of the power differential between themselves and school authorities. Further, the time pressures from working several jobs and dealing with the survival demands of poverty-level existence may impede advocacy. The studies suggest, however, that for less literate parents it is precisely this attitude of advocacy and critical examination of school practices that may be their most powerful tool in shaping their children's school achievement.

How can parents with limited language and literacy skills provide input into schooling? Some of our own students have suggested that this dilemma can be approached through "critical support"—that being an advocate can range from helping the teacher "so the teacher help the children," to monitoring children's progress and letting teachers know of parental concerns, to participating in parent advocacy groups. Taking this perspective, the family literacy class can become a context for critical and reflective thinking about education, as well as for modeling ways of shaping children's education.

Assumption 5: The Social Context for Family Literacy

A final problem with the "transmission of school practices" model rests with the focus on parents' inadequacies, which obscures scrutiny of the real conditions giving rise to literacy problems. The social context for parents' own needs and strengths is often ignored or seen as an inherently negative factor that ultimately undermines the possibilities for learning. This social context may include, as Rosa suggests, family obligations, as well as housing, health care, and employment needs. In one study, parents identify "family health problems, work schedules, having small children, receiving only 'bad news' from school, and fears for safety" (Moles, 1982, p. 46) as factors inhibiting participation. Taylor and Dorsey-Gaines (1988) argue that it is the lack of social, political, and economic support for parents in dealing with these contextual concerns that puts children at risk (as opposed to lack of support by parents for children's literacy development).

Cultural differences may also be perceived as impediments to participation. Some parents, for example, come from cultures that view education as the exclusive domain of schools (Oliva, 1986). The solution is then framed in terms of "overcoming" cultural differences and "molding" parents to conform to school-determined expectations: parents must reorder their priorities so that they can become involved in school-determined activities. In one case, for example, programs were advised to send home notes in the imperative, telling parents they *must* attend meetings (Tran, 1986). But in order to make parental involvement possible, programs must provide support services (such as child care and translators for meetings).

Certainly these are important ways to encourage involvement; nevertheless, the underlying formulation remains: social-contextual and cultural factors are considered external factors that need to be dealt with outside the classroom, through program structures. Inside the classroom, the assumptions, goals, processes, and con-

tent of parental involvement still follow a "from the school to the parent" model. The expectation that "obstacles" should (or can) be taken care of as a precondition to participation may result in reinforcing the advantage of students who come from the least complicated social contexts.

On the other hand, if we believe that the social context is not a negative external force and recognize that the conditions which shape family literacy are central to the learning dynamic itself, we can begin to make literacy work relevant for parents (Collier, 1986). Although being expected to conform to culturally unfamiliar school expectations and practices may intimidate parents and drive them away, being encouraged to explore their own concerns and to advocate for their own expectations may free parents to become more involved with their own and their children's literacy development. In this alternative formulation, housing, education, work, and health issues are acknowledged and explored in the classroom, with literacy becoming a tool for addressing these issues, and cultural differences are perceived as strengths and resources that can bridge the gap between home and school. As these issues become part of the curriculum content, literacy will become more socially significant for families, which, as Taylor and others so often remind us, is what characterizes the families of successful readers.

Again, this alternative perspective is supported by both researchers and parents. The study of Mexican families in San Diego (Diaz et al., 1986) confirms the importance of situating literacy in its social context. Rather than starting with mainstream ways of using literacy and transmitting them to families, researchers looked at community practices as the basis for informing and modifying school practices. Local residents were trained as ethnographers to collect data on community writing practices; they then worked with teachers to use this data in developing classroom instructional modules. The function of writing to address community issues proved to be important.

> Parents, students, and others all impressed us with their concern for social issues that permeate community life. Virtually every conversation that began as a discussion of writing eventually turned to the problems of youth gangs, unemployment, immigration, the need to learn English and the like. It became clear to us that writing, schooling and social issues are complexly related phenomena in the community. (Diaz et al., 1986, p. 211)

Thus, by investigating community uses of writing, the researchers discovered essential social issues, which, when introduced into the classroom, became the vehicle for improving writing instruction. Student writing focused on the content of students' and families' interactions, life histories, conditions within the families, and parents' educational values. The underlying direction of curriculum development here is from the community to the classroom, rather than from the classroom to the community.

In Pajaro Valley, parents and children are involved in a project in which they read, discuss, and write children's stories together (Ada, 1988). Critical for this project is the positive value placed on the use of the home language both as a vehicle for communication within the family and as the foundation for children's academic success. Also important is the linking of readings to students' lives through a process of dialogue: readers share personal reactions and feelings, relate the story to their own experiences, critically analyze the events and ideas in the stories,

and discuss real-life applications of this understanding. The process of sharing Spanish children's literature becomes the foundation for then asking children and parents to write their own stories about significant events in their lives. This kind of family literacy work draws on parents' cultural strengths and encourages critical thinking about key issues in family life.

Another project designed to build home and school links is the Chinle Navajo Parent-Child Reading Program (Viola, Gray, & Murphy, 1986). In this project, children bring books home and share them with their parents, either by reading or telling the stories. Children also write their own books based on Navajo stories they have heard from their parents and grandparents. In the process, the home culture is validated and promoted through literacy work; the parents' cultural knowledge contributes to rather than conflicts with school learning.

Work with parents in the UMass Project confirms the power of instruction centered around community and family issues. Through a process of co-investigation with students, our teachers have identified concerns about the new immigration law (the Immigration Reform and Control Act), housing, AIDS, language use at work, and bilingualism as relevant for their students. Students have developed their own language and literacy proficiency in the process of exploring these concerns through the use of collaboratively generated texts, thematic readings, language experience stories, Freirean problem-posing (Auerbach & Wallerstein, 1987; Wallerstein, 1983), dialogue journals, process writing, and photo stories. They have written letters to the editor about community problems, written and presented testimony for state funding hearings, and written about concerns for their children's schooling and their own language and literacy use in the community. One teacher reported that the quantity of her students' writings doubled when they wrote about immediate community issues such as day care. Not surprisingly, we have found that the quality of the work improves when the content is most closely linked with students' real concerns.

Implications for Family Literacy Program Design

The analysis in this article points to a social-contextual model of family literacy that asks, How can we draw on parents' knowledge and experience to inform instruction? rather than, How can we transfer school practices into home contexts? The goal then is to increase the social significance of literacy in family life by incorporating community cultural forms and social issues into the content of literacy activities. This model is built on the particular conditions, concerns, and cultural expertise of specific communities, and, as such, does not involve a predetermined curriculum or set of practices or activities. Instead, the curriculum development process is participatory and is based on a collaborative investigation of critical issues in family or community life. As these issues emerge, they are explored and transformed into content-based literacy work, so that literacy can in turn become a tool for shaping this social context.[3]

[3] Participants in the University of Massachusetts Family Literacy Project are documenting how this curriculum development process has been implemented in our classes. This curriculum development report (forthcoming, fall 1989), will include a discussion of how students' concerns are identified, a range of themes which have emerged in our classes, how language and literacy have been extended around these themes, and issues which have arisen in the process of putting this participatory, social-contextual approach into practice.

This approach fosters a new formulation of what counts as family literacy. This broadened definition includes, but is not limited to, direct parent-child interactions around literacy tasks: reading with and/or listening to children; talking about and giving and receiving support for homework and school concerns; engaging in other activities with children that involve literacy (such as cooking, writing notes, and so on). Equally important, however, are the following, often neglected, aspects of family literacy work:

1. *Parents working independently on reading and writing.* On the most basic level, just by developing their own literacy parents contribute to family literacy; as parents become less dependent on children, the burden shifts and children are freer to develop in their own ways.
2. *Using literacy to address family and community problems.* Dealing with issues such as immigration, employment, or housing through literacy work makes it possible for literacy to become socially significant in parents' lives; by extension it models the use of literacy as an integral part of daily life for children.
3. *Parents addressing child-rearing concerns through family literacy class.* By providing mutual support and a safe forum for dialogue, parents can share and develop their own strategies for dealing with issues such as teenage sex, drugs, discipline, and children's attitudes toward language choice.
4. *Supporting the development of the home language and culture.* As parents contribute to the development of the home language and culture, they build the foundation for their children's academic achievement, positive self-concept, and appreciation for their multicultural heritage. By valuing and building on parents' strengths, the status of those strengths is enhanced.
5. *Interacting with the school system.* The classroom becomes a place where parents can bring school-related issues and develop the ability to understand and respond to them. They can explore their attitudes toward their own and their children's school experiences. They can assess what they see and determine their responses, rehearse interactions with school personnel, and develop support networks for individual and group advocacy.

The function of family literacy programs becomes the promotion of activities, events, and practices that correspond to this broadened definition. Our own attempts to implement this approach with bilingual parents include using reading and writing in a variety of ways:

1. To investigate home language use (for example, documenting who uses what language, to whom and when)
2. To explore family literacy practices (for example, evaluating critically a "how to help your children with homework" guide sent home by the school which includes questions like these: Which of these things do you already do? Which would you like to do? Which do you think are not possible? What do you do that's not already included here?)
3. To explore cultural issues (for example, writing about children's positive and negative attitudes toward the home language, participating in a community Spanish literacy day, writing about faith healing)
4. To model whole-language activities that parents might do with children (for example, telling stories, making books)

5. To validate culture-specific literacy forms (for example, reading, writing, and telling folktales and proverbs)
6. To explore parenting issues (for example, exchanging letters with American parents in an Adult Basic Education program, writing letters of advice to pregnant teenagers in a high school program)
7. To use literacy to explore issues of learning and teaching (for example, responding to pictures of different educational settings in terms of their own educational experiences and expectations for children's education)
8. To address community, workplace, and health care issues (for example, writing a class letter about police discrimination to a local newspaper, writing testimony for funding hearings on adult education and community services)
9. To practice advocacy in dealing with schools (for example, writing letters about concerns to children's teachers)
10. To explore political issues (for example, writing language-experience stories about the elections in Haiti)

We began this article by offering a window on Rosa's home context for literacy learning and by showing that schools need to take this context into account. This broader perspective on family literacy reflects our approach to addressing Rosa's challenge. We would like to end with another piece of Rosa's writing that illustrates how her writing has developed following this approach. It also illuminates the complexity of this challenge and her strengths in taking it on. Rosa paints here a picture of the richness of family interactions as she reflects on language and literacy use in her life:

At Home
I talk to my kids about school.
I ask . . . ¿Como se portaron?
They say very good.
I continue to ask
about the food . . . and the homework.
They speak to me in english . . .
I say I am sorry . . .
Yo no entendi nada; por favor hablame
en Español. . . . The older boy says OK . . . OK
You study english you are supposed to
understand. They repeat again to me
slowly and more clearly. Yo les digo . . .
Muchas gracias. . . . I love you.

References

Ada, A. F. (1988). The Pajaro Valley experience: Working with Spanish-speaking parents to develop children's reading and writing skills in the home through the use of children's literature. In T. Skutnabb-Kangas and J. Cummins (Eds.), *Minority education: From shame to struggle* (pp. 224–238). Philadelphia: Multilingual Matters.

Auerbach, E., & Wallerstein, N. (1987). *ESL for action: Problem-posing at work*. Reading, MA: Addison-Wesley.

Bell, T. M. (1988, October). Keynote address at *Adult Learners: Arizona's Future* conference. Phoenix, AZ.

Business Council for Effective Literacy. (1989, April). Newsletter.

Cazden, F. (1986). ESL teachers as language advocates for children. In P. Rigg & D. S. Enright (Eds.), *Children and ESL: Integrating perspectives* (pp. 9-21). Washington, DC: TESOL.

Chall, J. S., & Snow, C. (1982). *Families and literacy: The contributions of out of school experiences to children's acquisition of literacy*. A final report to the National Institute of Education.

Collier, V. P. (1986). Cross-cultural policy issues in minority and majority parent involvement. In *Issues of parent involvement and literacy. Proceedings of the symposium at Trinity College* (pp. 73-78). Washington, DC: Trinity College, Department of Education and Counseling.

Delgado-Gaitan, C. (1987). Mexican adult literacy: New directions for immigrants. In S. R. Goldman & K. Trueba (Eds.), *Becoming literate in English as a second language* (pp. 9-32). Norwood, NJ: Ablex.

Diaz, S., Moll, L., & Mehan, K. (1986). Socio-cultural resources in instruction: A context-specific approach. In *Beyond language: Social and cultural factors in schooling language minority children* (pp. 87-229). Los Angeles: California State Department of Education and California State University.

Epstein, J. (1986). Parent involvement: Implications for LEP parents. In *Issues of parent involvement in literacy. Proceedings of the symposium at Trinity College* (pp. 6-16). Washington, DC: Trinity College, Department of Education and Counseling.

Freire, P. (1970). *Pedagogy of the oppressed*. New York: Seabury Press.

Goldenberg, C. N. (1984, October 10-13). *Low-income parents' contributions to the reading achievement of their first-grade children*. Paper presented at the meeting of the Evaluation Network/Evaluation Research Society, San Francisco.

Heath, S. B. (1983). *Ways with words*. Cambridge, Eng.: Cambridge University Press.

Issues of parent involvement and literacy. (1986). Proceedings of the symposium at Trinity College, June 6-7. Washington, DC: Trinity College, Department of Education and Counseling.

Moles, O. C. (1982, November). Synthesis of recent research on parent participation in children's education. *Educational Leadership, 40*, 44-47.

Nash, A. (1987). *English family literacy: An annotated bibliography*. Boston: University of Massachusetts/Boston, English Family Literacy Project.

Oliva, J. (1986). Why parent tutors? Cultural reasons. In *Issues of parent involvement and literacy. Proceedings of the symposium at Trinity College* (pp. 79-81). Washington, DC: Trinity College, Department of Education and Counseling.

Shor, I. (1986). *Culture wars: School and society in the conservative restoration, 1969-1984*. New York: Routledge & Kegan Paul/Methuen.

Simich-Dudgeon, C. (1987, March). Involving limited English proficient parents as tutors in their children's education. *ERIC/CLL News Bulletin, 10*(2).

Snow, C. (1987). Factors influencing vocabulary and reading achievement in low income children. In R. Apple (Ed.), *Toegepaste Taalwetenschap in Artikelen*, Special 2 (pp. 124-128). Amsterdam: ANELA.

Street, B. V. (1984). *Literacy in theory and practice*. Cambridge: Cambridge University Press.

Taylor, D. (1981). The family and the development of literacy skills and values. *Journal of Research in Reading, 4*(2), 92-103.

Taylor, D. (1983). *Family literacy: Young children learning to read and write*. Exeter, NH: Heinemann.

Taylor, D., & Dorsey-Gaines, C. (1988). *Growing up literate: Learning from inner city families*. Portsmouth, NH: Heinemann.

Tizard, J., Schofield, W. N., & Hewison, J. (1982). Symposium: Reading collaboration between teachers and parents in assisting children's reading. *British Journal of Educational Psychology, 52*, 1-15.

Topping, K., & Wolfendale, S. (Eds.). (1985). *Parental involvement in children's reading*. New York: Nichols.

Tran, B. T. (1986). Cultural issues in Indochinese parent involvement. In *Issues of parent involvement and literacy. Proceedings of the symposium at Trinity College* (pp. 65-66). Washington, DC: Trinity College, Department of Education and Counseling.

Urzua, C. (1986). A children's story. In P. Rigg & D. S. Enright (Eds.), *Children and ESL: Integrating perspectives* (pp. 93-112). Washington, DC: TESOL.

Viola, M., Gray, A., & Murphy, B. (1986, May). *Report on the Navajo Parent Child Reading Program at the Chinle Primary School*. Chinle School District, AZ.

Wallerstein, N. (1983). *Language and culture in conflict: Problem-posing in the ESL classroom*. Reading, MA: Addison-Wesley.

The work reported on this article was funded by Title VII Office of Bilingual Education and Minority Language Affairs, grant number G008635277, procurement number 003JH60021. The views, opinions and findings contained in this article are not to be construed as OBEMLA's position or policy, unless so designated.

The work reported on this article is the result of collaboration with UMass/Boston English Family Literacy project staff: Ann Cason, Rosario Gomez-Sanford, Loren McGrail, Andrea Nash, and Madeline Rhum. We owe a special debt of gratitude to the students whose work appears in the article and the many others who taught us about their ways of learning and teaching. We would also like to thank Candace Mitchell for her insightful critique of earlier drafts of this paper.

Workplace Literacy

OVERVIEW

Researchers have concluded that the literacies taught in the schools are quite distinct from the literacies that are required on the job. Educators must, at a minimum, consider the implications of differences between the schoolhouse literacy of "reading to learn" and the workplace literacy of "reading to do." Complaints about insufficient literacy often revolve around the demands in business and industry for increasingly skilled workers. While preparation of the next generations of workers is not the only charge of the schools, workplace readiness is central to the life of the nation and the economic happiness of the individual. At issue is the ability of graduates to handle present entry-level positions. But more than that, will they be prepared to acquire new skills as conditions change, will they prove sufficiently resilient as problem solvers, and will they achieve promotions to higher levels? The underliterate are almost certain to be confined to the lowest-paid positions.

In the excerpt from *Occupational Literacy Education* by Timothy Rush, Alden Moe, and Rebecca Storlie, the researchers review the literature on written and oral competencies required in occupations, and examine the literacy demands of 10 occupations. They also examine the literacy components of training programs for those occupations, paying attention to the congruence of the several occupations with literacy training, and evaluating the importance of literacy competency for job performance. Their charts make abundantly clear that literacy is a critical component of each of the occupations studied.

In a paper originally written for the Commission on Workforce Quality and Labor Market Efficiency of the United States Department of Labor, Jorie Philippi uses her years of experience in workforce education, both in civilian and military contexts, to analyze communications between educators and business people. She examines the historical relationships between business and education in the United States, basic-skills training within business and industry, and new communication efforts between education and business. She categorizes and describes collaborative activities of business people and educators, and contrasts the relationships of education and business in the U.S. with those of other industrialized nations. Philippi makes recommendations for improving communication between business and education.

Larry Mikulecky, in the first of his articles included here, describes a program aimed at stopping summer learning losses of students considered to be at risk for leaving the school system before they have earned their high school diplomas. This model program is an example of curriculum innovation that has come, at least in part, from concerns about adult basic-skills deficiencies and the urgency to break the old pattern of semiliteracy in the generation presently of school age. The program makes use of a combination of basic-skills instruction and job experience. Instructional time in the program is allocated differently from most classrooms in which teachers explain new approaches until they feel that most students have understood it and will be able to do it on the first try. In the model program, after an initial presentation of no more than five or 10 minutes, the students immediately practice the strategy that has been introduced, while the teacher and aide circulate to help those who need more explanation. Teachers in the program report using many of the program's teaching strategies during the regular year as well.

Mikulecky's second article focuses on the need for basic skills in the workplace. He reviews data deficiencies in basic skills that can be both costly and dangerous in business and industry, and analyzes the results of studies for their implications on skill attainment. He cites the American Performance Level study, the Young Adult Literacy study by the National Assessment of Educational Progress, and Canadian studies. Mikulecky makes it possible for his readers to understand the statements of alarm about adult literacy levels from the point of view of employers, and offers food for thought for those planning and evaluating basic skills curricula.

From Occupational Literacy Education, 1986. Reprinted with permission of Timothy R. Rush and the International Reading Association.

1

Introduction to *Occupational Literacy Education*

Timothy R. Rush
Alden J. Moe
Rebecca L. Storlie

Preparing people for success in occupational roles is a complex and difficult process. Functional competencies must be developed in critical areas ranging from affective characteristics, manual arts, and technical knowledge to mathematics, written language, and oral language. This book focuses on the development of written and oral language competencies required in occupational and training settings. Occupational literacy and the literacy competencies necessary for success in work and training environments are described. Building on the summary of human cognition, we offer instructional recommendations for developing occupational literacy and related competencies. The last chapter is devoted to methods of vocabulary development, and may be used in conjunction with the technical vocabularies listed in the Appendices.

The ability to competently read required, work related materials is defined here as *occupational literacy*. This definition, based on a concept of functional literacy (Kirsch & Guthrie, 1977-1978), is limited to competence with printed materials of all sorts. By definition, functional literacy varies according to individual demands of divergent roles, settings, and materials. Occupational literacy competencies comprise a subset of functional literacy. Required competencies vary from occupation to occupation and from job to job within occupations.

Occupational literacy development is an important aspect of prevocational, vocational, and on-the-job education. Occupational literacy related linguistic competencies – writing and oral language – also require instructional attention.

Literacy and Work

Until recently, little research has been done on the subject of work related literacy. The lack of information about the literacy requirements of specific occupations has been cited (Kirsch & Guthrie, 1977-1978; Sticht, 1980) as a serious obstruction to the development of effective occupational and literacy training programs. In their review of literacy programs in industrial, military, and penal settings, Ryan and Furlong (1975) noted only scattered reports related to the literacy requirements of industrial occupations. Systematic analysis of the literacy requirements of jobs, though relatively easy to conduct, has received little attention from researchers. Ryan and Furlong argued that, although many programs intended to improve adult literacy have been motivated by economic interests, the lack of research on occupational literacy makes it impossible to know if literacy training has any effect on successful employment.

Research on occupational literacy, sponsored largely by the United States Armed Forces, has provided insight about the extent to which reading is used in work and training settings and the nature of reading tasks in those settings. Sticht (1975) reported that incumbents in military jobs are consistently confronted with reading tasks which average two hours per work day. In the same report, Sticht noted that the difficulty of required reading materials often exceeded the measured reading abilities of successful workers. Kern (1970) observed results similar to those noted by Sticht. Disparities between reading requirements and reading abilities resulted in the disuse of technical manuals by military technicians.

In an examination of reading in the Navy, Sticht et al. (1977a) distinguished between two dominant uses of reading in occupational settings; *reading-to-do* tasks differ from *reading-to-learn* tasks in that the former are used to accomplish work while the latter involve retention of information for later use. According to this research, 75 percent of the reading tasks done by military personnel involve reading-to-do. In these tasks, written and graphic information is referred to and used, but is not learned. Sticht also noted that 1) materials encountered in reading-to-do are rarely unfamiliar to the worker; 2) such materials are commonly reread on a daily basis; and 3) the permanence of printed materials enables them to serve as a kind of external memory for workers.

A second study by Sticht et al. (1977b) analyzed reading-to-do tasks required of Navy personnel in ten occupations and training programs. The authors reported that fact finding and following directions are the most frequent reading-to-do tasks. Job related reading typically involves finding

facts or following directions presented in combined graphic and text formats. Workers and instructors used fact finding skills twice as often as they used skills in following directions; students used following directions skills twice as much as fact finding skills.

Literacy research on civilian occupations is less plentiful than research involving military occupations. Recent studies, however, indicate that the requirements of civilian occupations are similar to those of military occupations. Diehl and Mikulecky (1980) reported that, for a broad cross section of occupations, daily reading is almost universally required.

The amount of time spent on daily occupational reading in civilian contexts is substantial. In describing the reading habits of adults, Sharon (1973-1974) reported a median of 61 minutes spent on work related reading tasks. Mikulecky, Shanklin, and Caverly (1979) reported a mean of 73 minutes per day of work related reading. Diehl (1980) observed a mean work related reading time of 113 minutes per day. Diehl's figure is similar to the two hours per day reported by Sticht (1975) for military occupations.

Sticht et al. (1977a) and Diehl and Mikulecky (1980) called attention to important differences between the reading materials and processes observed in occupational settings compared to materials and processes observed in school settings. Reading-to-do tasks occur in about the same proportion in civilian occupational reading as in military contexts; reading-to-learn predominates in civilian occupational training settings.

In suggesting reasons why civilian and military workers can cope with reading demands which exceed their abilities, Diehl (1980) and Diehl and Mikulecky note the highly repetitive nature of on-the-job reading tasks and the influence of worker interest, motivation, experience, and specialized knowledge. They emphasize that workers can use extralinguistic cues (equipment and tools) to aid understanding. Diehl, however, observed that it may be inappropriate to view on-the-job reading materials as indicators of literacy demands, suggesting that such materials reflect only "opportunities" to use reading as a tool for increasing job efficiency and success. In most cases, workers have recourse to other sources (supervisors and coworkers, for instance) of necessary information.

Writing and Other Competencies

Diehl (1980) reported that in 64.7 percent of occupational writing examined, the task involved completing simple forms or preparing brief

memoranda. Writing tasks were repeated frequently enough for workers to master the most complex forms. Memoranda were simple, concise, and relatively easy to write. Diehl suggested that further research may show that writing competencies required for successful job performance are simple, and unrelated to the writing tasks observed in schools.

The nature of listening competencies required at work has received little attention from researchers. Sticht (1975), however, described studies which show that military personnel learn equally well through listening or reading and noted that it is possible for such personnel to learn from tape recordings played at accelerated rates.

A general sense of the importance of listening skills in occupational settings can be inferred from studies of adults in general. Rankin's study (1926) indicated that 70 percent of daily adult activities involve oral communication and 45 percent of communication involves listening. The amount of oral communication time typical of occupations varies considerably, but it seems likely that about 50 percent of such time requires listening.

It might also be inferred that the nature of reading and listening tasks in on-the-job and school settings is similar. Possible parallels between occupational listening and reading competencies, however, require examination through research.

Summary

Research dealing with the literacy competencies of occupations and training programs indicates that:

- reading tasks are part of virtually all occupations studied;
- workers perform reading tasks for major portions of the work day;
- reading materials and processes observed in work settings are distinctly different from those found in school settings; and
- occupational materials are successfully read by workers who seem to lack the necessary reading abilities.

Little is known about competencies related to occupational literacy. While writing tasks seem to be brief and highly repetitive in nature, occupational uses of oral language remain largely unexamined.

References

Diehl, W.A. *Functional literacy as a variable construct: An examination of attitudes, behaviors, and strategies related to occupational literacy.* Doctoral dissertation, Indiana University, 1980.

Diehl, W.A., and Mikulecky, L. The nature of reading at work. *Journal of Reading*, 1980, *24*, 221-227.

Kern, R.P. *Readability, reading ability, and readership.* Alexandria, VA: Human Resources Research Organization, 1970.

Kirsch, I., and Guthrie, J.T. The concept and measurement of functional literacy. *Reading Research Quarterly*, 1977-1978, *13*, 485-507.

Mikulecky, L.J., Shanklin, N.L., and Caverly, D.C. *Adult reading habits, attitudes, and motivations: A cross sectional study.* Monograph in Language and Reading Series, No. 2. Bloomington, IN: School of Education, Indiana University, 1979.

Rankin, P. *The measurement of the ability to understand spoken language.* Doctoral dissertation, University of Michigan, 1926.

Ryan, T.A., and Furlong, W. Literacy programs in industry, the armed forces, and penal institutions. In J.B. Carroll and J.S. Chall (Eds.), *Toward a literate society.* New York: McGraw-Hill, 1975.

Sharon, A. What do adults read? *Reading Research Quarterly*, 1973-1974, *9*, 148-169.

Sticht, T.G. *Reading for working: A functional literacy anthology.* Alexandria, VA: Human Resources Research Organization, 1975.

Sticht, T.G. Minimum competency in functional literacy for work. In R.M. Jaeger and C.K. Tittle (Eds.), *Minimum competency achievement testing.* Berkeley, CA: McCutchan, 1980.

Sticht, T.G., Fox, L., Hauke, R., and Zaph, D. *The role of reading in the navy NPRDC TR 77-77.* San Diego, CA: Navy Personnel Research and Development Center, 1977a.

Sticht, T.G., Fox, L., Hauke, R., and Zaph, D. *Integrated job skills and reading skills training program.* San Diego, CA: Navy Personnel Research Development Center, 1977b.

2

Studies of Occupational Literacy Requirements

The studies which form the basis of this book were conducted in response to a need expressed by employment and guidance counselors, adult educators, and students in adult basic education, for information about the literacy demands of specific occupations. The occupations studied are frequently chosen as career goals by adult basic education students. Officials of educational and social service agencies confirmed the need to examine the following ten occupations:

- Account Clerk
- Auto Mechanic
- Draftsman
- Electrician
- Heating/Air Conditioning Mechanic
- Industrial Maintenance Mechanic
- Licensed Practical Nurse
- Machine Tool Operator
- Secretary
- Welder

Goals

While the work of researchers such as those cited previously has contributed to important knowledge about the nature of occupational reading requirements and abilities, much indepth study of reading and other linguistic requirements of work remains to be done. Knowledge of such factors, their interrelatedness, and their effects on job performance are

essential to those concerned with prevocational, vocational, and on-the-job training.

The goals of the studies discussed here were to 1) identify the reading, writing, listening, and speaking competencies required in ten skilled and semiskilled occupations; 2) compare those requirements with those in corresponding vocational training programs; and 3) evaluate the relative importance of the identified competencies to successful job performance.

Definitions and Assumptions

Occupational literacy, like functional literacy, can be a confusing concept. Functional literacy, for example, has been defined to include speaking, listening, writing, and computational competencies. Job success depends on many levels of competence. In occupational settings, job knowledge, experience, dependability, motivation, cooperativeness, and perseverance are important cognitive and affective qualities. Though not directly involved with literacy, competence with language and numerical processes is often necessary for successful job performance.

As mentioned earlier, the definition of occupational literacy used in these studies – functional competence in reading job related materials – was derived from Kirsch and Guthrie (1977-1978) who proposed that functional literacy be defined according to the demands of specific situations in terms of competency in reading alone. In their view, listening, speaking, writing, and computation involve functional cognitive competence. In these studies, listening, speaking, and writing were defined as literacy related competencies.

The following assumptions prompted and guided the investigations.

1. Reading, writing, listening, and speaking competencies are essential to worker success in the occupations examined.
2. Job supervisors view occupational literacy and related competencies as essential to successful worker performance.
3. Successful workers view occupational literacy and related competencies as essential to successful job performance.
4. Higher levels of literacy and literacy related competencies are required for success in occupational training programs than are necessary for success on the job.
5. The literacy and literacy related competencies required for success on the job and in vocational training programs are attainable by adults whose levels of literacy place them in adult basic education programs.

Population

The population in each study represented two groups, workers at job sites and students in training program courses. For each of the ten occupational categories, three job sites and three courses from a related training program curriculum were studied.

The thirty job sites studied were selected at random from an exhaustive list of employees representing a broad spectrum of business and industry in the greater Lafayette, Indiana (population approximately 115,000), area. At each job site, one worker and an immediate supervisor were involved. Workers were selected from pools of employees who had spent a minimum of six months on the job and who were judged by their employers to be functioning successfully in their work roles.

For each occupational category, three courses from a corresponding postsecondary vocational training program were studied. For the categories of electrician and heating/air conditioning mechanic, one course from an appropriate trade union apprenticeship program was studied. Each occupational category was involved with three courses from the curriculum of a state supported, postsecondary occupational training program. A total of twenty-five different courses were studied because the curricula of several of the occupational training programs had common course requirements.

Data Collection

Methods of data collection were similar in both job site and occupational training settings. Two thousand word samples of required reading materials were obtained from job site and occupational training program courses, including samples of textbooks, technical manuals, handbooks, instructional manuals for the installation and repair of equipment, memoranda and checklists written in informal and nonstandard English, and diagrams accompanied by clarifying words and phrases. When possible, passages were selected from materials according to the guidelines of the Dale-Chall (Dale & Chall, 1948) readability formula and the Fry Readability Graph (Fry, 1977). When samples were too brief for such guidelines to apply, entire samples were transcribed and analyzed. Some of the samples, such as memoranda and diagrams, were inappropriate for valid evaluation with the readability formulas used; such samples were, however, included as part of the corpus of language used to establish occupational vocabulary lists which appear in the appendices of this book.

Oral language requirements of the occupations studied were obtained by tape recording the oral language of workers or instructors and their coworkers or students during a typical one hour period of a workday. Oral language samples from training programs included both classroom and laboratory settings. Language recorded in this way was subsequently transcribed and keypunched for computer analysis.

Writing samples produced by workers and students in conjunction with their work and training activities were collected at each site.

Data Analysis Procedures

To determine the readability of required reading materials from the job and occupational training program sites, two well-known instruments were used. The Dale-Chall formula and the Fry Readability Graph were programed in the FORTRAN language compatible with the Purdue University CDC 6600 mainframe computer. Each sample of required reading material was analyzed with both readability instruments. The readability results for each of the materials were then used to establish a readability range for work and training materials for each occupation.

Reading materials were examined with respect to the way in which they were used on site. Sticht's distinction (1975) between purposes for reading guided this aspect of the studies. The degree to which reading was used to accomplish work or to learn information was evaluated. Reading-to-do as opposed to reading-to-learn distinctions were made for required reading at each job and training program site. All required reading materials from job and training program sites were rated according to the level of formality of usage in which they were written.

Tape recordings of oral language produced on the job were transcribed and visually analyzed to establish the general level of English usage (Pooley, 1974).

Writing samples collected at each of the sites were evaluated for level of usage; legibility; and special characteristics such as inclusion of diagrams, sketches, and other aids to reader comprehension. Written and oral language samples were then combined. Computer programs were used to prepare technical vocabulary lists for each occupation as well as lists of the highest frequency words for each occupation and for the entire language sample.

Results of the studies are discussed in the following chapter.

References

Dale, E., and Chall, J. A formula for predicting readability. *Educational Research Bulletin*, 1948, *27*, 37-54.

Fry, E. Fry's readability graph: Clarifications, validity, and extension to level 17. *Journal of Reading*, 1977, *21*, 242-252.

Kirsch, I., and Guthrie, J. The concept and measurement of functional literacy. *Reading Research Quarterly*, 1977-1978, *13*, 485-507.

Pooley, R. *The teaching of English usage*. Urbana, IL: National Council of Teachers of English, 1974.

Sticht, T. Reading for working: A functional literacy anthology. Alexandria, VA: Human Resources Research Organization, 1975.

3

Literacy Competencies in Ten Occupations

This chapter presents and discusses the findings of studies of the reading, writing, and oral language requirements of the ten occupations and related training programs described in Chapter 2. The studies focused on the importance of reading to job performance, the amount of time spent reading, and how reading was used on the job. Reading and literacy related competencies necessary to successful job performance were examined through analysis of sample reading materials, handwritten communications, and tape recordings.

Data on competences required for success in occupational training programs were obtained through observations and from samples of reading, writing, and oral language from the curriculum of relevant vocational college programs.

On the Job

Literacy Requirements

Work related reading was performed daily by each of the workers involved in the studies. Consistent with the findings of Diehl (1980), Table 1 shows that reading was universally required of those studied, though there were variations in time spent reading and the nature of the reading task.

Table 1

SUMMARY OF ON-THE-JOB READING

Occupation	Average Daily Reading Time (minutes)	Type Material	Readability Score	Use	Frequency	Prose Style
Account Clerk	120	Correspondence, ledgers, lists, tables	Grade 13 to College Grad	To do	Daily	Informal, formal
Auto Mechanic	60	Technical references, memos, work orders	Grade 10 to College Grad	To learn, to do	Daily	Informal, formal
Draftsman	45	Technical references, blueprints, code books, reference books, memos	Grade 10 to College Grad	To do	Daily	Informal, formal
Electrician	120	Technical references, blueprints, schematics	College Graduate	To do	Daily	Informal, formal, technical
Heating/Air Conditioning Mechanic	45	Manuals, blueprints, memos	Grade 10 to College Grade	To learn, to do	Daily	Informal, formal

Industrial Maintenance Mechanic	42	Service manuals, handbooks, operating manuals, memos, workorders	Grade 10 to College Grad	To learn, to do	Daily	Informal, technical
Licensed Practical Nurse	78	Charts, tables, card files, handbooks, reference books	Grade 10 to College Junior	To learn, to do	Daily, weekly	Informal, formal
Machine Tool Operator	36	Manuals, handbooks, checklists, memos	Grade 9 to College Grad	To do	Daily	Informal, technical
Secretary	168	Reference books, tables, lists, letters, handbooks, memos	Grade 16 to College Grad	To do	Daily	Informal, formal
Welder	24	Blueprints, tables, memos	N/A	To do	Daily	Informal

Workers reported that they sometimes reread the same material several times per workday, and that such repetition was necessary. Repeated reading was recognized as a means of avoiding costly memory related errors. Workers' statements reflected the consistent view that careful readings of checklists, instructions, and directions were necessary to job success and security. For example, when asked if careless reading of on-the-job materials could affect work, a draftsman replied, "Definitely! The entire reliability of our finished product may rely on proper sizes and testing requirements derived from [reading] the [building] code."

The average time spent reading work related materials during the workday was 66 minutes, with a range of 24 minutes to 4 hours per day. This average reading time is similar to the 61 minutes reported by Sharon (1973). Studies by Diehl (1980) and Sticht (1975) found that workers engaged in work related reading for approximately 2 hours per day.

The difference between the findings of Diehl and Sticht compared to those of Sharon and the studies discussed here may be due to the use of differing definitions of reading. Lacking a comprehensive definition of reading, workers and supervisors probably did not include time spent reading information in formats other than printed discourse; the use of labels, tables, charts, figures, blueprints, schematics and checklists, may not have been considered aspects of reading. In fact, all of these studies may underestimate the actual amount of reading done by workers. Recent research by Mikulecky (1982) indicates that workers themselves underestimated by an average of 45 percent the amount of time they spent reading.

Reading-to-do work was the predominant use of reading in all occupations. Only licensed practical nurses and industrial maintenance mechanics reported reading on the job in order to learn information. Nevertheless, in these, as in the other occupations, reading-to-do was the dominant use of reading. Similar findings were obtained by Diehl (1980) and Sticht (1975) who, respectively, reported that reading-to-do constituted 66 percent and 75 percent of on-the-job reading.

Reading materials encountered by workers participating in the studies discussed here were varied in length, type, level of usage, and format. Table 1 reflects this diversity. Materials included single page memoranda, forms, procedural checklists, and lengthy handbooks. Memoranda and forms often employed informal, truncated usage. Example 1 presents samples from the account clerk and machine tool operator occupations which are typical of materials found in all occupations studied.

Example 1. Informal styles of reading materials: Account clerk and machine tool operator.

Account Clerk

1. Check paid invoice file.
2. Check completed purchase order.
3. Go back to original receiving order.
4. Check current invoice file.

Machine Tool Operator

1. Clean shavings from table.
2. Release locating pilots and clamp.
3. Remove pieces and lay them aside.
4. Position clamp bar, align stops, partly secure clamps.

The level of longer documents was generally formal, highly technical, and complex. Workers frequently were required to read texts such as those shown in Example 2.

Example 2. Technical styles of reading materials: Heating/air conditioning and nursing.

Heating/Air Conditioning

Room thermostats and remote bulb insertion and immersion thermostats shall be two pipe, of the proportional relay type, except where two positioned action is necessary, and the temperature settings and reset ranges shall be adjustable to best meet the actual operation conditions.

Nursing

Attached to the trachea, this gland is located beneath the larynx and above the sternum. It is U-shaped (two lobes connected by an isthmus) and secretes a hormone called *thyroxine*.

Rating of the English used in materials read by workers on the job was done using Pooley's varieties (1974) of English usage. For all occupations, except welder, the range of usage varied from nonstandard, informal, and ungrammatical through formal and highly technical.

The format of on-the-job reading materials, whether informal or formal and technical in style, usually involved graphic presentation of information. Tables, charts, graphs and figures appeared both in conjunction with and apart from written text. Workers were required to find and inter-

pret such combinations of text and graphic information to perform daily routines. Skill in reading graphic information in formats such as those shown in Examples 3 and 4 is an important occupational literacy competency.

Example 3. Text and graphic format.

Textual Format

Inspection Openings

All pressure vessels for use with compressed air, except as permitted otherwise in this paragraph, and those subjected to internal corrosion, or having parts subject to erosion or mechanical abrasion (see UG-25) shall be provided with a suitable manhole, handhole, or other inspection opening for examination and cleaning. (Pressure Vessel Codebook, p. 42)

Tabled Information

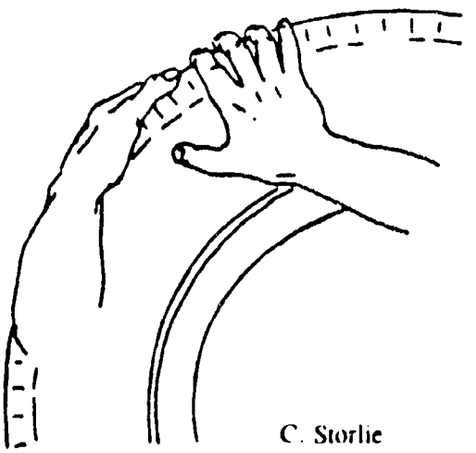
Building Element	Type I	Type II			Type III		Type IV	Type V	
	Noncombustible				Combustible				
	Fire Resistive	Fire Resistive	1 Hr.	N	1 Hr.	N	M.T.	1 Hr.	N
Exterior Bearing Walls	4 Sec. 1803 (a)	4 1903 (a)	1	N	4 2103 (a)	4 2103 (a)	4 2103 (a)	1	N
Interior Bearing Walls	3	2	1	N	1	N	1	1	N
Exterior Nonbearing Walls	4 Sec. 1803 (a)	4 1903 (a)	1	N	4 2103 (a)	4 2103 (a)	4 2103 (a)	1	N

(Uniform Building Code)

Graphic formats involving illustrations were found in each occupation. Example 4 shows a typical illustration.

Technical vocabulary presented special demands to workers in each occupation. Necessary words were sometimes purely technical, having single occupation specific meanings. More often workers had to recognize the occupational meanings of everyday words with multiple meanings.

Example 4. Typical illustration.



Wheel bearing adjustment can be checked by a push-pull procedure. Place one hand at ten o'clock on the outboard side of the tire. Place the other hand on the inside. Push and pull. Note any play. Adjust as necessary.

Placement of Hands in Checking Wheel Bearing Play

Literacy Related Requirements

Samples of written language from the studies revealed that only rudimentary skills were required. When Pooley's criteria (1974) for levels of English usage were applied to the writing produced at job sites, distinctions between printed and handwritten prose were clearly evident. Whereas the level of printed reading materials was usually formal and highly technical, handwritten materials were informally written and could sometimes be classified as nonstandard English. The secretarial occupation stood alone in requiring a formal level of writing.

Clarity was the chief requirement of on-the-job writing. Typical handwritten communications were done in concise, ungrammatical, nonstandard English containing only essential information. Messages and memoranda omitted articles (a, an, the) and resembled the style of English found in telegrams. Example 5 shows typical written communications from occupational settings.

Example 5. On-the-job writing.

Nature of Trouble: Two lights out.
Action Taken:

1. Replaced tube in one light fixture.
2. Replaced ballast in light fixture.
   Light operating now, but still needs new ceramic end connection.

Diversity of legibility in handwriting was tolerated as long as it did not detract from communication of important information. In most occupations, workers produced scripts which would probably be considered marginal by elementary and secondary school standards. Higher standards of legibility were expected in the drafting and secretarial occupations in which quality of handwriting represented the employer to outsiders.

Oral Language

Oral language use on the job involved the production and interpretation of clear but informally constructed English utterances. Much language encountered was social and not directly related to work. When talk was work related, it focused on specific tasks, tools, and equipment.

Speakers often worked at being understood – repeating, rewording, referring to similar tasks, and demonstrating as necessary. Listeners questioned, restated instructions, and acted out tasks to make sure they understood what they had heard. Then they acted on the information and instructions they had heard. Example 6 presents typical work related conversation.

Example 6. Work related oral language.

Account Clerk

"I think the credit is more than the debit. We would end up not writing a check, because we would get a debit from them for thirty-three eighty-four for two of these. We paid them because they gave us past due notices on them and Jones-Perkins finally put them through."

Secretary

"Yes, may I talk to Mr. Jones, please? I'm calling in reference to your telephone etiquette seminar. We don't have enough people to hold the class, so we're going to have to cancel."

Except in the secretarial jobs, in which formal usage was frequently employed, an informal level of usage typified on-the-job oral language. Clarity of communication was clearly more important than what might be termed "good grammar."

The Training Programs

Literacy Requirements

Reading was a daily requirement of students in all training program courses associated with the ten occupations. As in the research reported by Sticht (1975) and Mikulecky (1982), reading was required in both training and work settings, but the nature of reading differed in these settings.

In contrast to the job sites where reading-to-do prevailed, reading-to-learn was dominant in the training programs. In reading-to-do, short term memory serves to temporarily store the information for immediate use. In reading-to-learn, short term memory functions to organize information for storage in long term memory.

Compared to workers, students spent much more time per day reading. During the school day and after hours, students read in classroom and laboratory situations, as well as during periods of independent study. Student reading, as estimated by instructors, ranged from forty-two minutes to six hours per day. Table 2 shows the estimated reading load for training programs corresponding to each occupation studied. The actual reading time for individual students was probably greater than the estimates shown. The table shows ranges based on estimates from three courses; most students were enrolled in more than three courses.

Reading in the training programs required extensive use of expository and descriptive prose. Textbooks, reference books, and sets of complex instructions were part of the daily required reading. In most required reading, students carefully studied and learned the information presented in text, graphic, and text/graphic formats similar to those found at the job sites.

Book length materials were used by students in classroom, laboratory, and independent study. Shorter materials in the form of quizzes, instruction sets, and chalkboard notes written by instructors were frequently encountered in the school settings. These materials, too, presented information in combinations of text and graphic formats.

The usage observed in the required reading materials was varied. As with materials from the job sites, styles ranged from informal and ungrammatical to formal, highly technical prose. Example 7 shows instances of informal and technical usage.

Table 2

SUMMARY OF TRAINING PROGRAM READING

Occupation	Average Daily Reading Time (minutes)	Type Material	Readability Score	Use	Frequency	Prose Style
Account Clerk	187	Textbooks, references, ledgers, chalkboard notes	Grade 11 to College Grad	To learn, to do	Daily	Informal, formal, technical
Auto Mechanic	108	Textbooks, references, figures, tables, chalkboard notes	Grade 9 to College Grad	To learn, to do	Daily	Informal formal, technical
Draftsman	174	Textbooks, references, blueprints, figures, tables	Grade 9 to College Grad	To learn, to do	Daily	Informal, formal, technical
Electrician	280	Textbooks, references, figures, tables, chalkboard notes	Grade 10 to College Grad	To learn, to do	Daily	Informal, formal, technical
Heating/Air Conditioning Mechanic	120	Textbooks, references, figures, tables, blueprints	Grade 11 to College Grad	To learn, to do	Daily	Informal, formal, technical

Industrial Maintenance Mechanic	300	Textbooks, references, figures, tables, blueprints	Grade 10 to College Grad	To learn, to do	Daily	Informal, formal, technical
Licensed Practical Nurse	360	Textbooks, references, figures, tables, charts, procedures	Grade 12 to College Grad	To learn, to do	Daily	Informal, formal, technical
Machine Tool Operator	60	Textbooks, references, figures, tables, blueprints	Grade 9 to College Grad	To learn, to do	Daily	Informal, formal, technical
Secretary	280	Textbooks, references, figures, tables	Grade 10 to College Grad	To learn, to do	Daily	Informal, formal, technical
Welder	187	Textbooks, references blueprints, figures, tables	Grade 8 to College Grad	To learn, to do	Daily	Informal, formal, technical

Example 7. Informal and technical usage.

Informal

Instructor (referring to a chalkboard diagram)

> "Let's go back to those...to what's happening inside that stator winding. We've got a rotor with magnetic poles rotating. Right? Okay, what happens when all of a sudden we've got no magnetic load? Here we were inducing some current and now we don't have anything to induce against...."

Technical

Specifications

> Work required for installation of electrical rough-in in precast concrete slabs.
>
> 1. In general, the electrical contractor shall
>
> - Provide all layout of holes through the precast concrete slabs to the general contractor for approval by the precaster.
> - Core drill through the voids in the precast slabs for installation of conduits and boxes.
> - Conceal all conduits for lighting, outlets, etc., in the fill above the precast concrete slabs.

In each of the training programs, a specialized vocabulary was present. Words which made up these technical vocabularies took two forms. True technical words, peculiar to each occupation, formed one class of technical vocabulary; the second component involved everyday words with special occupational meanings. Mastery of both types of technical vocabulary was essential to student success.

Writing

In occupational training, writing took the form of note taking and writing examinations and assignments. In all cases, accuracy of information was more important than standard English usage. Instructional emphasis on grammatical correctness was present in the secretarial courses, but was not apparent in other courses. There was similarity between training program and on-the-job requirements in this regard; only when poor writing interfered with clear communication was it considered a problem. Example 8 shows samples of written language produced by training program students.

Example 8. Typical student writing.

Examination Questions

Automotive Mechanic

Question: One cause of failure of an engine to start is?
Response: Wet distributor.

Welder

Question: What is the function of a regulator?
Response: Controls gas flow.

Handwriting produced by students, like that produced by workers, was often marginally legible. As with grammar and usage, poor handwriting was accepted unless it caused communication problems.

Oral Language

Oral language in training program classrooms and laboratories was less social than was the case at the job sites. Instructor-to-student and student-to-student interaction during formal meetings was consistently subject oriented.

The level of oral language usage during instruction was typically informal. Instructors did not read from prepared notes during lectures; their language was repetitive and often conversational as they presented and demonstrated concepts and methods.

Student talk during instructional sessions was normally restricted to brief questions and responses to questions. When directed toward peers, student talk was informal, but predominantly task oriented. Like those of their instructors, student utterances were informal and sometimes nonstandard. Example 9 shows excerpts of classroom and laboratory talk.

Example 9. Classroom oral language.

Heating/Air Conditioning Mechanic

Instructor: Does anybody need help getting started? Do you want to go through the problem where you find static?
Student: I have a question. Can you run your bathroom – our small bathroom – and the utility together?
Instructor: No. The proper way to do that is to put the utility room separate from the kitchen.

Electrician

Instructor: A thousand? Okay, a mill is going back to being one hundredth of a cent. It's going back to like property tax. Like one tenth of a cent, there are one hundred cents in a dollar. So, one tenth of one hundredth is what a thousand mills to a dollar is. It goes back to a tax rate.

Note taking was an important adjunct to listening in all training programs. Students regularly took notes during instructional sessions, those notes were similar to other forms of occupational writing produced by students and workers – informal and marginally legible.

Occupational Literacy and Readability Estimates

Readability refers to ease of understanding or comprehension of written text. Readability formulas have been developed to gauge the appropriateness of written materials for intended audiences. Popular formulas address two text based factors – sentence complexity and vocabulary diversity – in predicting readability. The Dale-Chall Formula (1948) and Fry Readability Graph (1977) were used to assess the difficulty of required reading material in these studies.

The scores of these formula methods require careful interpretation because text understandability or comprehensibility can be influenced by nontext factors such as reader interest and motivation, familiarity with text, task repetition, and the availability of information from graphics and other sources. Nontext factors may reduce the effective difficulty of any given text. The moderating effects of these factors are probably reflected in studies such as one by Sacher and Duffy (1978), who found that workers were capable of using information obtained from materials two grade levels above the measured reading abilities of the workers.

It seems likely that the scores of the Dale-Chall formula and the Fry Graph overestimate the reading skill levels necessary for successful performance by workers and students. It is not that these instruments were in error; they are widely used and accepted tools. However, they are among the popular readability formulas which rely solely on easily quantifiable aspects of printed materials. In occupational reading, whether on the job or during training, nontext factors enable workers and students to understand material which would be incomprehensible to persons who are disinter-

ested, unmotivated, or unfamiliar with the subject matter and nontext sources of information.

While teachers can have confidence in readability formulas as predictors of general levels of text comprehensibility, the limitations of formulas must be borne in mind. Many factors which contribute to the comprehension of written text are not assessed by formulas and some of these factors can be addressed instructionally. Methods of developing occupational reading skills during preoccupational and occupational training are described in Chapter 5.

Summary

Literacy and literacy related competencies were required in each of the workplace and training program settings examined in studies of ten occupations. Reading, writing, and oral language were used to meet work and training requirements by all workers and students who participated.

Work related reading involved slightly more than an hour a day on the job and more than twice that time in the training program. Reading materials were written in several varieties, ranging from informal to formal, technical styles. Important information was presented in text, graphic, and combinations of text/graphic formats. Readability formulas indicated high levels of text difficulty.

The difficulty of reading requirements was moderated by the nature of reading in occupational settings. On the job, reading involved repetitive use of the same materials from day to day. Once mastered, apparently difficult reading materials seemed inconsequential. Training program reading involved vocabulary, concepts, and information formats which were introduced and mediated through the instructional process. Like workers, students probably faced less severe reading demands than formula scores suggest.

Literacy related competencies – writing and oral language communication – required only rudimentary skills. Written communications, on the job and in the training programs, typically employed nonstandard or informal usage. Marginally legible handwriting was accepted in most work and training settings. Nonstandard usage and marginal handwriting were accepted unless they interfered with clear communication.

In oral language, clarity of expression, not standard English usage, was the criterion for competence. Speakers and listeners needed to be concerned about understanding, not usage.

The reading demands of the occupations examined were probably overestimated. The methods used to assess readability did not account for worker/student familiarity with the vocabulary and concepts found in required reading materials. The repetitive nature of on-the-job reading was not considered during the assessment of readability.

References

Dale, E., and Chall, J. A formula for predicting readability. *Educational Research Bulletin*, 1948, *27*, 37-54.

Diehl, W. *Functional literacy as a variable construct: An examination of attitudes, behaviors, and strategies related to occupational literacy.* Doctoral dissertation, Indiana University, 1980.

Diehl, W., and Mikulecky, L. The nature of reading at work. *Journal of Reading*, 1980, *24*, 221-227.

Fry, E.P. Fry's readability graph: Clarifications, validity, and extension to level 17. *Journal of Reading*, 1977, *21*, 242-252.

Kirsch, I., and Guthrie, J. The concept and measurement of functional literacy. *Reading Research Quarterly*, 1977-1978, *13*, 485-507.

Mikulecky, L. Job literacy: The relationship between school preparation and workplace actuality. *Reading Research Quarterly*, 1982, *17*, 400-419.

Moe, A.J., Rush, R.T., and Storlie, R.L. *The literacy requirements of an account clerk on the job and in a vocational training program.* 1980. (CS 005 248)

Moe, A.J., Rush, R.T., and Storlie, R.L. *The literacy requirements of an automotive mechanic on the job and in a vocational training program.* 1980. (CS 005 251)

Moe, A.J., Rush , R.T., and Storlie, R.L. *The literacy requirements of a draftsman on the job and in a vocational training program.* 1980. (CS 005 250)

Moe, A.J., Rush, R.T., and Storlie, R.L. *The literacy requirements of an electrician on the job and in a vocational training program.* 1980 (CS 005 252)

Moe, A.J., Rush, R.T., and Storlie, R.L. *The literacy requirements of a heating and air conditioning mechanic on the job and in a vocational training program.* 1980. (ED 179 918)

Moe, A.J., Rush, R.T., and Storlie, R.L. *The literacy requirements of an industrial maintenance mechanic on the job and in a vocational training program.* 1980. (CS 005 254)

Moe, A.J., Rush, R.T., and Storlie, R.L. *The literacy requirements of a licensed practical nurse on the job and in a vocational training program.* 1979. (ED 179 917)

Moe, A.J., Rush, R.T., and Storlie, R.L. *The literacy requirements of a machine tool operator on the job and in a vocational training program.* 1980. (CS 005 247)

Moe, A.J., Rush, R.T., and Storlie, R.L. *The literacy requirements of a secretary on the job and in a vocational training program.* 1980. (CS 005 249)

Moe, A.J., Rush, R.T., and Storlie, R.L. *The literacy requirements of a welder on the job and in a vocational training program.* 1980. (CS 005 253)

Pooley, R. *The teaching of English usage.* Urbana, IL: National Council of Teachers of English, 1974.

Sacher, J., and Duffy, T. *Reading skill and military effectiveness.* Paper presented at the meeting of the American Educational Research Association, Toronto, 1978. (ED 151 745)

Sharon, A. "What do adults read?" *Reading Research Quarterly,* 1973, *9,* 148-169.

Sticht, T.G. *Reading for working.* Alexandria, VA: Human Resources Research Organization, 1975.

Sticht, T.G. *Basic skills in defense.* Alexandria, VA: Human Resources Research Organization, 1982.

Philippi, Jorie W., "Facilitating the Flow of Information Between the Business and Education Communities." In *Investing in People: A Strategy to Address America's Workforce Crisis*, Commission on Workforce Quality and Labor Market Efficiency. Washington, D.C.: U.S. Department of Labor, June 1, 1989.

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Final Report

June 1, 1989

(This project was funded under Purchase Order No. 99-9-4757-75-009-04 from the U.S. Department of Labor, Commission on Workforce Quality and Labor Market Efficiency. Opinions stated in this document do not necessarily represent the official position or policy of the U.S. Department of Labor, Commission on Workforce Quality and Labor Market Efficiency.)

EXECUTIVE SUMMARY

FACILITATING THE FLOW OF INFORMATION

BETWEEN THE BUSINESS AND EDUCATION COMMUNITIES

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Research Findings:

From the late 1800s through the 1920s, business exerted a substantial influence on the nation's public education system. This influence was manifest in such practices as the ability grouping of students, reflecting a production-oriented assignment of tasks intended to maximize their completion; and the organization of school management, modeled on business management structures. While business influence waned somewhat during the next three decades, employers remained active in public education through representation on local school boards and in other activities intended to affect school policy and operations.

Several factors combined in the 1960s to distance temporarily the business and education communities. The reexamination of the roles of society's institutions, occasioned by the civil rights movement, collective bargaining by teachers, and the active involvement of community groups in the decision-making process of local education systems, served to decrease business interest and activity in education policy.

However, an intensified era of business education activity resumed in the 1970s and early 1980s. Encouraged by changes in federal employment and training policy which gave employers a larger role in local program planning, private employers renewed their communications with educators by providing data on actual and projected vacancies, listing placements to be provided for student part-time and summer positions, and offering programs to facilitate academic achievement in areas considered critical, e.g., mathematics and science.

School-business partnerships or collaboratives were another important development during the period. The focus of many business-education partnerships was on providing school-to-work transition assistance in the form of career exploration, job search, and world-of-work orientation. More recently, these collaborative efforts have incorporated initiatives to raise student achievement levels using business-financed incentives, such as monetary awards for grades that demonstrate achievement and escrowed higher education scholarships.

In a related development, to meet the need for qualified workers, business organizations are increasingly providing basic skills education for their employees as a continuing and integral part of their investment in worker training and development. Moreover, these basic

skills are taught in the context of job activities or job simulations. This customized, job-specific basic skills instruction is most often referred to as "workplace literacy." A critical feature of workplace literacy programs is that a combination of information and expertise from the fields of education and employment training must be brought to bear. The level of success achieved in this regard is key to the effectiveness of all business-education communication.

With respect to the effectiveness of the various models of business-education collaboration (school/business collaboratives; Private Industry Councils; corporate and union-sponsored worker education programs; and customized community college programs for local business), improvements will require educators to recast their role as receivers of services and resources from business to one of more active participation in translating workplace requirements into the relevant curricula of schools.

Business-education communications in other countries provide insight into the path that improvements may take in the U.S. Foreign examples are particularly instructive regarding approaches to improving the quality and timeliness of the information about business needs communicated to schools, the benefits of early inclusion of career exploration in students' academic experience, and using schools to serve as a placement and referral intermediary for students who are not college bound.

Policy Recommendations:

• Develop curricula that teach actual workplace problem-solving and information processing skills, as well as teamwork methods, which facilitate job retention. The education community should take the initiative and become a "giver," not just a "receiver," in school/business collaboration, especially with respect to overcoming the difficulty in translating workplace requirements into curricula.

• Develop and disseminate a model for business-school communication, focussing on the quality and content of what should be communicated and the roles of each partner in achieving mutually beneficial, long-term collaborative relationships. Private Industry Councils might serve as the lead agents in such a model, which should include development of a prototype information collection instrument, guidelines for participants, and a means of evaluating program content, input, process, and product.

• Conduct further research on the role of the federal government in business-education communication. More information is needed to determine how to involve local corporate and education representatives in mutually-supportive collaborative efforts. Research could identify the appropriate facilitating role for government.

Facilitating the Flow of Information Between the Business and Education Communities

Jorie W. Philippi

There is a growing concern over the gap between the educational skill achievements of America's youth and workers, and those required for entry and retention in the labor force. Changing demographics, along with the constant restructuring and technological upgrades that keep American business competitive, have resulted in the imminent danger of a national workforce shortfall. Increasingly, employers are facing the reality of not having enough qualified workers to fill available positions. Where once employers had a surplus of qualified applicants and could replace a worker whose job performance or ability to be retrained was inadequate because of low basic skills, they now find that qualified, retainable entry-level and promotable workers are at a premium.

At the same time, school systems, whose primary job is transmitting those skills necessary for functioning in our society, are reporting the effects of shifting student populations-- namely, overall decreases in enrollment, lowered levels of skill attainment by students, and persistently high dropout rates (Committee for Economic Development, 1987; U.S. Conference of Mayors, 1988). Despite concerted attempts over the last decade to improve school performance, significant change has remained a slow and somewhat elusive process. Youth continues to drop out-- at very high rates in many urban areas; of those who do graduate, a disturbingly high proportion still do not come to jobs with the requisite math and reading skills. Thus, each year large numbers of youth are leaving the school environment, and entering the labor market, unprepared to carry out their jobs.

Up to now these youth have taken jobs which did not require much literacy, but which still provided sufficient wages for self-support. They comprise the 30 million members of our

current workforce who are under-skilled, unable to be retrained because of their present low level of basic skills, and in danger of being displaced (Dole, 1989). At the same time, the low-skilled jobs which have been available to the bottom of the workforce now represent less than 40 per cent of all new jobs and are steadily disappearing. Companies report that only one out of five high school graduates who apply for a position is functioning at a basic skills level acceptable for entry-level hiring, and of those hired, only one out of three is retained for longer than 90 days. Turnover rates for entry-level positions are often quoted as being as high as 150-300 per cent.[1] At the same time, national unemployment rates have dropped to 5 per cent, and in many areas of the country are as much as 2-3 per cent lower than the national average.

The seriousness of this problem, and the potential short- and long-term economic ramifications of it, have caused both employers and educators to recognize the need to improve, increase, and intensify communication in order to achieve their interrelated goals. In an attempt to provide direction for meeting that need, the remainder of this paper investigates existing systems and levels of communication between employers and education/training communities here and abroad. Additionally, it makes recommendations for developing and refining the information exchange processes that will produce effective education for qualifying and retraining workers to meet current and future workplace performance requirements.

I. What has been the form and motivation for business involvement in publicly supported education up until the present time?

An early period of business leadership:

From the late 1800s through the 1920s, there existed a period of business leadership which defined the fundamental management principles and organizational structure of the

emerging system of free, universal public education. The influence of business, specifically large manufacturers, on the developing comprehensive public education system was easily identifiable. It could be seen

- in educators' adoption of student ability grouping and differentiated performance standards (i.e., assignment of tasks to maximize individual and group production outcomes),
- in the organization of school management (i.e., top-down, centralized control; governance by a board of directors, headed by a superintendent or professional manager; clear division of management-- administrators, and labor-- teachers and staff), which mirrored the structure of business organizations,
- and in the legislation enacted to create formal vocational education (i.e., reflecting the influence of of business in controlling the supply and demand of labor). (Meyerson & Zemsky, 1985; Useem, 1986).

In its early years, public education reflected and fed the nation's growth and prosperity as a manufacturing economy. The influx of immigrants into the cities during this time swelled public school enrollments and motivated business to actively pursue legislation that increased the availability of specific vocational training programs (to prepare for jobs in manufacturing, the trades, and agriculture) within the public school system (Grubb & Lazerson, 1974). Mandatory public schooling provided free education for the total citizenry and, in so doing, contributed to raised levels of general well-being and increased opportunities for upward social mobility for the average person. The manifestation of equal opportunity through education helped underwrite the "American dream" and thus indirectly motivated worker productivity for realizing personal goals and ambitions.

<u>The business leadership shift from national policy level to localized involvement:</u>

During the developing years of universal public education, business leadership activities

implied a sphere of influence on a national or state policy level, in contrast to the localized nature of business leadership and involvement which characterized the next three decades. From the 1920s through the 1950s, business assumed a less vocal, but nonetheless active role in influencing the education community. During this laissez-faire period, business gave input to the education system primarily through extensive representation on local school boards. Changes in statutes governing the election of school board members required them to finance their own campaigns; in larger school districts, especially, this resulted in candidates who possessed wealth and who were members of the upper or managerial class (McMullen & Snyder, 1987). Consequently, school policy and operations decisions often promoted the viewpoints and interests of the business community.

A time of political unrest and distancing:

Several factors combined in the 1960s to distance temporarily the business and education communities. The reexamination of the roles of society's institutions, occasioned by the civil rights movement and the controversy over Vietnam, brought about changes in the nature of business-education relationships and created a decade marked by social activism and anti-private sector disenfranchisement. Collective bargaining by teachers and the active involvement of community groups in the decision-making processes of local education systems served to decrease the amount of business interest and activity in education policy at this time (Timpane, 1982).

A period of resumed intensity:

An intensified period of business education activity resumed in the 1970s and early 1980s. Encouraged by changes in federal employment and training policy which gave employers a larger role in local program planning, private employers renewed their communications with educators. They helped manage training programs and, concerned with the growing plight of

the country's large school districts, again became actively engaged in education improvement efforts. The business community assumed roles in government-mandated education and training programs by serving on Comprehensive Employment and Training Act (CETA) policy councils (PICs). Business leaders who served on PICs helped implement training programs that targeted job placement for the unemployed and a growing number of lower-skilled youth. Business also responded to the international space and arms technology race by participating in science, math, engineering, and vocational projects instituted under the Carl D. Perkins Act (1984) and the Math/Science Bill (1984).

The contributions of business to education during this period included not only money and materials, but commitments of time and personnel as well. The information communicated to educators by business people at this time consisted of data on actual and projected occupational vacancies, plans and program ideas for facilitating maximal educational achievement of all students (especially in the areas of math and science to ensure continued international leadership and defense), and listings of placements to be provided for student part-time and summer positions.

Corporate efforts to influence the upgrading of public education at state and community levels during this period evidenced themselves in the founding of school-business collaboratives, such as the California Business Roundtable, the Boston Compact, and a variety of similar ventures (McMullen & Snyder, 1987; National Alliance of Business, 1987). Some of these involved business as representative members of Private Industry Councils; in others, business leaders served as members of local or ad hoc groups which emerged to plan for collaborative efforts.

Business leaders connected the reduced quality of education in many schools with the

availability of fewer skilled workers, and the subsequent threat of losing America's international competitive position. This led to inquiries from business about what could be done to help reverse the situation (McMullen & Snyder, 1987). The focus of many of the business-education partnerships that resulted was to assist secondary students with the school-to-work transition process. This was accomplished by providing support programs for career exploration, job search, and employability skills instruction that would help students enter the workforce. Interim objectives to achieve these goals frequently addressed measurable improvements in school attendance, dropout rates, and graduate placement in post-secondary education. The role of business often was realized by the provision of activities designed to acquaint students with the nature of the world-of-work -- namely, career exploration days; field trips to, and guest speakers from local industries; participation in educational activities at local cooperating colleges; classroom practice in filling out job application forms, producing student resumes, and role-playing job interviews; and student placement in part-time jobs to "experience" work (Prager, 1980; Schilit & Lacey, 1982; U.S. Department of Education, 1984).

In response to business concerns over the dwindling ranks of qualified job applicants, more recent efforts have incorporated instructional time specifically dedicated to raising student skill levels, in some cases by providing students with business-financed incentives in the form of monetary rewards for grades and escrowed higher education scholarships (National Alliance of Business, 1987; U.S. Department of Education, 1984).

A new strand of activity called "Workplace Literacy":

Because of rapidly changing job requirements and skills deficits among members of the existing workforce, a second strand of business-education activity has evolved in the 1980s. More and more frequently the media carries stories about "workplace literacy programs," i.e., employer-sponsored remedial basic skills programs for employees. Business organizations are

now providing basic skills education for their employees as an ongoing, integral part of employers' investment in employee training and development at an increasing rate, in order to meet their needs for qualified workers. For several decades many large corporations--including Control Data, General Motors, Polaroid, and Ford Motors-- offered academic training to their employees, usually through tuition reimbursement plans for attending classes outside of work. At first, such programs were categorized as Human Resource Development and were frequently included as part of employee benefits packages (Fields, 1986). Over time, with the recognition of a declining skill level in increasing numbers of entering workers and the rising requisite skill level necessary to redeploy longtime employees, many of these companies found it more efficient to develop their own in-house educational programs, independently or with joint sponsorship from organized labor.

Research on efforts to improve employee literacy skills (collected from extensive military studies and private sector pilot programs), produced strong evidence that intense academic training on basic skills did not easily transfer to improved job performance because of the fundamental differences between academic and workplace applications of basic skills. Traditional academic reading can be categorized as "reading to remember information," while workplace applications primarily are those in which the worker uses readily available job print materials (such as manuals, regulations, or graphic aids) intermittently while performing a job task. The type of reading done on-the-job can be categorized as "reading to do" and utilizes reading processes for locating information and for using higher level thinking strategies to problem solve. Occupational writing processes differ, too. They place less emphasis on academic criteria like grammar and spelling and focus more on skill in organizing clear, readable products; accurately summarizing events; and mastery of thinking skills which enable analysis, elaboration, and extension of written ideas. Workplace applications of mathematical processes for calculating information and for problem solving also go beyond

the traditional basics of number concepts and computation skill-drill; competent workers need math proficiency levels that enable them to use math concepts to reason and interpret data.

Research demonstrates that the highest rates of transfer from instruction to improved job performance occur when basic skills are taught in the context of job simulations or activities (Diehl & Mikulecky, 1980; Philippi, 1987, 1988; Sticht, 1982). Developing programs of job literacy training that are built from the charts, manuals, and processes that workers use to perform tasks ("contextually functional curriculum") ensures that instruction will be meaningful to employees in terms of what they are already familiar with, i.e., their jobs. Using the existing "mental hooks" (schemata) derived from their work environment and experience to attach new information helps ease the incorporation of new knowledge into the old (Shoemaker, 1967; Fingeret, 1984; Farr, Carey, & Tone, 1985; Valentine 1985). It is important to note, however, that it is **not** the job tasks themselves that are the goals of instruction, but rather the basic skills needed by a worker to accomplish the tasks on a given job. Functional context workplace literacy curriculum emphasizes information processing. Instruction focuses on showing employees how they can perform the processes, on learning how to learn (Laster, 1985). By breaking processes into the procedural steps characterized by job task analysis and by providing direct instruction in thinking strategies, functional context workplace literacy programs enable employees to develop self-questioning and mental activity-monitoring patterns (metacognition) which help them to become independent learners who can recognize and correct their own processing errors. And, having the opportunity to practice the newly learned skills on the job every day in the same context in which they were taught helps workers retain new skills and continue to use them. If, in fact, workers have successfully learned the job-related basic skills presented in effective workplace literacy programs, the results should be evidenced in higher job accuracy, productivity, and employee retention/ promotion figures, along with lower accident rates (Philippi, 1988). Consequently,

customized job-specific basic skills instruction for employees ("functional context workplace literacy") is now being encouraged and utilized with increasing frequency, as part of employee development and training programs (U.S. Departments of Labor and Education, 1988; American Society for Training and Development, 1988).

The development of such workplace literacy programs requires a combination of information and expertise from the fields of education and employment training. Larger corporations use in-house trainers, educators, and instructional designers to develop these programs (Business Council for Effective Literacy, 1987; Skagen, 1986). Smaller businesses are turning to community and technical colleges to jointly develop and deliver workforce literacy programs.[2] As this newly incorporated form of "basic skills training" for employees expands, the interaction and communication between the business and education communities will need to become more extensive in order to maximize its potential impact.

Spin-off business-education collaborative efforts in workplace literacy include investigations into the feasibility of using job-specific basic skills instruction in pre-employment and displaced worker training for JTPA-eligible populations. Using the vehicle of job simulations and job materials to teach remedial basic skills to prepare program participants to enter or reenter the labor market allows occupational training and education components to be taught simultaneously and thus shortens the length of time required for program completion. In several states, studies of such programs have begun in response to immediate regional needs for more qualified workers to enter targeted industries.[3] In addition, several school districts and youth employment programs have created models that incorporate job-specific basic skills applications into their secondary or basic skills curriculum to better prepare students for survival in the workplace.[4] A number of major educational publishing houses also are pursuing development of instructional materials for secondary, adult

education, and employment training markets that focus on transferable job-specific basic skills (information-processing skills used in numerous occupational areas).[5]

II. How effective are current business-education communication configurations?

As noted in the previous section, business has become increasingly involved with the education community in a variety of ways during the 1980s. It is difficult, however, to make a "blanket statement" of the overall effectiveness of communicating business needs to educators. Many different levels and models of collaboration have been instituted between the business and education communities; and several of the workplace literacy models are too recent to have yet produced sufficient data with which to evaluate their long-term impact on worker eligibility and performance. Therefore, to convey a more accurate picture of the effectiveness of the current state of business-education communication, five general categories of collaborative activity have been identified and selected for examination individually. These are:

- school/business collaboratives (system-wide compacts, adopt-a-school programs, and student-focused school-to-work transition programs),
- programs utilizing Private Industry Councils
- corporate and union-sponsored worker education programs,
- customized community, technical, and junior college education programs for local businesses, and
- business/education communication systems in other developed countries.

School/Business Collaboratives: In their recent national assessment of school/business partnerships (Allies in Education, 1987), McMullen and Snyder report that almost a quarter of all U.S. public school districts are involved in some type of partnership activity with the

private sector, and the movement appears to be still growing. A survey report from the National Center for Education Statistics, (February, 1989), states that the number of education partnerships in public schools rose from 42,200 in 1983-84 to 140,800 in 1987-88, with the more recent partnership figure representing direct service to 9.3 million students nationwide.

The National Alliance of Business (The Fourth R: Workforce Readiness, 1987) identifies six different levels of partnership involvement for businesses who form collaboratives with schools. These range from broadly defined activities that require large investments of resources with goals for policy setting and systematic educational improvements, to allocating moderate amounts of funding and personnel to assist with school management and staff development, to sponsoring special activities and incentives of donating specific materials or equipment. On all levels the impetus for involvement appears to come from business leaders within the community, who perceive their role as that of "giver" to the educational "receiver." Partnerships are usually entered into without expectations for direct, short-term benefits to business other than the promotion of these efforts in their literature and media ads as a means to demonstrate "good will." Anticipated short-term benefits to education are discrete improvements in students' skills and knowledge. In the long run, businesses hope to improve the quality of the future labor pool and develop better-educated consumers with stronger purchase power (McMullen & Snyder, 1987).

Given the wide variety of structures and approaches used in school/business partnerships, the process of examining the effectiveness of their intercommunication is facilitated by classifying them according to the focal point of their activities. Three major functional school/business collaborative classification categories that have been identified by McMullen and Snyder are: 1.) system-wide school programs, 2.) individual school programs, and 3.) individual student programs (usually targeting disadvantaged youth):

1.) System-wide programs are less prevalent than the others and require the highest level investment of business resources. They may focus on affecting all the schools within an urban district, (e.g. the Boston Compact), or within a state (e.g., the California Business Roundtable). They work toward institutional change and policy reform for improving public school performance, and require significant contributions from numerous members of the business community, as well as long-term commitments. Larger businesses, government agencies, and institutes of higher learning tend to be involved with larger school districts. Fourteen per cent of all school/business partnerships in 1987-88 were of this variety (National Center for Education Statistics, 1989).

In system-wide partnerships, communication usually occurs at the highest organizational level between CEOs and Superintendents or State Department of Education Directors. This type of collaborative is generally formed in response to crises in school performance throughout the system. Initial activities often include a funded study to document baseline statistics of critical school performance measures, such as attendance, grades, dropout rates and post-school placement in work or higher education-- measures with which low ratings are frequently associated for large, urban, high poverty districts. Forty-five per cent of all schools involved in partnerships in 1987-88 were classified as "high poverty schools" on the basis of student eligibility for free or reduced-price lunches (National Center for Education Statistics, 1989). Communication between partners follows the baseline statistical study for a district, usually in the form of meetings and reports, for the purpose of goal-setting, program planning and implementation, and progress reporting.

The National Alliance of Business (1987) cautions that consensus on the critical nature of the problems and the setting of common goals are necessary to the success of the collaborative.

Additionally, it recommends that the presence of a business intermediary, such as a Private Industry Council or Chamber of Commerce, greatly enhances communication by organizing and prodding local business into action. The intermediary agency can also help expand existing partnerships, and can assist in linking representatives from appropriate organizational levels to expedite collaborative decision-making processes.

2.) Individual school programs, often referred to as "adopt-a-school" plans, are the most common type of school/business collaborative. McMullen & Snyder (1987) report that 22 per cent of the 9,000 school districts surveyed by the U.S. Department of Education in 1984 had one or more adopt-a-school partnerships within their districts. This class of school/ business collaborative is loosely defined and may involve only limited or sporadic contact between partners for a specified length of time (e.g., one or two years), or may evolve into a long-term, comprehensive relationship. According to the National Center for Education Statistics, in 1987-88, 32 per cent of all school/business partnerships were individual school programs initiated by the school principal. Typical activities in 1987-88 included business contributions in the form of monetary rewards or scholarships(44 per cent), materials, such as computer equipment or use of facilities (14 per cent), visits by business people as guest speakers to assist with special classroom projects or programs (45 per cent), and sponsorship of student tutoring programs (12 per cent). In 73 per cent of all partnerships, business provided guest speakers, special demonstrations, or equipment (National Center for Education Statistics,1989). Communications in this type of program are usually conducted by a designated mid-management employee and the principal, sometimes with the addition of locally appointed oversight committee members. It is normally limited to initial contact for jointly determining education needs and forms of business responses, scheduling of activities, periodic monitoring and reporting of program features, and reports documenting program outcomes.

3.) Individual student programs focus on specific groups of youth. These may be high achievers, for whom business provides awards, scholarships, jobs, enrichment programs or donated equipment. Business also provides employability instruction and work experience (similar to cooperative education programs but of shorter duration) to average students who are unprepared for the working world. Another youth population often targeted for this type of program is the underachieving student, whose grades are lower than the academic potential he or she demonstrates on achievement tests. Business and higher education institutions frequently partner with schools in these programs to provide extra classes, mentoring, and jobs to motivate future success. Twenty per cent of the partnerships in 1987-88 were of this variety (National Center for Education Statistics, 1989). Specific content areas that are often targeted include: math or science, reading or writing, arts or humanities, civic or character education, and career awareness. Recently, a growing number of collaboratives have focused resources on youth in danger of dropping out, providing programs to encourage school attendance, graduation, drug prevention, and job placement. For 1987-88, the number of partnerships focused on this population was five per cent (National Center for Education Statistics, 1989).

All of these programs have a common goal of helping youth make a successful transition from school to work. The programs attempt to identify and remedy those deficiencies that would hinder entrance to the workforce. Most of these programs serve students during their junior and senior years of high school, hold special small classes to maximize individual attention, use employability skills curricula, and provide work experience. These collaboratives are often able to access additional federal funding through the JTPA because they target economically disadvantaged students who lack working parent role models and who are in need of jobs (McMullen & Snyder, 1987).

Communication between the business and school communities in student-focused

programs is much like that described above for system-wide and individual school programs because individual student programs tend to operate within one school or district. Slight variations in communication occur when the programs are operated by community-based organizations outside the school, or when JTPA funding is utilized-- usually requiring additional record-keeping and reporting. Little or no evidence is reported of direct information about employer needs being communicated to educators, other than vacancy listings. Performance standards and workplace applications of basic skills necessary for retention and promotion are usually not communicated. (An exception to this is the state of Michigan, which has solicited input from major industries located within the state, through the Governor's office, as part of the development of an employment qualification test for graduating high school students.) The reason such information is rarely communicated may be because school/business collaboratives are viewed by business as interventions primarily to help students achieve initial entry to the labor force, and are only indirectly viewed as providing lifetime training for a quality workforce.

Programs Utilizing Private Industry Councils (PICs): Private Industry Councils (PICs) often serve as the intermediary agents that facilitate communication in school/ business collaboratives. JTPA regulations governing PIC membership mandate a composition of at least 51 per cent local business leaders, with the remaining representation to be drawn from education, labor, and the general community; this configuration should support communication between education/employment training providers and the business community. JTPA programs are designed to train or retrain potential or displaced workers to become more productive. Regulations specify that training include an education component for participants who are low level- or non-literates, or who have not yet earned a high school diploma or its equivalent. PICs generally contract with community-based organizations, proprietary schools, special service vendors, and local secondary and post-secondary school

systems for training services. Payment for services is often contingent upon meeting performance standards, (e.g., specified numbers of participants successfully placed after training who remain employed for a minimum number of days). Two strands of information must be communicated to these education/employment training providers: predicted vacancies in the geographical area and academic and occupational entry-level skill requirements. Entry-level requirements for basic skills applications as they are used in the workplace have not generally been part of the information made available to providers of instruction. PICs, in varying degrees of efficiency, collect and make this information available to the providers.

Projected vacancies and requisite occupational skill levels are relatively easy for employers to identify and describe, and for providers to translate into specific training competencies and criteria. Continuous industrial restructuring and technological upgrades create the need for constant updating and communication of this information.

Traditionally, academic requirements have been defined as reading at or above the 8th grade level and possessing or working toward a G.E.D. or high school diploma. However, lower unemployment rates create the need to serve increasing numbers of participants previously classified as hard-to-employ, many of whom have literacy skills well below the 8th grade level. For many of these participants, completing the educational requirements can mean as much as 200 hours of school-type remedial basic skills instruction. Most participants really only want the occupational training, and have not been successful in previous academic learning situations; consequently, they frequently drop out of the programs before meeting this educational requirement. This, coupled with the growing frequency of inadequately prepared high school graduates who apply for entry-level jobs, and the overall decrease in numbers of applicants, indicates a need for business to reevaluate and redefine basic skills requirements as more than just minimally acceptable reading grade levels or levels of school attendance or a

G.E.D. There is a need to communicate those specific workplace basic skills applications that are necessary for competent performance of job tasks-- for entry, retention, and promotion in the labor force. Alternatively, the business community is faced with extended JTPA training programs that do not train participants quickly enough to meet their labor force needs.

Corporate Worker Education Programs: For a number of years, large corporations have been providing educational opportunities for their employees. Usually packaged in the form of tuition reimbursements for courses taken away from the worksite, education benefits were often negotiated by unions and encompassed worker enrollment in job-enhancing studies on the levels of higher education or adult basic education. As the number of available qualified entry-level and retainable workers decreased, more and more businesses looked toward providing their own in-house remedial skills programs for their workers. These began with the assumption that the educational intervention should focus on the development of academic basic skills that previously had not been mastered. In a recent bulletin (1987) the Business Council for Effective Literacy reported that UAW negotiated agreements with Ford, General Motors, and Chrysler from 1984-86 totaling more than $320 million to establish basic skills programs for employees. Under these agreements, the corporations provide part of program funding and the balance was covered by deductions from wages to cover training costs. The majority of these programs operate under agreements similar to that of UAW-Ford, in which provision of all technical training is the responsibility of management and all other work-related and non work-related educational needs or desires of employees are addressed through a collaborative institution or agency, such as the UAW-Ford National Education, Development, and Training Center. Through programs developed or sponsored by such Centers, (like UAW-Ford's employee Skills Enhancement Program), workers are offered courses that provide not only basic reading or math to function in every-day life, but also give instruction in requisite skills for statistical quality control, computerized numerical control of machinery, and use of robotics on the production lines. Joint planning teams operate in major plants to

analyze changing workplace and personal employee needs; and designated liaisons function as agents between the teams and local education systems to communicate those needs, (Elrod, Sloat, & Foreman, 1989).

Early in the 1980s, the communication from employer to outside or in-house educator consisted of the results of individual employee assessments administered to determine skill deficits and to plan individual courses or remediation, along with requests for reports of employee progress. Additionally, in performing needs analysis, job print materials (manuals, forms, and so on) were often evaluated to identify their readability level, which was then used as the basis for quoting requisite reading gradelevels for specific job positions. Many corporations found that post-program academic achievement gains by employees frequently did not translate to significant positive changes in organizational records of productivity, job accuracy, and safety. Consequently, management began to explore more effective ways to use education to impact on improving job performance. Following the pioneer efforts of Polaroid Corporation, companies like Control Data, Traveler's Insurance, Onan, Aetna Insurance, IBM, and the major automobile manufacturers began to have in-house educators and instructional designers develop customized instruction to teach employees the basic skills they need to perform their jobs (Business Council for Effective Literacy, 1987; Skagen, 1986.) In these exemplary programs, company employee training and education specialists work together with instructional designers to analyze critical job tasks and identify the workplace basic skills applications embedded in them, then create curriculum from the context of specific job situations a vehicles for teaching the necessary basic skills for competent job performance. Using this process as an ongoing, integral part of organizational training provides a permanent communication loop between in-house trainers and educators for meeting current and future workforce requirements. It also allows for information input from line supervisors and competent employees who are interviewed and observed as part of the job task analysis

procedure.

Customized Community College Education Programs for Local Businesses: Smaller businesses, and some mid-sized corporations, do not have the resources to dedicate to developing employee education programs. To solve this problem, they frequently turn to local community or technical colleges (or local branches of state universities), who provide customized job-related basic skills courses for their employees. Sometimes these courses are located at the worksite, sometimes not. Businesses often approach community colleges who have previously provided technical courses (e.g., blueprint reading) for their employees and who have an adult basic education department. The most effective communication models are used by those programs in which local businesses and college staff form a team to co-design, co-write, and oversee the implementation of customized curriculum to instruct workers in job-specific applications of basic skills, (rather than just having them select traditional off-the-shelf GED and Adult Basic Education materials for workers to use at a worksite classroom). In exemplary program models, such as the state-wide effort in South Carolina Technical Colleges, Rockford (IL) Community College, and Gateway (Phoenix, AZ) Community College (see Note 2 for others), a team is developed from college faculty and individuals from the firm's personnel department, (generally whoever is responsible for employee training). The team gathers information on employee performance and job requirements for basic skills, through needs analysis (employee testing and examination of organizational performance, productivity, accident records) and literacy audits (analyses of job tasks from employee and supervisor observations and interviews). This information is then used to identify critical job tasks and the basic skills needed to perform them, which then become the basis for curriculum development (and delivery) by the college staff. If the curriculum developed as a result of this process is needed by other area businesses, it is often "packaged" and made available by the college. The difficulties inherent in this process are that 1.) college instructors who are content-area specialists in

either adult education or technical subjects have trouble adapting their area of expertise to combine content areas in the development process for a customized job-specific basic skills curriculum, and 2.) technological changes and upgrades can quickly make course content obsolete unless a system is devised for business to continually provide cooperating colleges with updated information on job content and requirements. The benefits of customized job-specific basic skills curricula are the high rates of skill transfer from instruction to job performance and the shortened duration time for courses. Because of the prior job knowledge participants bring to the learning situation, and because the functional context approach to developing curricula uses learners' job tasks as a vehicle for teaching workplace basic skills applications, gains are achieved more rapidly (40-60 hours per grade level) than in traditional basic skills programs (100 hours per grade level), (Philippi, 1987; Sticht, 1982). Retention of gains has also been demonstrated when a job-specific approach to basic skills instruction is used, (Sticht, 1982), because participants immediately apply and practice what they have learned in their daily job tasks. Because courses can be of shorter duration and still demonstrate lasting results, more flexibility in scheduling is feasible. Attending two-hour sessions twice per week for a ten-week period is far more likely to generate higher rates of participant commitment and course completion that longer, traditional (e.g. 100 hour) programs. And, because the goals of such courses aim at improving job performance, many employers now provide paid release time during work hours for employees to attend. By having college staff offer courses at the worksite in shorter cycles, course availability and appeal to employees increases.

Business/Education communication systems in other developed countries: Because the state of a country's productive capacity and international competitiveness is directly linked to its education and employment training systems, it is important to consider and compare our own system to those of our competitors. The countries of Japan, West Germany, Sweden, and Hungary lend themselves to this sort of comparative analysis because they are all highly

industrialized and yet represent a diversity of types of schooling, career preparation, and placement (George, 1987). In each of these countries, with varying degrees of control, the communication of business needs to the education systems is largely accomplished through national government ministries. Within their different structures and underlying philosophies are items worth considering for streamlining our country's flow of information between the business and education communities.

Japan's system is most nearly like our own in that an academic secondary education is more prevalent than vocational education. Similar to the U.S., schooling is divided into elementary (grades 1-6), lower secondary (grades 7-9), and upper secondary (grades 10-12). Attendance is compulsory to age 15. Unlike the U.S., Japanese education follows a somewhat inflexible curriculum, stressing the mastery of factual material through rote drill and memorization, and is highly competitive. Students often attend extra classes at private tutoring schools, or juku, after school and on weekends to qualify for entrance into prestigious upper secondary schools, which are not free of charge (Leetsma, August, George, and Peak, 1987). Approximately 94 per cent of all students advance to upper secondary schools, and another 5 per cent go on to vocational training and work. Job referral is accomplished through effective school-based employment services, which play a significant role in matching non college-bound graduates with available jobs. The system is based on cooperation and trust between the upper secondary schools and employers. Business communicates its projected vacancies, and occupational and academic entry-level workforce needs to the Public Employment Security Office (operated by the national Ministry of Labor), which then relays the information to all the upper secondary schools. The schools which have traditionally supplied particular corporations with employees, and are unofficially ranked according to prestige of placements and resulting demands for enrollment. Employers are prohibited by law to have direct contact with students or schools, and must communicate and have vacancies filled by

working through the PESO. Employers identify and articulate their needs to the PESO so that the school system can respond. Schools currently emphasize the teaching of basic attitudes about functioning effectively in an organization and the behaviors believed necessary for success in the Japanese world of work. These include a high level of general basic education, disciplined work habits, and group cohesiveness. The underlying educational philosophy focuses on individual effort, in contrast to the U.S. focus on individual ability. These philosophical differences are evidenced in the content and societal goals of education in each country's system. The curriculum in Japanese schools is uniform and rigorous for all students. It is understood that, given the same educational input, competition among individuals, (i.e., the effort they exert to achieve), will determine outcomes. Competition instills in learners the value of constantly striving to improve performance. This principle, along with instructional emphasis on group cohesiveness and effective functioning within an organization, prepares students to meet similar behavior and attitudinal goals in the workplace and in the larger context of Japanese society. (The Japanese school system itself "practices what it preaches" by effectively functioning within the society/ organization as a provider of the labor force which feeds the economic goals of the country.) In contrast, U.S. school curricula provide multiple levels and varieties of content, determined by the diverse needs, interests, and ability levels of individual learners. A student's performance is measured against his or her own ability level; the learner is only in competition with himself or herself. This philosophy of "filling one's potential" reflects the U.S.' historical view of the purpose of education: to better the human condition and to perpetrate the aggregate knowledge of the culture. While subscribing to this liberal arts, Rennaisance model upholds the societal goals of freedom of choice for the individual, it does little to provide educational outcomes that support the development of a skilled, cohesive labor force dedicated to a priority for achieving national goals for survival in today's international economy.

The value Japan places on its education system as tool for economic success is evident in its national support for the establishment and maintenance of education credentials and their employment/ recruitment policies and practices. The main responsibility for maintaining this structure of contacts with business and for assisting students with their job searches is borne by the schools (Leetsma et al, 1987, pp. 44-61). This appears to have a direct influence on the low rate of school dropouts, (less than 1 per cent).

West Germany's education system emphasizes vocational training and apprenticeship over academic secondary school. More than 75 per cent of the students receive vocational training and do not go on to universities. Schooling is free and attendance is compulsory from ages 6 to 18 years. Students must attend school full-time for nine years, and then at least part-time for 2 to 3 more years (George, 1987). The education system is based on a vertical structure, under which career paths must be decided upon early in life, (at the age of 10 years), and are more or less irreversible. Results of an examination play an important role in determining what type of secondary education may be pursued. The four levels of choice are:

- the hauptschule which terminates formal schooling at the equivalent of the end of 9th grade and prepares students to enter an occupation at that time.
- the realschule which is vocationally oriented and prepares students to continue their education in a higher level technical school for non-academic occupations.
- the gymnasium which is continued academic coursework and which is required for admission into the universities.
- the gesamtschule which equates to a comprehensive U.S. high school, providing additional academic skills training and selected vocational training courses, tracking students according to abilities. (This has been recently added to the system. It provides an alternative for those students who fail two years in succession at gymnasium and are

dismissed. Too late to enter an apprenticeship, they were formerly abandoned by the system.)

The Federal Employment Services determine which vocational courses will be offered, and coordinate offerings with labor demands at regional levels. Until recently, Germany's system for developing apprenticeships and vocational training areas based on communicated needs from the business community provided an efficient model for collaboration of systems on a national level. Because of Germany's current levels of low economic growth, large numbers of resident foreigners holding work-permit type visas (Gastarbeiters), and high rates of unemployment (14 per cent), the balance of labor' supply and demand has become unsatisfactory. Many students who finish apprenticeships or training remain unemployed; they are often required to participate in apprenticeships in occupations for which they have no career aspirations, rather than leave the system without obtaining any occupational certificate and be unemployable. As in the U.S., "creaming" of the most skilled job applicants who complete training is creating an increasing number of unemployed lower-skilled workers (von Dohnanzi, 1978). Germany is faced with tolerating a higher permanent rate of unemployment and now encourages students to participate in longer periods and higher levels of schooling and training. Despite the present oversupply of labor, the German apprenticeship system of education provides business with a workforce that meets behavioral, attitudinal, and performance requirements. This is the result of the experiential, contextually-based instructional methodology inherent in apprenticeship programs, which facilitates participants' functioning in a changing, technological workplace.

Sweden's education system has a large vocational element in its upper secondary schooling. Compulsory non-vocational school is provided for students ages 7 to 16 years. By the sixth year of school, career exploration is introduced into the curriculum, and includes

specific information about occupational training and two-week visits to one or more private or public workplaces for observation (George, 1987). Municipal authorities are partners with the National Labor Market Board (Arbetsmarknadsstyrelsen). Through county-level labor boards, they work with the education system to provide programs at the local level to meet employers' needs. The number of openings for students in vocational schools, academic high schools, and universities is carefully controlled by the labor board and depends on labor market forecasts provided by business. The system operates on the assumption of direct communication, access, and control of educational offerings of the education community by the business community (working through the agency of the local and national labor boards. This includes the authority to generate special courses for basic work-life orientations as needed. Any sudden changes in supply and demand, which result in mismatches of students to the jobs for which they have been trained, is compensated for by municipalities engaging students in "temporary" relief work (i.e., public service) or obtaining private sector positions for them (approved by labor unions) which anticipate future vacancies (Rehn & Petersen, 1980). The concept of schooling as a means to fulfill the needs of business is integrated into the curriculum during the early years of formal education, thus becoming an intrinsic goal of student participation in the education system.

Hungary's education system reflects the state philosophy of subordination of the individual to societal needs. The state education system assumes responsibility for the up-bringing of the child; parents are merely individual administrators of state decisions and policies. There is an underlying educational theory that intelligence is acquired and not innate. Therefore, no selection process is considered necessary beyond the filling of societal needs through the creation of appropriate workers. As in all Eastern Bloc countries, there is early exposure to various forces of labor, and interest and respect for all occupations is encouraged under the "polytechnic principle." Compulsory school attendance is required from

ages 6 to 16 years, and every student understands that the purpose of education and all careers that follow it is to further the state (Frank, 1984). Secondary school education is divided into three possibilities: grammar school, technical secondary school, and vocational school. The curricula is centrally set by government ministries; at both secondary and post-secondary levels, schools and programs are established or dissolved by the Party Ministry of Education, depending on needs for manpower in various occupations. The teachers in vocationally oriented programs are usually former mastercraftsmen. Graduates of vocational and technical schools receive a broad enough basic education that, like grammar school graduates, they qualify to enter any higher education institute on condition of passing an entrance examination. Graduates of these schools who want to continue their education traditionally apply to polytechnic institutes to receive additional certification. Two levels of certificate are issued: upon graduation, a "technician's certificate" is awarded; upon completing two years of work and passing a practical examination, a "skilled worker's certificate" may be earned. Job placement can be anywhere in the country where a vacancy exists (Braham, 1980). In Hungary, "there is no unemployment because the right to work is guaranteed by the government," (George, 1987, pg.3). Balanced against the lack of individual choice in careers and work locations is the pride, self-worth, and respect for all job titles as having equal value and status for reaching the economic goals of society. No one job is more prestigious than another; each worker in every job is valued for the contribution he or she makes. Because of this, workers can take pride in how they perform, rather than in what they do or do not do.

Although each of the above country's systems for communicating business needs to educators varies greatly from our own, certain elements of their procedures are worth pondering in light of the increasing numbers of dropouts and underqualified graduates of U.S. schools. Most obviously, the quality and timeliness of information that is communicated to foreign schools about the needs of business is more precise than in the U.S. because of central,

federal control of the systems. Given the size of the U.S. labor market and our government structure in comparison to the developed countries described above, the tightly controlled education/labor supply and demand systems used abroad are not feasible for adoption in this country. However, regionally or at the State level, many of the strategies mentioned might be implemented. The school's function in these countries as placement and referral intermediary for those students not going on to college could be encouraged in the U.S. Building a structure for direct placement would provide a vehicle for continuous, mutually beneficial communication between the business and education communities. PICs or local business round tables could serve as agents to facilitate improved quality and quantity of information communicated. Additionally, the adoption of required school certification of individual student training and academic achievements applicable to the workplace (coupled with complementary "workfare" regulations) could motivate students to perform and to complete their schooling. And finally, State education agencies could support the early inclusion in curricula of career exploration and expectations for student assimilation into the labor force as adults. This would enhance student acceptance and pursuit of societal values placed on individual effort and on respect for competent workers in all occupations.

III. What are some recommendations for improving the flow of information between the business and education communities?

Some issues to address:

Existing school-business collaboratives are complex, varied models. They focus on a wide range of divergent target populations: secondary students, dropouts, employees, displaced workers, and so on. Their effectiveness is dependent upon the quality, quantity and timeliness of the information communicated between partners for the purpose of translating workplace requirements into relevant curricula for program participants. Oftentimes research on effective instructional design, methodology, and implementation remains unknown or ignored

by program developers. This is due in part to the conflicting societal goals concerning the purpose of education. Since the beginning years of public schooling in the U.S., education has focused on amassing a core of commonly held knowledge, i.e. on learning to remember. Until recently, this fulfilled the needs of business for multiple skilled levels of employees by supplying a generally well-educated labor force. However, the upward spiral of technology in recent years has created a situation in which job requirements now change rapidly and demand higher skill levels for entry and promotability. The traditional goals of the education system no longer match the needs of the business community. Education still provides instruction for remembering knowledge from distinct content areas. Business needs workers who can apply information processing skills to an ever-changing workplace, skills that cut across content areas and are portable as job contexts for use continue to change. For example, students no longer need to simply memorize the contents of a chart on Civil War battles in their history books; instead they need to learn strategies for locating the information they need on that chart or any chart to solve task-related problems in the classroom, in the workplace, or in everyday living. In order for business/education collaboratives to become mutually beneficial, the purpose of education must be more broadly defined by society.

As jobs change and demographics change, students are becoming a harder-to-serve population. Motivation to stay in school or return to school is difficult to instill in learners who are at risk of being less than fully functional in our society. To entice learners to participate in education programs, content must be relevant to their needs. And those needs are undergoing change as well. For many years, unemployment rates were high; there were more applicants than there were available jobs. School and school/business collaborative programs to prepare learners to enter the workforce concentrated on enhancing the employability skills requisite to getting a job, i.e. resumes, applications, interview skills, and so on. Now that unemployment rates are low, there are more jobs than there are qualified applicants to fill

them. The focus of programs needs to shift from preparing the job seeker to compete for a position, to preparing the job applicant to succeed in performing well enough in a constantly changing workplace to retain a position. Research demonstrates that this can be accomplished through redesigned programs to assist reluctant learners in qualifying for and remaining in the labor force that are the joint efforts of the business and education communities. The following recommendations suggest ways in which the current models could be made more effective through improved communication:

1. Encourage education community initiative:

Recent studies of school/business collaboratives indicate that one of the major deterrents to communication and program success is a lack of trust between partners (Waddock, 1986; Rezabek & Saul, 1986). Preconceived stereotypes concerning the value differences of the other sector partner contribute to this lack of trust. Paul Barton (1983) comments on this:

> The problem for the involved [collaborating] parties is an enduring tension which arises from the ambivalence between our larger visions of human potential (for which we advocate general education) and the here-and-now realities of the industrial society in which we live (for which we advocate up-to-date occupational preparation)."
>
> - Responding to Change: Occupational Preparation in the 1980s, pg.27.

Barton recommends that what would resolve this issue is an integration of occupational and general education, a refocusing of employability instruction to include more teaching of actual workplace problem-solving skills and teamwork methods which facilitate job retention. This expansion of the current school/business collaborative goals which emphasize school-to-work transition and narrowly focus on initial job acquisition, would enable partnerships to not only produce a marketable product (i.e., students qualified to enter the workplace), but also provide a "product warranty" for continued performance of graduates (job retention).

Two school/business collaboratives have pioneered models that reflect this refocusing of

program goals and content:

Prince George's County Public Schools in Maryland surveyed local businessmen to determine the skills deficits perceived by employers among recent graduates who had been hired. Working with an Advisory Council for Business and Industry, made up of county business persons, the school's career education task force then gathered information on the workplace basic skills applications needed by entry-level employees for competent job performance and retention. They used the data to develop a set of workplace basic skills competencies and to rework instructional curriculum, which was reviewed by employers on the Advisory Council. Students who graduate from Prince George's County Public Schools now go to local employers with a guarantee for performance of workplace basic skills applications and with an Employers' Report Card. Any student performing below established and guaranteed skill standards is returned to the school for specified skill remediation, free of charge.

(Lendesy, 1989)

Youth Opportunities Unlimited (YOU) is a community-based organization that works with Cleveland Public Schools to facilitate successful school-to-work transition for juniors and seniors. The program currently operates in nine of the twelve city high schools. To expand their traditional employability skills, job acquisition curriculum to include skills needed for job retention after hiring, YOU has contracted to have instructional lessons developed that teach students general workplace literacy skills applications. Using the past placement records, they first identified the occupational areas in which the majority of recent program graduates had been hired. Literacy audits were then conducted at local businesses and industries representing each of these occupational areas. Critical job performance tasks for entry-level and promotable positions in each of these areas were identified by employers, then were task-analyzed to determine the workplace basic skills applications embedded in these job tasks that are required for competent job performance. Representative job print materials used in these tasks were collected from the job sites. Job simulations were then created, using these materials and information gathered from worker observations and interviews, to provide instruction in workplace basic skills, so that students can obtain hands-on experience with basic skills employers need in the context in which they appear on the job.

(Philippi, Public/Private Ventures, 1989)

In both these examples the education sector took the initiative to prepare students for continued success in the workplace, demonstrating capability for meeting employer's needs. In Responsiveness of Training Institutions to Changing Labor Market Demands, (1983), Pat Choate reports, "Employers will share information about their training needs only if there is a reasonable expectation that the training institutions can help fill those needs," (pg. 127). For this reason, it is recommended that the education community be encouraged to implement models like those described above to become the "giver" and not just the "receiver" in school/business collaboratives. Activities such as those described above would qualify for federal funding monies under Chapter I and Chapter II of the Hawkins-Stafford Public Law

100-297, (1988) which is currently used to provide compensatory education for students needing extra educational services, mostly in elementary schools. Sections 1103, b.,3, and 1405, 1531,b.,1,2,3, and 1541 and 1542 stipulate the use of these funds for developing and providing necessary services that would ordinarily not be available to them (such as those described above).

The strength of school business partnerships would be enhanced by this proactive approach because educators could assume the role of success agents. This is important because in many collaboratives, business intervention-- although welcome support-- delivers the unspoken message that the education system on its own has failed. Reinforcement for this attitude is seen in the urging from private sector spokespersons to revamp education management models so that they resemble corporate structures (Kearns & Doyle, 1988; Kolderie, 1987). Promoting the concept that business funds should be used to effect decentralization, teacher autonomy, and competition among individual schools connotates current "mismanagement" by the education community and does little to build the trust between partners that is required for good communication.

Additionally, by encouraging schools to assume the responsibility for obtaining information from the local business community and for redesigning curricula to reflect that information, three more benefits would result:

- Through involvement with information gathering and curriculum development processes, teachers would become more knowledgeable of the goals of instruction (i.e., to prepare students to perform as competent employees in the workplace), and consequently would become more flexible and adept at managing instructional delivery. This would create a potentially more effective learning environment and would encourage teachers to maintain

and upgrade their professional teaching skills, namely curriculum development and adaptation, which can atrophy with constant dependence on off-the-shelf instructional materials (Apple & Teitelbaum, 1986).

- The teaching of workplace basic skills applications for information processing that transfer across many occupations would assist students in recognizing the importance of schooling and its relevance to their future, providing motivation for school performance and well as advance knowledge of employers' performance expectations.

- The addition of job retention skills (e.g., workplace "basic skills" processes for locating information, problem-solving, troubleshooting, teamwork, interpretation, reasoning, analysis, summarizing--see pp.8-9), to job acquisition skills (e.g., resume writing, interviewing, job applications) that are normally focused on in collaborative programs, plus movement toward issuing guarantees to employers for mastery of those skills by school graduates, would increase the authority of schools as job placement agents. And, like the education systems in other developed countries, it would enhance their holding power over potential system dropouts.

2. Develop and disseminate a model instrument that structures communication:

The quality of communicated information appears to vary directly with the type of benefit business receives and the specificity of the goals of collaboration. For example, when employers work with their own trainers and education specialists or jointly with community college staff to develop employee education programs, accurate information (e.g., about how basic skills applications are used to perform a particular critical job task) is transmitted and responded to in order to achieve a specific and immediate common goal.

When employers work with school systems, the process of communicating is less clearly defined. Goals may be agreed upon and stated, but they tend to merely extend the goals of the education community and not be aimed at producing direct benefits for the business community beyond recognition of their "good will" efforts through association with the partnership. A communication process needs to be developed for collaboratives to identify what is to be communicated and who the communicators for each of the partnering systems should be. To focus the communication and goals of school/business collaboratives to enable them to be mutually beneficial, it is recommended that a model be developed and made available for use. When employers work with PICs, the communicated information to JTPA program providers for training/education is specific. Program vendors are able to provide appropriate instruction, based on knowledge of projected labor force vacancies and targeted participant populations they receive. The procedure for communicating and the content and goals of programs are governed by regulations; and anticipated outcomes are clearly stated. PICs already function frequently as agents to facilitate the formation of school/business collaboratives. If a model were to be developed by the government to structure the use of PICs in an extended capacity, as definers and regulators of the process of ongoing communication between the business and education communities, partners would be able to form more mutually beneficial, longer lasting relationships. Local school districts (or individual schools) could be provided with guidelines for developing programs that met employers needs, then submit proposals to the PIC, which would be instrumental in the selection process for matching schools with local firms. Additionally, participating firms could be offered tax credit incentives.

To provide direction for operations of the partnerships, it is also recommended that a structured data collection instrument be designed for communication between partners in programs. During the past year, an intensified federal interest in workplace literacy has

resulted in numerous grant awards, sponsored by the U.S. Departments of Labor and Education, to fund the development of business-education collaboratives. Their focal points include the process of curriculum development and evaluation of instructional impact on worker performance, both of which are contingent upon conducting appropriate communication between collaborating partners. To facilitate these efforts, the Departments of Education and Labor provided general guidelines and a recommended model for gathering information about requisite workplace basic skills applications in their joint publication, The Bottom Line (1988, pp.11-40). If these guidelines were to be fleshed out with more specific suggestions for adaptation to the various collaborative designs, a model could result that would better enable the communication of employers' needs to the education system and enhance the ability of schools to respond with effective programs.

Other existing prototypes for communicating also might be considered for input into a model that PIC-monitored collaboratives could use. The Colorado State Board for Community Colleges and Occupation has developed and published a prototype for assessing employer needs, based on a synthesis of effective models that were researched (Developing and Implementing a Program of Employer and Job Needs Assessment, 1985). Operating through a two-pronged survey effort, it considers potential student interests, needs, and capabilities, as well as employers and regional current and projected skill requirements and labor demands. The model has a flexible format for adjusting to local labor needs; and it outlines a system for creating a database and continuing data collection and updating without additional field surveys (Hill & McMurlyn, 1985).

The California State Council on Vocational Education has researched and evaluated five different models for coordinating JTPA training with education agencies to provide comprehensive services to participants. Focusing on goal-setting, contracting, and program

management strategies, they recommend state and local guidelines for working with public education systems (Rezabek & Saul, 1986).

These models could be expanded, refined, and combined for use as a resource tool with all levels of business/education partnerships.

3. Conduct further research on the role of federal government in business/education communication.

More information is needed to determine how to involve enlightened corporation and education members of local communities in collaborative efforts. Local government might serve as a clearing house on information concerning potential partners. PICs might be used as facilitators, regulators, and monitors of school/business collaboratives; if this were to be done, their participation would need to be clearly defined and resources would need to be provided for them in the form of a model, guidelines for implementation and evaluation, a communication instrument for use in gathering data on employers' needs, and training for PICs to carry out these charges. Educators need additional training in the use of a functional context approach for developing curriculum and instruction (from information gathered from employers) that will prepare learners to perform as competent members of the labor force. A skills guarantee issued by the school to employers and feedback to the schools from employers might strengthen the responsibility and accountability of partners to each other. Funding mechanisms might be developed as incentives for participation, in the form of worker training loans (like student loans) or tax credits for business partners. Research could identify the appropriate facilitating role for government in each of these areas.

Summary

From the late 1800s to today, business has exerted influence on the nation's public

education system. Employers have had input into its structure, operations, and regulating policies on local and national levels. An intensified era of business education activity has come about as the result of changes in federal employment and training policy which gave employers a larger role in local program planning. The business community often provides educators with data on projected vacancies, and facilitates academic achievement through participation in school/business collaboratives, which focus on school-to-work transition assistance. Recently, workplace literacy programs have emerged as a new strand of business/education partnership in response to the imminent labor force shortfall of qualified workers, resulting from demographic changes and technological upgrades.

Various models of business/education collaboration exist: school/business partnerships, Private Industry Council sponsored programs, corporate and union-sponsored worker education programs, and customized community college programs for local businesses. Improvements in these collaborative efforts would require educators to recast their role as receivers of services and resources from business to one of more active participation in translating workplace requirements into relevant curricula of schools. Examples of business/education communication in other developed countries are instructive regarding approaches to improving the quality and timeliness of the information about business needs communicated to the schools, and how schools might serve as placement and referral intermediaries for students who are not college bound.

Recommendations resulting from the literature and research review findings are that educators be encouraged to initiate a more proactive role in meeting the needs of the business community, that PICs be given a larger, regulatory role in facilitating partnerships and communication guidelines, and that more research be conducted to identify the appropriate facilitating role for the federal government.

NOTES

1. Statistics obtained from personal communications with McDonalds; Triangle Horseshoe Mfg., South Carolina; Walgreen Company, Illinois; and the American Bankers Association and its affiliates.

2. Customized job-specific workplace literacy programs have been developed to meet the needs of local businesses and industries by community colleges in Rockford, IL; Lakeland, IL; Highland, IL; Richland, IL; El Paso, TX; Phoenix, AZ; Meridian, MS; Spartanburg, SC; Greenville, SC; TriCounty (Pendleton), SC. Additionally, programs have been developed by Georgia State University, Pennsylvania State University, Indiana University (Bloomington), and the University of Minnesota.

3. Pennsylvania Task Force on Education for JTPA and Welfare Program Participants is currently investigating ways to combine required education program components with employment training by using job-specific basic skills materials. Mississippi Governor's Office Adult Literacy Program, in conjunction with the National Alliance of Business and regional SDAs, is attempting to coordinate the use of workplace literacy instruction among military, private sector, and JTPA-eligible populations. South Carolina's Governor's Workforce Excellence Initiative is in the process of developing a JTPA-funded statewide job-specific literacy program to serve JTPA -eligible unemployed,with assistance from the state's technical colleges and coordination by local business roundtables.

4. School districts in Prince George's County, MD, and in Cleveland, OH, are proactively seeking out information from local businesses about requisite workplace applications of basic skills, and are providing instruction in them for students in pre-employment secondary classes. Pilot programs being conducted by New York City's Youth Employment Program are also using workplace literacy task analyses to develop functional context curricula that combines occupational skills and basic skills training for participants.

5. Publishers developing job-specific basic skills instructional materials also include McGraw-Hill; Scholastic; Science Research Associates (SRA); Harcourt, Brace, and Jovanovich; and Simon and Schuster. Additionally, IBM and Apple Computer have dedicated departments to development and marketing of Adult Education/Employment Training courseware. Because publishers survive by projecting goals that must be met by educators and by translating appropriate research into practice; and because classroom instructional content of the education system is heavily influenced-- even to the point of being "driven"-- by the basal and textbook series produced by the major educational publishing houses, it is important to observe these signals of change and reflect on the impact they will have.

REFERENCES

Apple, Michael W. and Kenneth Teitelbaum, "Are teachers losing control of their skills and curriculum?" Journal of Curriculum Studies, Volume 18, No.2, 1986. 177-184.

Barton, Paul, "Responding to Change: Occupational Preparation in the 1980s," in Taylor, Robert, Howard Rosen, and Frank Pratzner (Eds.), Responsiveness of Training Institutions to Changing Labor Market Demands, Columbus, OH: The National Center for Research in Vocational Education, The Ohio State University, 1983. 25-35.

Braham, Randolph L. The Education System of Hungary, U.S. Department of Education Publication No. E-79-19139. Washington, D.C.: U.S. Government Printing Office, 1980.

Business Council for Effective Literacy, Job-Related Basic Skills: A Guide for Planners of Employee Programs, BCEL Bulletin, Issue No. 2, June, 1987.

Carnevale, Anthony, Leila Gainer, and Ann Meltzer, Workplace Basics, Alexandria, VA: The American Society for Training and Development and the U.S. Department of Labor, 1988.

Choate, Pat, "An Early Warning System: Reactor Comments," in Taylor, Robert, Howard Rosen, and Frank Pratzner (Eds.), Responsiveness of Training Institutions to Changing Labor Market Demands, Columbus, OH: The National Center for Research in Vocational Education, The Ohio State University, 1983. 127-130.

Committee for Economic Development, Children in Need: Investment Strategies for the Educationally Disadvantaged. A statement by the Research and Policy Committee, 1987.

Diehl, William and Larry Mikulecky, "The Nature of Reading at Work," Journal of Reading, Volume 24, 1980. 221-227.

Dole, Elizabeth. Comments made during installation as Secretary of U.S. Department of Labor as reported in "Reducing Illiteracy is Best Way to Beat Skills Gap, Dole Tells Congress," Employment and Training Reporter, Volume 20, No.20, February 1, 1989. Manpower Information, Inc. 571-572.

von Dohnanyi, Klaus. Education and Youth Employment in the Federal Republic of Germany. A study prepared for the Carnegie Council on Policy Studies in Higher Education, 1978.

Elrod, Brian, Cindy Sloat, and Larry Foreman. Comments made during personal interview at UAW-Ford National Education, Development, and Training Center, Dearborn, MI. June 2, 1989.

Fields, Ernest L. "Industry-Based Programs: A Growing Source for Adult Literacy Development," Lifelong Learning: An Omnibus of Practice and Research, Volume 10, No.10, 7-9.

Frank, H.Eric Human Resource Development: The European Approach. Houston, TX: Gulf Publishing Company, 1974.

George, Rosemary. Youth Policies and Programs in Selected Countries. The William T. Grant Foundation Commission on Work, Family, and Citizenship. August, 1937.

Grubb, Norton W. and Marvin Lazerson (Eds.) American Education and Vocationalism: A Documentary History, 1870-1970. New York: Teachers College Press, 1974.

Hawkins, Augustus F. and Robert Stafford Elementary and Secondary School Improvement Amendments of 1988, Public Law No. 100-297, April, 1988.

Hill, Michael and Clifford McMurlyn Developing and Implementing a Program of Employer and Job Needs Assessment. Mesa , CO: Colorado State Board for Community Colleges and Occupational Education, Denver. 1985.

Kearns, David T. and Denis P. Doyle Winning the Brain Race: A Bold Plan to Make Our Schools Competitive, SanFrancisco, CA: Institute for Contemporary Studies, 1988.

Kolderie, Ted "Beyond Business-Education Partnerships," in Restructuring Education, Research Report No. 902 for The Conference Board, 1987.

Lettsma, Robert, Robert August, Betty George, and Lois Peak Japanese Education Today. A report to the U.S. Department of Education, January, 1987.

Lendesey, Jacquelyn L., Prince George's County Public Schools, MD. Personal communication, February 22, 1989.

McMullen, Bernard J. and Phyllis Snyder Allies in Education: Schools and Businesses Working Together for At-Risk Youth, Philadelphia, PA: Public/Private Ventures, 1987.

Meyerson, Martin and Robert Zemsky Training Policies: Public and Private Reinforcement for the American Economy. Final report on the impact of public policy on education and training in the private sector. National Institute of Education, Washington, D.C., 1985.

National Alliance of Business, The Fourth R: Workforce Readiness, Washington, D.C., 1987.

Philippi, Jorie W. "Matching Literacy Skills to Job Training: Some Applications From Military Programs," Journal of Reading, Volume 31, No.7, April, 1988. 658-666.

Philippi, Jorie W. BSEP/CSEP Reading Evaluation: A Study of the Effectiveness of the US Army's Basic Skills/ Career Skills Job-Specific Reading Program. A report to Army Continuing Education Services, USAREUR, Leimen, W.Germany, June, 1987. ERIC Document Reproduction Service No. CS-009190.

Philippi, Jorie W. Reports from planning and conducting of job-site literacy task analyses, curriculum development process, and technical assistance provided to Youth Opportunities Unlimited and the Cleveland Public Schools, School to Work Transition Program, November, 1987 through March, 1989. Prepared for Public/Private Ventures, Philadelphia, PA.

Prager, Audrey Education and Work Councils: Programs and Problems. A report to the U.S. Department of Health, Education, and Welfare. National Institute for Education, Washington, D.C., March, 1980.

Rehn, Gosta and K. Helveg Petersen. Education and Youth Employment in Sweden and Denmark. A study prepared for the Carnegie Council on Policy Studies in Higher Education, 1980.

Rezabek, Dale J. and A.Christine Saul Preparing Californians to Work: A Local Perspective on JTPA and Education Coordination. Sacramento, CA: California State Council on Vocational Education, October, 1986.

Schilit, Henrietta and Richard Lacey The Private Sector Youth Connection: Volume I: School to Work. New York: Vocational Foundation, Inc. 1982.

Skagen, Ann (Ed.) Workplace Literacy, An American Management Association briefing, Chapters 2 & 5, 1986.

Sticht, Thomas G. Basic Skills in Defense, HumRRO Professional Paper No. 3-82, Alexandria, VA: Human Resources and Research Organization, 1982.

Timpane, Michael Corporations and Public Education in the Cities, New York Carnegie Corporation, 1982.

U.S. Conference of Mayors, A Status Report on Children in America's Cities, October, 1988.

U.S. Department of Education, The Nation Responds: Recent Efforts to Improve Education, Washington, D.C., 1984.

-- Survey of Post-Secondary Schools with Occupations Programs, National Center for Education Statistics, Washington, D.C., 1984.

-- Education Partnerships in Public Elementary and Secondary Schools, Survey Report No. CS89-060. National Center for Education Statistics, Office of Educational Research and Improvement, February, 1989,

U.S. Department of Education and U.S. Department of Labor, The Bottom Line: Basic Skills in the Workplace, Washington, D.C.: U.S.Government Printing Office, 1988,

Useem, Elizabeth L. LowTech Education in a High Tech World, New York: The Free Press, 1986.

Waddock, Sandra A. Some Criteria for the Successful Development of Public-Private Partnership, Working Paper No. 85-35, Boston, MA: Northeastern University College of Business Administration, 1986.

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Stopping summer learning loss among at-risk youth

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■ Each summer, at-risk youth lose a significant proportion of the meager reading gains they have made during the academic year. Combination summer employment and remediation programs are successfully addressing this problem.

During a calendar year, an average student makes approximately 1 year's growth in reading ability. High achieving students often gain much more and low achieving students much less. The process is not of steady growth at faster or slower rates, however.

For example, Heynes (1987) has examined the spring and autumn reading growth of 3,000 Atlanta school children over a 2 year period. Her data indicate that the top 25% of students make rapid growth during the academic year and slower but continued growth over summers. Average students hold even or fall slightly over summers. The bottom 25% of students make comparatively meager gains during the academic year and then lose a significant proportion of those gains each summer. Heynes and earlier research by Hayes and Grether (1969) suggest that 80% of the difference between the performance scores of white and black students can be explained by differential summer learning loss.

The summer learning loss identified by Heynes for elementary school children is substantiated by evidence of consistent learning loss for several hundred lower quartile adolescents in program control groups of the Summer Training and Education Program (STEP) in five different pilot cities (Sipe, Grossman, & Milliner, 1988). These control group adolescents were tested in reading ability at the beginning and end of two summers, held full-time summer employment, and received no summer remedial training. In all five cities involved in the STEP pilot program (Boston, Fresno, Portland, San Diego, and Seattle), control group students, who were selected to be 2 years behind age peers in reading and math scores, experienced statistically significant summer learning loss. In two of the cities, average summer learning loss was greater than academic year gains.

Part of the problem is that students in the bottom

quartile rarely practice reading enough to really master it. At-risk students more easily lose what they've only partially mastered, and as they fall further behind, they are less able to benefit from assignments beyond their ability levels. Mikulecky (1982) reports data that indicate that the average high school junior reads approximately 98 minutes a day including homework. This is the average daily reading time of blue collar workers and significantly below the reading times for most other job categories. The bottom quartile of adolescents average closer to 20 minutes of reading daily.

Little reading practice time is available in school. Goodlad's (1983) observations from 1,016 classrooms indicate that 70% of a student's day is filled with talk and three quarters of that is teacher talk. Though lecture and discussions may be informative, they are unlikely to provide the practice needed to improve reading abilities.

Lehman (1986) has observed in several high school classes in schools filled predominantly with at-risk youth. He reports a science class where three class periods were expended viewing the movie *Forbidden Planet* as an astronomy lesson. In other classes, instructors are reported as orally reading texts to classes because no student in class appeared capable of reading the text. In English classes, assignments rife with grammatical errors and incomplete sentences receive grades of "A" since they are the best of the few assignments turned in. In short, for at-risk youth little reading practice occurs during the school day.

In addition, there is likely to be little homework practice for the bottom 25%. National Assessment of Educational Progress data (Applebee, Langer, & Mullis, 1985) indicate that 22% of 17-year-olds report being assigned no homework by any teacher for the previous evening, while another 11% report not doing assigned homework. Another third report doing less than 1 hour of homework.

In short, hardly any reading occurs in school for the bottom 25% of adolescents and it is likely that virtually no homework is done by this at-risk group. Blame lies with books too difficult for some students to understand, with students who refuse to do assignments, with parents who don't encourage and check on assignments, and with teachers who require little reading practice in school or at home.

The STEP program

An integrated summer employment and remediation program entitled the Summer Training and Education Program (STEP) has consistently been able to stem summer learning loss. This program is funded by several foundations, the U.S. Department of Labor, and the U.S. Department of Health and Human Services, and currently operates in over 50 urban and rural communities.

STEP was developed by Public/Private Ventures (a not-for-profit Philadelphia corporation) in 1984 as a strategy for reducing the number of young people who leave school without the skills and motivation necessary for productive employment. With summer income as an incentive, 14- and 15-year olds who are doing poorly in school and are eligible for the Federally supported Summer Youth Training and Employment Program (SYTEP) enroll in STEP for 15 months. This involves 2 summers of half-time work and half-time instruction in basic skills and life skills. In addition, students participate for 1 school year in very limited supportive services.

The goals of STEP are to reduce summer learning losses, improve reading and math skills, increase graduation rates, and reduce the incidence of teen parenthood. The program will follow to age 18 over 4,800 youth in five pilot cities to determine overall effectiveness.

Initial results already indicate that the program is effective in all five sites in combating summer learning loss (Sipe, Grossman, & Milliner, 1988). This success combined with the uniformly significant learning losses among control group youth in all cities led to expansion of SYTEP to over 50 urban and rural communities by the summer of 1989.

During the summer months, STEP youth are paid to work at Summer Youth Training and Employment Program (SYTEP) jobs for half days and go to school for the other half days. To qualify as a STEP program, programs must offer students a minimum of 90 hours remedial training in reading and math and an additional 40 hours of life-skills training that sometimes involves additional reading practice.

Reading and math remediation is based on a few propositions about the learning experiences of many at-risk youth. These young people practice reading and math very little during the school year and less over summers. Increased practice is key to improvement. Secondarily, most at-risk students have mastered lower level reading and mathematics abilities but need direct help with higher level strategies (i.e., summarizing, predicting, drawing inferences). Finally, as at-risk students progress in school, the gap increases between their achievement levels and the difficulty levels of materials used in classes. Increased practice with appropriately difficult material is therefore of paramount importance.

There are clearly other areas of academic difficulty

Figure 1
STEP principles

- Keep teacher talk to 50% or less of class time.
- Have students actively read, write, and compute at least 2 hours of each 4 hour class day.
- Match assignments to abilities. This means different reading and assignments for different students during part of each day.
- Demonstrate step by step to students the comprehension process for drawing conclusions, inferences, and finding answers.
- Model at student desks how to do assignments.
- Use higher level skills (summarizing, predicting, drawing conclusions, and problem solving).
- Spend 20%-25% of each week with computer assisted practice in reading or computation.

experienced by at-risk youth. The STEP program elected to focus on those areas that were considered most crucial and that could most easily be addressed in a large scale program.

In STEP, specially trained teachers and instructional aides work to keep teacher talk to a minimum and practice to a maximum. They are also trained to provide individual feedback and modeling of the metacognitive processes involved in reading comprehension. The adult to student ratio is approximately 12:1, materials are designed to be of high interest and appropriate difficulty levels. Silent sustained reading, optional journal writing, individualized skills practice, and 20% of time spent with computer assisted instruction in reading or math are program elements.

Instructors work with lead teachers who observe classes and provide feedback to instructors on successes and trouble spots in implementing principles that characterize STEP and that were introduced during teacher training sessions. The principles are designed to ensure effective use of summer school time. Some summer school experiences are primarily motivational and enriching but do little to combat summer loss of reading ability (Heynes, 1987). The STEP principles are shown in Figure 1.

During training, classroom teachers and classroom aides familiarize themselves with materials, participate in group learning activities, and learn what indicators will reflect to themselves and others that they are successfully teaching in a STEP classroom. Guidelines for roles and activities like those found in Figures 2 through 4 help alert each member of the team to what is expected of students, self, and others.

Nearly 1,500 students participated in STEP pilot cities in the summer of 1987. They had recently completed either Grade 8 or Grade 9 and their average reading achievement score on the Metropolitan Achievement Test was 6.0 grade level. By summer's end, treatment group students had gained .3 grade in reading achievement while control youth had fallen .2 grade level in reading—a half grade level difference separated the treatment and control students.

Earlier data from the students who began in the summer of 1986 are even more striking. At two sites (Seattle and San Diego), data were gathered over 15 months. Control youth lost 1.1 grade levels in reading achievement during that time. Treatment youth performed .7 grade level better than control youth, even though they too lost some reading ability during the 15 months. Half-day STEP summer remediation had been effective in reducing reading learning loss by two thirds.

Lessons from STEP for other teachers

The STEP program works, in part, because it brings significant resources to bear upon the problem of educating at-risk youth. Summer classrooms contain two adults trained to provide modeling and feedback to students. Lead teachers help classroom instructors monitor their own adherence to teaching practices proven effective with at-risk youth. Half of remediation time is spent reading specially developed high interest, low difficulty material. Multiple difficulty level trade books, supplementary materials, and computer assisted instruction are used during the other half of remediation time. In addition, students are paid to attend class and docked when absent or tardy.

Even without these summer advantages, teachers who work with STEP report they are able to transfer to the academic year many of the practices they use during summers. Though additional resources help, they are not essential for many of STEP's most powerful elements.

In traditional classrooms, teachers often explain tasks to the entire class until nearly everyone understands a concept or an assignment. STEP teachers abbreviate explanations to tight 5- to 10-minute demonstrations and step-by-step modeling. Even though some students are partially confused, teachers start the class on actually doing reading/writing tasks. By moving around the room from student to student, teachers can individually explain more clearly to con-

Figure 2
STEP roles and activities designed to maximize engaged time

STEP principles	Classroom teacher	Classroom aide	Lead teacher and STEP personnel
Maximize the time students spend engaged with appropriately difficult reading and math material. This involves: • Knowing ability levels of all students. • Getting some students to skip some tasks. • Gathering plenty of materials. • Making sure practice time is available.	• Keep teacher talk to a minimum. • Diagnose and know each student's skill and ability levels. • Allow sufficient time (50% or more) for student practice. • **Make sure students have correct material.** (Push level III students and find easy materials for level I students.) • Circulate to check on students. • Give feedback to classroom aide on what is working and what needs to be done.	• Keep students on task. (Compliment those who work, remind those who don't). • Find out from the teacher which materials are for which students. • Circulate to make sure students don't quit between assignments. (Get them started on new things when they finish old.)	• Provide teachers and aides with feedback on what they do well and where emphasis is needed. • Check to see materials are available for all levels. Help secure what is unavailable. • Publicize to all teachers and aides effective teaching ideas observed. • Arrange for teachers and aides to observe others while you cover for them.

fused students while liberating other students to practice.

Teachers report this approach also works during the academic year, though not as well since the student to adult ratio is greater without the presence of a trained classroom aide. It is possible to teach full classes with a combination of brief step-by-step modeling, more reading practice time, and more time for individual student feedback and encouragement.

Still other STEP reading practices could be transferred to academic year classrooms. For example, some STEP classrooms contain a half dozen computers with word processing programs. During part of the morning, students rotate among specially prescribed reading activities, silent sustained reading, and using computers to write summaries and reading response journal entries. These printed responses and summaries are often shared with other students thereby increasing student reading practice time. Such exchanges sometimes lead to a student selecting a book he or she has seen summarized by a peer.

The major impediment to continuing this practice during the academic year is that computers are returned to the computer lab in the autumn. The problem appears to be no more than the contemporary equivalent of getting books out of the library and into student hands. Surely this obstacle of unavailable computers can be overcome.

Figure 3
STEP roles and activities that maximize higher level processes

STEP principles	Classroom teacher	Classroom aide	Lead teacher and STEP personnel
Model and explain step by step how to do higher reading and math processes. Examples: **Reading:** Summarizing, paraphrasing, comparing, predicting, drawing conclusions, etc. **Math** Setting up problems, estimating multistep problems, transforming information from numbers to visuals, drawing inferences and conclusions from numerical information.	• Keep to a minimum pure recall questions (dates, names) and drill sheet problem sets. • Before asking students to do tasks, use the chalkboard to do one yourself. Orally explain your thoughts as you do the task. • Ask competent students to explain orally how they arrived at answers. • When students are having trouble, try to find out how they are thinking. Re-model how to do the task.	• Pay attention to how the teacher explains how to do assignments. • Think of how you would explain the task to a student in trouble. • During assignment time, look for students not doing well. Ask them to tell you how they are doing the questions.	• Look for examples of higher level reading and math tasks. • Spot and share good examples of modeling and feedback. • After observing, circulate and provide feedback to students yourself. Demonstrate what you are looking for.

STEP program materials or learning modules follow a pattern that can be paralleled by academic year teachers and curriculum developers. A brief, simple motivation activity introduces a reading process (graph reading, supporting predictions with evidence, etc.) with an example linked to students' prior experience. With a second, slightly more difficult example, the teacher uses the chalkboard to model for the class how to do the activity or process. In addition, the teacher explains where else the process is used and why it is important. Finally, with half the class period remaining, students individually or in pairs do a variety of applied reading activities to practice the modeled process.

Often student practice materials vary widely in difficulty. The teacher moves about providing feedback and praise, while encouraging students to skip some activities and accomplish as much as possible during available time.

These procedures could be used by academic year reading teachers. Science and social studies teachers could model how to read graphs, maps, and charts one week and how to take notes from texts and magazines the next week. The key is reducing teacher talk and gathering materials of varying difficulty upon which to practice.

For many teachers with 10 to 20 years of experience in talking for most of class periods, it is hard to change. Most experienced teachers have previously encountered the teaching ideas in STEP. Not many, however, have had the benefit of being observed by a caring colleague who informs them that today they lectured and discussed too much at the expense of improved reading ability for low ability students. Most teachers know about providing individual feedback, but many are afraid they will lose control of the class if they try it. Some have never really seen it tried extensively.

In STEP, teachers are supportive of each other and monitor each other's adherence to STEP guidelines. This works and teaching improves. During the academic year, small groups of supportive teachers could

Figure 4
STEP roles and activities for integrating computer use

STEP principles	Classroom teacher	Classroom aide	Lead teacher and STEP personnel
Spend 20-25% of each week with students using computers for computer-guided work with math or language arts skills.	• Plan with cohort team for how 20-25% time will occur. • Try to match CAI to module skills and topics whenever possible. • Do not simply leave students on computer; monitor to see that they understand. Get them to explain what they are doing. Model task if they don't understand. • Develop a computer plan for each student based on diagnosis.	• Move around observing students on computers. • Game playing does not count as computer time unless teacher OKs it as a short end-of-class activity. (See instructions in teacher column.)	• Find out each cohort's overall computer plan and individual student computer plans. • Evaluate and provide feedback. • Make suggestions about additional programs and matching modules to CAI. • Help solve equipment and software problems.

CAI = computer assisted instruction

also help each other try new approaches and monitor each other's performances. It seems clear that simply hearing about new ideas is not sufficient for most teachers.

STEP succeeds in slowing and in many cases stopping summer learning losses of at-risk students. This is important, but far from sufficient. The reading and math achievement of these students during the school year is only a fraction of the achievement of their age peers. They continue to fall behind in spite of stopping summer losses. In addition, STEP is available for two summers only and in selected cities only.

It is heartening to find a program that works. The principles and practices that undergird the success of STEP can be transferred to other settings, but the challenge remains.

References

Applebee, A., Langer, J., & Mullis, I. (1985) *The reading report card* (NAEP report No. 15-R-01) Princeton, NJ: Educational Testing Service

Goodlad, J. I. (1983) *A place called school.* New York: McGraw-Hill

Hayes, D. P., & Grether, J. (1969) *The school year and vacation: When do students learn?* Paper presented at the Eastern Sociological Association Convention, New York, NY

Heynes, B. (1987) Schooling and cognitive development: Is there a season for learning? *Child Development, 58,* 1151-1160

Lehman, N. (1986, July). Origins of the underclass. *Atlantic Monthly,* 28-43

Mikulecky, L. J. (1982) Job literacy: The relationship between school preparation and workplace actuality. *Reading Research Quarterly, 17,* 400-419

Sipe, C. L., Grossman, J. B., & Milliner, J. (1988) *Summer training and education program: Report on the 1987 experience.* Philadelphia: Public/Private Ventures

Print-communication demands in most businesses have increased. At the same time, demographic and economic trends are forcing employers to hire employees with lower skill levels. These trends will continue well into the next decade. Increasingly, businesses are recognizing the economic consequences of print communication problems. A first step is realizing that there are a variety of problems that call for differing solutions. A few workers need long-term support to move from virtual illiteracy to productive skill levels. Many more workers need to have basic skills training integrated with regular job training if training is to be effective. Finally, industries are increasingly focusing upon areas where mistakes are made or promotion is blocked. In such areas, solutions range from short-term targeted training to redesigned documents and job performance aids.

BASIC SKILLS IMPEDIMENTS TO COMMUNICATION BETWEEN MANAGEMENT AND HOURLY EMPLOYEES

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Communications in print form between management and hourly employees have taken on increased importance during the past few decades. Major communication difficulties have increased as a result of the combination of growing print demands in the workplace and lower basic skill levels among employees available for many hourly positions.

In developed countries, the workplace is rapidly becoming *the* major context for most adult literacy activities. By the late 1970s, survey research of adult reading habits had established that most American adults spent more time reading and writing in the workplace than they did anywhere else (Murphy, 1975; Mikulecky, Shanklin, & Caverly, 1979).

During the 1980s research in linguistics and cognitive psychology began to redefine our understanding of what basic skills and literacy are. A common but mistaken early assumption was that literacy was a single ability and that a worker either had enough literacy or did not. In part, this assumption was true for very

Management Communication Quarterly, Vol. 3, No. 4, May 1990 452-473

Larry J. Mikulecky, "Basic Skills Impediments to Communication Between Management and Hourly Employees," *Management Communication Quarterly*, vol. 3, no. 4, May 1990, pp. 452-473. Copyright 1990 by Sage Publications, Inc. Reprinted by permission of Sage Publications, Inc.

low-level literacy. An individual reading below a third-grade level would not be able to decode words or determine the words that make up a sentence. When one reaches slightly higher levels, however, additional abilities are needed to understand and use print. Successful comprehension becomes a mixture of an ability to decode words, an ability to think and draw inferences, familiarity with the type of language and format being used, and familiarity with the topic being discussed. Recent research on adult reading abilities (Kirsch & Jungeblut, 1986) indicates that there is less than 25% shared variance between the ability to read and use information from prose paragraphs and the ability to read and use information from documents and forms. This is because reading different types and forms of material calls for different skills and abilities. Literacy is not a single construct.

This new understanding of literacy makes simple discussion of the topic somewhat difficult. To a few people, basic literacy still means sounding out words at a low elementary school level. *Basic* has been redefined by social changes, however. Most researchers now refer to much more difficult literacy tasks as being *basic* to continued functioning in developed societies. In this article basic literacy refers to the print-communication skills and strategies basic to independent functioning and learning in the workplace. This means decoding, as well as drawing inferences and conclusions from fairly complex material in a wide range of formats. It involves reading, writing, editing, and recognizing patterns in manuals, graphs, computations, correspondence, print-outs, and on CRT screens. These "basic" skills and strategies appear to have increased and are in flux as demands in the workplace continue to be in flux.

INDICATIONS OF A GROWING PROBLEM

In the early 1980s, there were several indications from industry that the education levels of new and existing workers were inadequate. The Center for Public Resources (Henry & Raymond, 1982) reports survey results from the returns of 184 businesses from the following industries: finance/credit, mining/manufacturing, ser-

vices, utilities, and insurance. Returns usually came from personnel officers or human resource directors with data enabling them to respond to detailed survey questions. Henry and Raymond report that an additional 150 companies indicated that the issue of skill deficiencies was a serious human resource concern, but they did not possess enough specific data to assess the nature and level of the problem. According to Henry & Raymond, (1982):

> Over 65% of responding companies note that basic skill deficiencies limit the job advancement of their high school graduate employees, and 73% responded that deficiencies inhibit the advancement on nongraduates. (p. 23)

Percentages of basic skills difficulties reported by employers in the survey were the following:

Survey Question	*% of Respondents*
Secretaries having difficulty reading at the level required by the job.	30%
Managers and supervisors unable to write paragraphs free of mechanical errors.	50%
Skilled and semiskilled employees including bookkeepers unable to use decimals and fractions in math problems.	50%

Though concerned about general productivity, survey respondents were even more concerned about costly one-time mistakes resulting from low basic print-communication skills. Examples reported by employers include workers accidentally killed because of the inability to read safety communications on warning signs, costly mistakes made because of the inability to comprehend correspondence, and time lost because of the need to give regular lectures on the use of equipment rather than being able to rely on step-by-step written instructions (p. 18).

The *Wall Street Journal* (Hymowitz, 1981) cited industry reports that indicate increased economic problems resulting from workers who are unable to meet the basic skills demands of their jobs. William Barnes, vice president of finance at JLG Industries, reported that "poorly educated workers are our no. 1 problem, the main factor slowing our growth" (p. 1). JLG reported having spent

over $1 million to correct worker literacy communication mistakes. Similarly, Mutual of New York reported that "an estimated 70% of the insurance firm's correspondence must be corrected or retyped at least once." Concerns regarding the safety of workers who cannot read warnings and follow written directions have been issues in a growing number of court cases and have lead to several firings at Westinghouse Electric Corp.'s defense gear plant in Sunnyvale, California (Hymowitz, 1981).

In addition to the newspaper indications of the safety and economic costs of worker literacy mistakes, some initial work has attempted to estimate the cost of literacy communication problems to society in general and to business in particular. Kozol (1985) had attempted to draw broad inferences on the national cost to the United States of functionally illiterate adults. He estimates a cost of $20 billion in the United States with another $237 billion lost in the lifetime earnings forfeited by men 25-30 years old who have less than high school-level skills. The Canadian Business Task Force on Literacy (1988) surveyed Canadian expert opinion and made projections from known costs to estimate illiteracy costs to Canadian business at $4 billion annually. Using the traditional 10:1 ratio for U.S./Canadian demographic conversions, this would suggest a figure approaching $40 billion annually for business in the United States.

No systematic attempt has been made, however, to determine the cost of print-communication problems in terms of

- accidents and mistakes;
- lost worker time by workers avoiding print and seeking oral information; and
- lost manager time in terms of repeating oral explanations.

INCREASES IN BASIC SKILLS COMMUNICATION DEMANDS

Literacy demands in the workplace have increased significantly. During the first decennial census undertaken in 1790, not more than 10% of jobs required reading and writing abilities (Tyler, 1978).

Current research indicates that written communications in the workplace are ubiquitous and at a relatively high level. Diehl and Mikulecky (1980) examined 100 workers for a representative cross section of occupations ranging from executive vice president to forklift driver. Only 2% of occupations examined required no reading or writing. Time spent reading print, charts, graphs, and computer terminals averaged nearly two hours daily. Difficulty levels of 70% of running prose reading materials on the job ranged from 9th- to 12th-grade levels. This finding also concurs with the work of Rush, Moe, and Storlie (1986). In addition, Sticht (1982) reported similar reading times and difficulty levels for military jobs and reading materials.

Current difficulty levels of occupational reading are quite high. Difficulty levels of 70% of running prose reading materials on the job ranged from 9th- to 12th-grade levels (Mikulecky, 1982). Nearly every civilian and military study cited here indicates average difficulty levels of job-related print to be at the high school level or above. Though having a wealth of background knowledge on a topic can tend to lower reading difficulty by the equivalent of a few grade levels, the heaviest job-related reading is performed by new workers learning new jobs (Kern, 1985). New workers are the least likely to have a wealth of background experience. This expectation of heavy reading for new workers is a dramatic change from earlier times when one out of 10 workers performed the literacy tasks for others.

One indication of the changes in print-communication skills required to participate in society is the changing nature of work in the United States and other industrialized countries. As new jobs are created and old jobs disappear, new levels and types of print-communication skills for employment are also created.

Fields, Hull, and Sechler (1987) interviewed industry trainers and supervisors in seven industrial case studies to determine changed basic skills requirements and how industry was meeting those requirements. Two manager observations from these case studies graphically capture the impact of basic skill and information-processing changes for low- and middle-level workers. In describing changes for low-level workers, a manager observed:

> Materials handlers are the guys that pick up boxes and move them from here to over there. Twenty-five years ago . . . you hired people with muscles . . . All you needed to do was lift . . . and be honest. Easy to hire. Now those guys—same guys, same job grade, same badges, muscles are a little weaker—sit in chairs and run computers that monitor automated warehouses. And they keep real-time inventories; they do real-time quality control . . . And they've got a much more important role in the management of the operation intellectually than they ever did . . . And that's what's happening all across jobs. Grunt jobs are turning into head jobs. (p. 35).

The increased demands have impact well beyond the "grunt" jobs described by the first manager. A second manager notes that the same phenomenon occurs with middle-level jobs.

> This is a whole group of people who in the past thirty years have made it into the working middle class with only marginal cognitive skills. Their inferencing is weak, their generalization is weak. Those are reading skills the new jobs call [for]. You have to be able to read data, synthesize it, and predict trends . . . The general education course in the 1950s . . . did not give [them] an adequate base for the kind of work that is done in the work place today. (p. 36).

Johnston and Packer (1987), in *Workforce 2000,* have performed a more systematic analysis of the language, reasoning and mathematics skills ratings of jobs that are in decline and jobs that are on the increase. They reported that

> only four percent of the new jobs can be filled by individuals with lowest levels of skills, compared to 9 percent of jobs requiring such low skills today. At the other end of the scale, 41 percent of the new jobs will require skills ranked in one of the top three categories compared with only 24 percent that require such proficiency at present. (p. 99)

These projections indicate that it will be increasingly difficult for workers in developed nations to find adequate employment in jobs that require a very low level of print-communication skills. In addition, a significant percentage of existing middle-level workers will need to increase their skills as their jobs change or increase in difficulty.

There are a few exceptions to the general trend of higher literacy requirements in the workplace. For example, some low-paying jobs can be simplified through fragmentation and automation. In West Germany, cost-effectiveness has sometimes been achieved by breaking down complex tasks into simple tasks to be done repeatedly by an individual worker. This method is not as cost-effective as having a worker who is literate and can adjust flexibly to new tasks when the operation for which he or she has been trained is temporarily halted. However, fragmentation can be cost-effective if the worker is paid an extremely low wage, as are the immigrant "guest workers" in West German industries.

In the United States, where no legal guest worker option exists, fragmented jobs tend to be shipped out of the country, leaving Americans with low literacy abilities without employment. Some fast-food chains in the United States have eliminated the need for much literacy among entry-level employees by using pictures on cash-register keys and computerized pricing. A trained manager must be knowledgeable and available in the event of equipment difficulties, but the system works as long as less capable workers can accept low pay for their severely limited performances. Similar approaches are being used in the automating of oil-pipeline monitoring gauges and holographic package readers in grocery stores.

The grocery store example is useful for examining this low-skill job trend. Automated pricing means fewer mistakes and faster lines, and therefore, fewer cash register operators and baggers to check prices. Computerized inventories also lower the need for massive warehousing and many of the warehouse jobs. Many low-skilled jobs disappear while a few are created. Several more middle-skilled-level jobs are created for building, marketing, and servicing the holographic price readers (Haste & Mikulecky, 1984).

WHO CAN AND CANNOT MEET OCCUPATIONAL LITERACY DEMANDS

Several national assessments of adult and adolescent literacy and communication abilities have been performed during the 1970s and

1980s in the United States and Canada. Items from these studies allow us to draw inferences about proportions of the population likely to experience difficulty with basic communication requirements in the workplace.

The Adult Performance Level study (Northcutt, 1975) included several items similar to workplace print-communication tasks. Of the cross section of adults in the study, from 20 to 44% were unable to perform literacy and computation tasks similar to many workplace demands.

The general magnitude of the APL results was supported by other major functional literacy studies of the 1970s. These included the Survival Literacy Study (Louis Harris and Associates, 1970), the Adult Functional Reading Study (Murphy, 1975), the Mini-Assessment of Functional Literacy (Gadway & Wilson, 1974), and military reports from Project REALISTIC (Sticht et al., 1972).

In 1986 the United States National Assessment of Educational Progress released a major study of the functional literacy abilities of 21- to 25-year-old young adults (Kirsch & Jungeblut, 1986). This study designed items based on what research indicated were reading tasks encountered by a substantial proportion of adults. Tasks involved the ability to use documents, forms, and charts as well as correspondence, newspapers, manuals, and books. More than 3,600 randomly selected adults were tested in their homes by more than 500 trained interviewers. The result is a study that is the most accurate available estimation of what young adults can capably read.

Like the APL study, the NAEP study did not directly address workplace communication skill demands. Some items from the NAEP study, however, closely resemble workplace communication demands and provide a sense of what proportion of the population can and cannot meet those demands. The NAEP results paint a picture of large percentages of the adult population having difficulty with the sorts of literacy skill demands present in many lower- and middle-level jobs.

A few observations about the results are in order. When viewing percentages of the total 21- to 25-year-old population, it appears clear that there is *not* a large degree of basic illiteracy. Over 95%

TABLE 1: Adult Performance Level Study Results of What Adults Could Not Do

Percentage Unable to Perform Successfully	*Task*
44	Match want-ad job requirements to personal qualification
36	Enter the correct number of exemptions on a W4-form
26	Determine if paycheck is correct
22	Address a letter well enough to ensure arrival at its destination
20	Comprehend equal opportunity announcement
20	Write a check that would be accurately processed by a bank

TABLE 2: Tasks Performed Successfully by 95% of Young Adults on the NAEP

- sign their names
- locate expiration date on a driver's license
- locate a time on a meeting form
- enter a caller's number on a phone message form
- write about a job they would like
- enter personal information on a job application

of young adults can perform rudimentary literacy tasks such as those listed in Table 2.

For slightly more complex tasks, however, a good many young adults fail. For example, nearly one-third of young adults could not perform tasks similar to the basic skills tasks present in many service and production jobs. Such tasks for the NAEP are listed in Table 3.

More than half of those 21-25 years old could not perform complicated, multistep occupational literacy tasks. These are the sorts of problem-solving uses of basic skills and communication that are increasingly a part of many jobs. Samples of such tasks drawn from the NAEP are listed in Table 4.

In short, more than half of young adults cannot successfully complete information-processing tasks that are comparable to tasks in growing service and technical occupations.

TABLE 3: Tasks Not Performed Successfully by Nearly a Third of Young Adults on the NAEP

- write a letter stating that a billing error was made
- use an index from an almanac or manual
- enter and calculate bank balances
- locate eligibility from a table of employee benefits

TABLE 4: Tasks Not Performed Successfully by More than Half of Young Adults on the NAEP

- interpret orally distinctions between two types of employee benefits
- use schedules of departures and arrivals
- plan travel arrangements using flight schedules
- calculate and total costs from catalogues

The Canadian "Southam Study" (Calamai, 1987) used these same items plus some additional Canadian items. Canadian results and those of the U.S. study overlap to a considerable extent. Canadian young adults slightly outperform U.S. young adults on mathematical items but do less well on items calling for reading comprehension.

RACIAL AND ETHNIC DISPARITIES IN PERFORMANCE

The reported performance of young adults in the United States and Canada can be somewhat deceptive because the totals are for average performance. The NAEP and Southam studies do not report data by socioeconomic status, but do report data by racial, geographic, and ethnic groups.

There are wide racial and ethnic differences in the young adult data. In the United States, NAEP data (Kirsch & Jungeblut, 1986) indicate that it is probable that 98% of whites could fill in a job application, but only 82% of blacks and 92% of Hispanics would be able to successfully complete the same task. Though a vast majority of all ethnic populations can accomplish basic literacy tasks, gaps in populations become wider as the complexity of tasks increases. For example, data indicate that 22% of whites would

have difficulty writing a letter to state that an error was made in billing. On the same item, 60% of blacks and 42% of Hispanics would be likely to have difficulty. Test data indicate that 35% of whites would have difficulty following directions to travel from one location to another using a map. On the same item, 80% of blacks and 63% of Hispanics have difficulty.

In Canada, the same disparate pattern of performance can be seen in differences between higher English-speaker performance than French-speaker performance. Because French speakers took the test in French, the performance difference cannot be attributed to second-language problems. Atlantic Province young adults also scored at levels significantly below Canadian averages. There is a clear pattern indicating that groups performing at lower levels on the Canadian and U.S. assessments are from groups having lower-than-average socioeconomic status. In the United States, this parallels ethnicity. In Canada, lower performance parallels geographic location or one's first language.

Substantial numbers of young adults form the rapidly growing lower-income strata of society are ill-equipped for the high and ever-increasing communication demands of most jobs. Demographic projections suggest this problem will grow worse. Johnston and Packer (1987) estimate that nonwhites, the groups for whom the United States' education systems perform the least well, will constitute 29% of the net additions to the U.S. work force between 1985 and 2000. At the same time, the overall number of young adults available for the workplace will continue to drop until near the end of the twentieth century. This means that employers will find screening for jobs a more costly endeavor. Individuals with acceptable skill levels will be much less available. To simply fill positions, employers are increasingly forced to hire and deal with larger percentages of undereducated workers.

CONCRETE EXAMPLES OF THE PROBLEM

The cost estimates of low literacy and communication skills among employees vary considerably but are universally high. The

TABLE 5: Concrete Examples of Workplace Literacy Problems

Hospital Kitchen Staff

At a major hospital, the kitchen staff could deal with regular menu orders using easily memorized check-off forms. Health-endangering mistakes sometimes occurred when special menu orders were made by physicians for patients whose conditions require special diets.

Hotel Chamber Maid

At a major urban hotel, repeated health problems and necessary time off were traced to a chamber maid's allergic reactions to misapplied disinfectant. The woman was not able to read warnings and application instructions on the bottle label. She had forgotten full details of her original oral instructions.

Quality Circle Recording

At a Fortune 500 manufacturing plant, quality circle discussion groups have been initiated among hourly employees as a way to solve quality control problems. Success of the program is dependent on the ability of workers to generate ideas, and suggestions for improved quality control. In many circles, no worker was able to take and write up notes that would be comprehensible to anyone not attending the discussion meeting.

Nursing Home Pot Washer

Significant plumbing damage occurred when a pot washer repeatedly used degreasing solvent instead of disinfectant on pipes. The bottles are the same size and shape. Fortunately, fumes did not cause health problems.

Shipping and Receiving Foreman

A man promoted to lead worker could direct shipments to proper locations if names and room numbers were the only print information needed to direct others. When special requests were written on orders, the orders were shelved until the foreman could discretely get help deciphering instructions.

Maintenance Team Leader

The maintenance man with the most seniority was promoted to the role of team leader. Written work orders must be read, jobs delegated, and directions given for mixing solvents and setting up equipment. Rudimentary reading abilities were not enough. The man repeatedly made excuses to call his wife while he read and spelled out directions over the telephone and they jointly decided what must be done.

validity of one figure compared to others is currently impossible to gauge without extensive focused research. Some indications of costs in human terms can be derived from a variety of sources. Above are examples of expensive and dangerous literacy communication problems reported by employers and employees to this author in the United States and to Dr. Maurice Taylor in Canada.

These examples were reported to researchers in confidence by workers and supervisors with the understanding that anonymity would be maintained. Both employers and employees were concerned about repercussions if workplace literacy and communication problems were openly acknowledged.

BANKING: A SINGLE INDUSTRY EXAMPLE

Additional costs of limited print-communication skills result from workers who are unable to comprehend training materials. Nearly every industry has increased training budgets during recent years. Costs include payment for instruction and often payment for worker salaries during training. As growing numbers of workers enter training with low print-communication skills, significant resources are wasted because these workers do not seem to benefit greatly from training they cannot understand.

Many industries are responding to this problem by incorporating basic skills instruction into the overall mix of industry training. The banking industry hires many entry-level employees and has a strong training tradition. The American Bankers Association (Mikulecky, 1989) has recently completed a survey on 391 banks across the United States to determine the extent to which supervisors and human resource directors perceive basic skills difficulties to be a growing problem among employees.

The ABA survey asked respondents to list jobs in which workers displayed basic skills problems. Nearly 90% of the jobs listed were entry-level jobs with the top five being

- teller,
- bookkeeper,
- customer service representative,
- secretary, and
- loan clerk.

More than one in five employees in these jobs were reported by supervisors as experiencing basic skills problems. In addition, the turn-down rate for new applicants with inadequate basic skills increased by 5% in the past three years.

Currently, 38% of surveyed banks report providing basic skills education programs and spending 22.8% of their training budgets on such programs. This averages more than $25,000 annually for banks providing such training programs. Most of this basic skills training is provided by the banking industry itself with 37% pro-

TABLE 6: Problem Areas Identified by Banking Supervisors

Teller
- checking cash tickets for accuracy
- summarizing policies and procedures for customers
- comprehending memos and manuals
- understanding and using training materials
- understanding and complying with written regulations
- writing error-free letters to customers

Bookkeeper
- using instruction manual to make entries correctly
- taking and correctly responding to telephone messages
- writing acceptable business letters
- comprehending memos and training materials

Customer Service Representative
- relaying accurate information to customers on service charges, fees, etc.
- understanding service descriptions well enough to do cross-selling
- understanding memos (misinterpretation causes expensive mistakes)
- writing to customers (problems with structure, grammar, word use)

Secretary/Receptionist
- proofreading
- interpreting written instructions (often requires expensive, time-consuming supervision)
- phrasing original memoranda
- writing correspondence that is free of grammar and word-use errors

Loan Clerk
- understanding concepts in written instructions
- proofreading and rechecking for errors
- comprehending and applying nonroutine procedures
- explaining problems in writing (or even orally)

vided by internal departments and 36% provided by the American Institute of Banking.

Print-communication skills ranked high among the problem areas listed by survey respondents. A sampling of identified problem areas for banking occupation areas is shown in Table 6.

Subsequent to the survey of supervisors, the author interviewed and observed bank employees performing basic tasks identified as problem tasks for less able employees. These task analyses revealed that a variety of basic skills abilities are called for in performing many banking tasks. Workers can make mistakes because of low experience and ability in any one of a string of subtasks they need to perform. For example, it is not unusual for a bank employee to be asked to transfer funds from a savings to a checking account.

When examining the Literacy Task Analyses below, consider the persons who are being asked to perform these tasks. Many bank employees are high school graduates who elect not to attend college or further professional training. They come from the bottom third of their graduating classes and may not have fully mastered the reading, writing, oral, and calculating abilities called for in the tasks listed below. Many have had little or no previous experience in listening carefully, taking notes, making sense of tabular information on screens, and being able to comprehend and summarize bank policy for customers. Consider the two basic banking skills task analyses below.

Transferring funds from savings to checking

- taking phone call in professional manner
- recognizing task (identifying key terms and problems)
- taking notes from phone call
- skimming computer screen for organization and topic
- comparing notes to computer screen for name, account number, etc.
- reading computer screen for new information
- taking notes from computer screen
- summarizing information for customer
- filling out forms accurately

Correcting balance sheet errors

- recognizing task (identifying key terms and problems)
- skimming computer printout and teller balance sheet for organization and topic
- comparing computer printout to teller balance sheet
- highlighting amounts that do not match
- calculating difference between amounts
- reading forms for errors (transaction tickets, calculator tapes)
- highlighting amounts that do not match
- calculating correct amounts
- writing correct amounts on forms (tickets, tapes, balance sheets)

Banks have traditionally screened carefully to find workers who could perform tasks like those above. Increasingly, however, banks must compete with other service industries for the very best workers. The competition for skilled workers is already rigorous in many

areas and will grow more rigorous. As a result, the banking industry is investing more in training.

The topic of training has also become more complex. Training has become very expensive and it grows increasingly clear that a single type of training is not effective with all workers. Workers with different levels of basic skills respond differently to traditional training.

MULTISTRAND APPROACHES

There appear to be at least three major print-communication problem areas in the workplace—each calling for a slightly different solution. These problem areas relate to

1. Extreme low-level literates (i.e., those unable to function independently with even simple print)
2. Workers who can read at a moderate level (i.e., as high as the sports page), consider themselves to be literate, but derive little benefit from expensive training because of insufficient reading, computing, and study abilities
3. Workers at nearly all ability levels who make some job-related literacy mistakes that influence safety, productivity, and promotability.

The first problem area (low-level literates) is the area involving the smallest number of workers (below 5%) and is yet foremost in the public mind. Surveys of corporate literacy training indicate that approximately 10-25% of businesses fund basic education training for low-level literates and that this percentage may be increasing (Lusterman, 1977; Mikulecky & Cousin, 1982). Training ranges from in-plant basic education programs (Business Council for Effective Literacy, 1987) to funding for employees to attend community basic skills education and GED classes.

The second problem area (i.e., low basic skills that limit training effectiveness) is less recognized but effects a larger percentage of workers. The vast majority of workers in many industries hold high school diplomas and do not perceive themselves as having print-communication difficulties. Management demands for increased

training and performance, however, often reveal that worker self-perceptions are inaccurate. For example, a recent survey of a manufacturing concern (Mikulecky, 1988) revealed that over a half million dollars was spent on yearly training for 700 employees. For hourly employees, most of whom had graduated from high school, training involved taking specialized courses from a local technical college. Nearly 20% of hourly employees were unable to meet the technical college's minimal reading and mathematics entrance requirements (approximately an eighth grade level of achievement). Most of these workers considered themselves to have no literacy problems, but their tested reading and math abilities were below minimum levels needed for successful ongoing training. Further, both technical college and in-plant instructors commented upon the marginal benefits of training and mastery of skills for workers who *did pass* minimum entry standards, but just barely. Without adequate print-communication skills, workers do not tend to learn new material very well. One in as many as four or five hourly workers may be ill-prepared to benefit from required technical training.

The third area of print-communication problems (i.e. literacy mistakes related to safety, productivity, or promotability) can happen at any education level. They are sometimes the result of unfamiliarity with formats, specialized technical vocabulary, or complexities and ambiguities present in new print materials. Literacy task analysis or literacy audits of key job tasks may be required to determine the extent to which literacy-based mistakes are endangering lives or costing money (Mikulecky, 1985; Drew & Mikulecky, 1988; U.S. Departments of Education and Labor, 1988). Henry and Raymond (1982) identify literacy-related safety mistakes to be the major literacy problem reported by employers. Literacy-related mistakes also relate to productivity problems and inability to implement new productivity innovations. New York Mutual Life reported having to redo 70% of correspondence in the early 1980s (Henry & Raymond, 1982).

Most work sites experience all three of the foregoing problem areas. It is unlikely that a single approach will solve all problems.

What is called for is a *multistrand approach.* Such an approach offers varying solutions to varying problems.

The most prevalent strand is designed for low-level literates. Such workers need long-term support to improve their basic skills. It may take several hundred to a thousand hours of instruction before a worker who can barely read a product label is able to troubleshoot using a manual for computerized equipment. For comparison, consider that a child spends nearly 9,000 hours in school moving from the 4th grade to the 10th grade. Adult learning is more rapid but still time-consuming. Economic support for basic education is one way that employers can help provide such long-term support. Some employers also offer in-plant basic skills programs with time contributed by both the employer and the worker. Such programs have the advantage of making workplace materials more easily accessible to instructors and communicating to workers the value management places upon a capable work force.

The second workplace literacy program strand is directed toward middle-level literates who are ill-equipped for technical training. The needs of these workers can often be addressed by integrating basic skills training with technical training. Technical schools and in-plant instructors can organize class periods to briefly teach such study skills as textbook use or how to take notes related to the technical material covered. Such instruction can be managed in 10- to 15-minute sessions in which the instructor demonstrates how to take notes or gather key information from a text. Technical instructors can also be taught to make use of the host of tested ideas available to content-area reading specialists (i.e., developing study guides, preteaching key concepts, individualized assignments, alternate readings). The implication here is clearly that trainers working with the bottom 25% of the work force may need to receive some retraining in their own right.

The final workplace literacy training strand is directly related to local safety and productivity issues. It implies a careful analysis of the key workplace tasks involving basic skills and is likely to lead to custom designed materials and training. Such analyses may identify areas where workers need training. Other analyses may

reveal documents that need to be redesigned, or job descriptions that need to be rewritten. Several suggestions for how to develop such a strand have appeared in print (Mikulecky, 1985; Cornell, 1988; Drew & Mikulecky, 1988; U.S. Departments of Education and Labor, 1988). All involve some form of on-site analysis and diagnosis of the tasks, strategies, and materials needed to perform competently.

MODIFYING LITERACY DEMANDS VIA JOB PERFORMANCE AIDS

In addition to training, it is possible to narrow the gap between print-communication demands and skill levels by modifying demands. Some print-communication problems are the result of poorly written documents or mistaken reliance on memos as training and job guides. One can restructure information so that it is more accessible and comprehensible to workers. This restructured information, designed to help workers perform tasks, is often called a "job performance aid."

Job performance aids (JPAS) are typically based on a task analysis of job steps. Though they vary in format (i.e., checklists, flowcharts, step-by-step instructions, computerized guidance), they all are designed to improve job performance and lower the time needed for training. Initial research addressing the effectiveness of JPAs was predominantly performed in the military.

The effectiveness of job performance aids has been documented by a number of studies. Elliott and Joyce (1971), for example, found that high school students with 12 hours of training in how to use a job performance aid for diagnosing electrical problems were able to spot errors at a level comparable to fully trained technicians with an average of seven years' experience. Kammann (1975) found that an algorithmic (or flowchart) format increased comprehension and reduced errors and reading time. Swezey (1977) reports that high-aptitude workers using job aids significantly outperformed high-aptitude workers using traditional print materials. Medium-aptitude

workers using job aids outperformed high-aptitude workers without job aids on some measures though performance by the two groups was the same on other measures.

Mockavak (1981) and Smillie (1985) report on several studies that suggest that workers prefer training built around the use of job aids and that the job aids encourage increased use of training manuals after training is completed. Johnson, Thomas, and Martin (1977) report that 78.7% of military technicians trained in the use of job aids liked the job aids better than the manuals they replaced. Though over half of the technicians reported that they would be irritated if they were required to use job aids for every job, 58% preferred job aids for nonroutine jobs.

Existing research on job aids indicates that workplace print-communication problems can be addressed, in part, by modifying and developing new materials. Further examination of the effectiveness and limitations of job aids and restructured information in the workplace is clearly in order.

CONCLUSION

Print-communication demands in most businesses have increased. At the same time demographic and economic trends are forcing employers to hire employees with lower skill levels. These trends will continue well into the next decade.

Increasingly, businesses are recognizing the economic consequences of print-communication problems. A first step is realizing that there are a variety of types of problems that call for differing solutions. A few workers need long-term support to move from virtual illiteracy to productive skill levels. Many more workers need to have basic skills training integrated with regular job training if training is to be effective. Finally, industries are increasingly focusing upon areas where mistakes are made or promotion is blocked. In such areas, solutions range from short-term targeted training to redesigned documents and job performance aids.

REFERENCES

Business Council for Effective Literacy. (1971). *Job related basic skills: A guide for planners of employee programs.* New York: Author.

Calami, P. (1987). *Broken words: Why five million Canadians are illiterate.* Toronto, Ontario: Southam Newspaper Group.

Canadian Business Task Force on Literacy. (1988). *Measuring the costs of illiteracy in Canada.* Toronto, Ontario: Author.

Cornell, T. (1988). Characteristics of effective occupational literacy programs. *Journal of Reading, 31,* 654-657.

Diehl, W., & Mikulecky, L. (1980). The nature of reading at work. *Journal of Reading, 24,* 221-227.

Drew, R. A., & Mikulecky, L. J. (1988). *How to gather and develop job specific literacy materials for basic skills instruction.* Bloomington, IN: Office of Education and Training Resources, School of Education, Indiana University.

Elliott, T. K., & Joyce, R. P. (1971). An experimental evaluation of a method for simplifying electronic maintenance. *Human Factors, 13,* 217-227.

Fields, E. L., Hull, W. L., & Sechler, J. A. (1987). *Adult literacy: Industry-based training programs.* Columbus, OH: National Center for Research in Vocational Education.

Gadway, C., & Wilson, H. A. (1974). *Functional literacy: Basic reading performance.* Denver, CO: National Assessment of Educational Progress.

Haste, J., & Mikulecky, L. (1984). The context of literacy in our society. In A. Purves & O. Niles (Eds.), *Becoming readers in a complex society.* Chicago: University of Chicago Press.

Henry, J. F., & Raymond, S. (1982). *Basic skills in the U.S. work force.* New York: Center for Public Resources.

Hymowitz, L. (1981, January 22). Employers take over where school failed to teach the basics. *Wall Street Journal,* p. 1.

Johnson, R. C., Thomas, D. L., & Martin, D. J. (1977). *User acceptance and usability of the C-144 job guide technical order system* (AFHRL-TR-77-31). Wright-Patterson Air Force Base, OH: Wright-Patterson Air Force Base, Human Resources Laboratory.

Johnston, W. B., & Packer, A. E. (1987). *Workforce 2000.* Indianapolis, IN: Hudson Institute.

Kammann, R. (1975). The comprehensibility of printed instructions and the flowchart alternative. *Human Factors, 17*(2), 183-191.

Kern, R. P. (1985). Modeling users and their use of technical manuals. In T. M. Duffy & R. Waller (Eds.), *Designing usable texts.* New York: Academic Press.

Kirsch, I., & Jungeblut, A. (1986). *Literacy: Profiles of America's young adults.* Princeton, NJ: National Assessment of Educational Progress at Educational Testing Service.

Kozol, J. (1985). *Illiterate America.* New York: Anchor Press.

Louis Harris and Associates. (1970). *Survival literacy: Conducted for the National Reading Council.* New York: Author. (Also reported in *The Congressional Record,* November 18, 1970, pp. E9719-E9725.)

Lusterman, S. (1977). *Education in industry.* New York: Conference Board.

Mikulecky, L. (1982). Job literacy: The relationship between school preparation and workplace actuality. *Reading Research Quarterly, 17,* 400-419.

Mikulecky, L. (1985). *Literacy task analysis: Defining and measuring occupational literacy demands.* Paper presented at the annual meeting of the American Educational Research Association, Chicago, March 31 (ED262206).

Mikulecky, L. (1988). *Indiana workplace literacy partnership.* (Unfunded proposal to the U.S. Department of Education, Washington, DC)

Mikulecky, L. (1989). *Developing basic skills programs for banking.* Paper presented at the American Institute of Banking Annual Conference, Chicago, June 26.

Mikulecky, L., & Cousin, P. (1982). Literacy training in business: A survey of Fortune 500 training programs. *Performance and Training, 21,* 29-30.

Mikulecky, L., Shanklin, N., & Caverly, D. (1979). Adult reading habits, attitudes and motivations: A cross-sectional study. *Teaching and Learning Series Monograph.* Bloomington: Indiana University, School of Education.

Mockavok, W. P. (1981). Integrating training and manual design using job aids. *Educational Technology, 23*(2), 21-23.

Murphy, R. T. (1975). Assessment of adult reading competence. In A. Nielson & J. Hjelm (Eds.), *Reading and career education* (pp. 50-61). Newark, DE: International Reading Association.

Northcutt, N. (1975). Functional literacy for adults. In D. Nielsen & H. Hjelm (Eds.), *Reading and career education* (pp. 43-49). Newark, DE: International Reading Association.

Rush, T., Moe, A., & Storlie, R. (1986). *Occupational literacy.* Newark, DE: International Reading Association.

Smillie, R. J. (1985). Design strategies for job performance aids. In T. Duffy & R. Waller (Eds.), *Designing usable texts* (pp. 213-243). Orlando, FL: Academic Press.

Sticht, T. G. (1982). *Basic skills in defense.* Alexandria, VA: Human Resources Research Organization.

Sticht, T. G., Caylc., J. S., Fox, L. C., Hauke, R. N., James, J. H., Snyder, S. S., & Kern, R. P. (1972). Project REALISTIC: Determination of adult functional literacy skills levels. *Reading Research Quarterly, 7,* 424-465.

Swezey, R. W. (1977). Performance aids as adjuncts to instruction. *Educational Technology, 17*(3), 27-32.

Tyler, R. W. (1978). *Education for functional literacy: Old problems, new problems.* Paper presented at a Conference on Functional Illiteracy, Indiana University, Bloomington.

U.S. Departments of Education and Labor. (1988). *The bottom line: Basic skills in the workplace.* Washington, DC: Office of Public Information, Employment and Training Administration, Department of Labor.

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Questions Remaining: Directions for Future Inquiry

QUESTIONS REMAINING: DIRECTIONS FOR FUTURE INQUIRY

The central question posed by this review of adult literacy issues is: How can the lessons of adult literacy best inform education at all levels?

We believe that communication, cooperation, and collaboration among the educational institutions of our society that have traditionally operated independently are required for the increase of literacy. Limited funding and the need to increase effectiveness in literacy provision make our working together unavoidable if we are to succeed and leave behind the "parallel play" of earlier days. At a policy level, we need legislation and regulations that encourage, maintain, and administer collaborative programs. We need to study the programs now in effect and those being initiated to see whether they make a difference. Studies must pay attention to the context of the programs and the communities in which they succeed. Models for future programs must be identified. One of our greatest current needs is the development of tools for assessment and evaluation that match the objectives of the programs.

We need forums for telling the stories of our programs and successes so we can move from theory and research to implementation and further questions. To some extent these forums exist in anthologies such as this one and in the meetings of the established literacy organizations such as the International Reading Association, which is sponsoring increasing numbers of sessions focused on adult and intergenerational literacy. But more educators, researchers, and administrators need to compare notes and initiate tested practices. National publications and meetings reach some audiences, but we also need to have town and country meetings to share successes and tackle problems together. These meetings should bring together a broad cross-section of each community and include, on occasion, outside specialists as well as those working at all levels of the educational spectrum. They might well serve to focus short- and long-term educational planning for these communities. Community ownership is critical to the kind of enduring support that successful educational efforts require.

Our greatest long-term need is the design and development of curricula for lifelong learning in the schools, in adult education programs, and in the workplace. Within that challenge lies the need to make the connection between schoolhouse and workplace meaningful for learners of all ages. We need to understand that education has to be more than the mere transmission of yesterday's – or even today's – ideas and information. Education must become an all-involving cooperative effort to make sense of our changing society. That cooperative effort must draw together a permanent coalition of partners in literacy education: the educational establishment; business and industry; agencies of local, state, and federal government; and the communities of people presently excluded from the full enjoyment of the fruits of labor and literacy. These challenges are as vast in their vexing implications as the consequences will be if we, as a society and as educators, fail to face them squarely. On the other hand, if we do respond to the best of our collective abilities, we will have given our society a new foundation in learning; we will have given all our people the power to pursue happiness through literacy.

References for Further Reading

REFERENCES FOR FURTHER READING

Introduction

Kirsch, Irwin and Ann Jungblut. *Literacy: Profiles of America's Young Adults*. Princeton, N.J.: Educational Testing Service, 1986.

This report summarizes the results of the Young Adult Literacy Study of the National Assessment of Educational Progress. The design of this study is being extended presently both for individual assessment of adult literacy, and features are being incorporated into the elementary and secondary NAEP literacy assessments.

Newman, Anabel P. and Caroline Beverstock. *Adult Literacy: Contexts and Challenges*. Newark, Del.: International Reading Association, 1990.

This book contains discussions of the contexts of literacy in terms of the values, definitions, historical assessments, early pioneers, and more recent research. It also contains a comprehensive discussion of the efforts of the 1980s to bring together the energies and resources of diverse organizations and entities concerned about literacy.

Getting Up to Speed in Adult Literacy

Bhola, H. S. *Campaigning for Literacy: Eight National Experiences of the Twentieth Century, With a Memorandum to Decision Makers*. Paris: UNESCO, 1984.

This volume contains more information about literacy campaigns in this century and is recommended for those desiring more information on literacy around the world.

Freire, Paulo and Donaldo Macedo. *Literacy: Reading the Word and the World*. South Hadley, Mass.: Bergin and Garvey Publishers, Inc., 1987.

Freire and Macedo contend that issues of illiteracy are not just economic but also ones of justice and the maintenance or loss of democracy.

Hunter, Carmen St. John and David Harman. *Adult Illiteracy in the United States: A Report to the Ford Foundation*. New York: McGraw Hill, 1979.

In this study commissioned by the Ford Foundation, the authors examined the evidence pertinent to adult illiteracy in the United States. While the demographic information is now somewhat old, their analysis of the hardest-to-reach populations is still useful.

Kintgen, Eugene; Barry Kroll; and Mike Rose. *Perspectives on Literacy*. Carbondale and Edwardsville, Ill.: Southern Illinois University Press, 1988.

In a reader intended for university classes in literacy, the authors have assembled papers on theoretical, historical, educational, and community perspectives on literacy.

Kozol, Jonathan. *Illiterate America*. New York: Anchor Press/Doubleday, 1985.

Kozol's book was sold and read widely as more and more people recognized that adult illiteracy had serious dimensions in the United States. In his political analysis of lack of literacy, he weaves together statistics with personal stories to make the case for a grassroots national literacy movement.

Intergenerational and Family Literacy

The Barbara Bush Foundation. *First Teachers: A Family Literacy Handbook for Parents, Policy Makers, and Literacy Providers*. Washington, D.C.: The Barbara Bush Foundation, 1990.

Goldsmith, Ellen and Ruth D. Handel. *Family Reading: An Intergenerational Approach to Literacy*. Syracuse, N.Y.: New Readers Press, 1990.

The developers of the Parent Readers Program in Brooklyn, New York, an intergenerational literacy program based in college and adult education classrooms, have written this teacher's guide, detailed instructional plans for 10 instructional units, training guide, and teacher materials.

Heath, Shirley Brice. *Ways with Words*. Cambridge: Cambridge University Press, 1983.

As an anthropologist and teacher, Heath lived in and studied three North Carolina communities for 10 years. In this book she profiles the literacies of the members of each community (middle class, working-class Afro-American, and working-class white) in terms of the interrelationship of oral and literate traditions, thoughts about literacy, and the definition and meaning of becoming literate.

McIvor, Conlon M., ed., *Family Literacy in Action: A Survey of Successful Programs*. Syracuse, N.Y.: New Readers Press, 1990.

This book provides overviews of eight family and intergenerational literacy programs. Forward by Ruth Nickse.

Sticht, Thomas G. and Barbara A. McDonald. *Making the Nation Smarter: The Intergenerational Transfer of Cognitive Ability*. University Park, Penn.: Institute for Study of Adult Literacy, 1989.

This anthology resulted from a conference on intergenerational literacy with especial emphasis on cognitive science and the implications of recent research on the design of intergenerational and family literacy programs.

Workplace Literacy

Commission on Workforce Quality and Labor Market Efficiency. *Investing in People: A Strategy to Address America's Workforce Crisis, Background Papers, Vols. I and II*. Washington, D.C.: U.S. Department of Labor, 1989.

These two volumes contain papers commissioned to cover all aspects of the workforce in the United States.

Denton, William, ed., *Dropouts, Pushouts, and Other Casualties*. Bloomington, Ind.: Center for Evaluation, Development, and Research, Phi Delta Kappa, 1987.

Anthology of articles on dropouts and pushouts.

Sticht, Thomas G.; W. B. Armstrong; D. T. Hickey; and J. S. Caylor. *Cast-off Youth: Policy and Training Methods from the Military Experience*. New York: Praeger, 1987.