The impact of literacy training on literacy in the workplace: a study of city of Atlanta employees

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THE IMPACT OF LITERACY TRAINING ON LITERACY
IN THE WORKPLACE: A STUDY OF CITY OF
ATLANTA EMPLOYEES

A DEGREE PAPER
SUBMITTED TO THE FACULTY OF ATLANTA UNIVERSITY
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The primary intent of this paper is to examine the impact of literacy training on workplace illiteracy. Specifically, the paper examines the effectiveness of a computer-based literacy training program called the Principle of the Alphabet System (PALS) organized for an identified group of City of Atlanta illiterate employees. This paper focuses on five employees located in the Parks Maintenance Bureau of the Department of Parks, Recreation and Cultural Affairs. The issues addressed in this study focus on definitions of functional literacy and correlations between workplace literacy and job performance.

The study is significant, for, it draws attention to the role literacy programs can play within the workplace. The findings of the study showed that literacy training does have a positive impact on adult illiterates in the workplace by enabling them to meet the basic literacy demands of their jobs. Literacy training also heightens an individual's self-confidence and gives employees the motivation to
pursue higher career goals. The study also showed that a computer-based literacy training program is a highly effective means of training adult illiterates and is appealing to most adult literacy students.

Both primary and secondary sources of information were utilized for the study. Primary sources included a telephone survey administered to City of Atlanta employees who completed the literacy training program. Other primary sources were interviews with City of Atlanta personnel and others involved in the training program. Secondary sources of data included books, journal articles, public documents, and periodicals.
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I. INTRODUCTION

The question of America's literacy has often produced measurements based on comparisons between the United States and Third World countries. Such comparisons have spawned the declaration of "the U.S. as the most literate society in the world."\(^1\) Yet other traditional measures of literacy between countries, such as book and newspaper sales, contradict such statements as illustrated in newspaper sales where the U.S. is a distant third behind Japan and Germany, respectively, and ranks twenty-fourth in the world in book sales.\(^2\)

In recent years, however, new statistical evidence has pointed to a situation so grave that in 1983, the White House declared that "our nation is at risk because of a collapse in literacy skills"\(^3\) and because of the high incidence of illiteracy. However, there is a great deal of variance in literacy statistics. This is largely due to diverging definitions of literacy.\(^4\) Hence, estimates of the incidence of illiteracy range from ten million nationwide, according to Princeton University, to seventy million adults who are "marginally

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\(^2\) Ibid.

\(^3\) Ibid.

\(^4\) See Literature Review, page 17, for definitions of literacy.
literate," according to Secretary of Education, Terell Bell. The figure generally used is the Census Bureau's estimate of twenty-three million. This (figure), however, excludes the seventeen- to twenty-year-old prison population. Therefore,

Sixty million is the commonly accepted bottom estimate for an all-inclusive category of adults: those who read below the ninth-grade level.\(^5\)

Despite the variance in statistics, the figures indicate that the incidence of adult illiteracy in the United States is extremely high. In response, President Reagan declared "war" on adult illiteracy by launching a nationwide adult literacy initiative coordinated by the Department of Education in the fall of 1983. The President's action focused a much-needed spotlight on adult illiteracy geared toward raising the public's consciousness about illiteracy and urging the nation's illiterates to seek help.

While such campaigns are helpful and also provide the needed artillery in the fight against adult illiteracy, the problem has reached proportions that require action far beyond the realm of well-meaning public service announcements. Specifically, the magnitude of the problem of adult illiteracy nationwide is clearly seen when stated in economic terms:

In dollar terms alone, adult illiteracy is costing the country an estimated $225 billion annually in lost industrial productivity (emphasis mine), unrealized tax revenues, welfare, prisons, crime and related social issues.\(^6\)

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\(^6\)Mary-Margaret Wantuk, "Can Your Employees Read This?" Nation's Business, June 1984, p. 34.
Of the $225 billion lost annually, $9 billion is lost by the State of Georgia. Additionally, one of seven Georgia employees is illiterate, and one of four of all Georgians is illiterate. The number of illiterates employed by the City of Atlanta is estimated at 2,000.

The problem of "lost industrial productivity" caused by adult illiteracy as it appears in the workplace, specifically in the public sector, is of substantial importance. Moreover, because workplace illiteracy is a problem which needs to be and can be addressed, this paper examines the impact of literacy training on workplace illiteracy. Specifically, the paper examines the effectiveness of a computer-based literacy training program called the Principle of the Alphabet System (PALS) organized for an identified group of City of Atlanta employees. This paper focuses primarily on five employees of the City's Parks Maintenance Bureau in the Department of Parks, Recreation and Cultural Affairs.

The study is divided into seven sections. Section I describes the prevalence of illiteracy across the United States. It places special emphasis on illiteracy in Georgia and Atlanta City government.

The second section of the paper provides a description of the agency unit and the bureau (Parks Maintenance) targeted for observation. This section also discusses the City's goals for training and developing its employees. Finally, Section II defines and discusses

7Interview with Ruby Sherrill, Planning Specialist, Atlanta Public Schools, Atlanta, Georgia, March 1987.

8Interview with Marian Jones, Legislative Liaison, Office of the Mayor, City of Atlanta, Atlanta, Georgia, April 1987.
the nature of functional illiteracy, describing why and how it is problematic for City of Atlanta employees.

Section III provides background information in three areas by reviewing the existing literature pertaining to functional and workplace literacy, literacy and job performance, and literacy training. Section IV contains methodological information, which includes a description of data sources, data collection procedures, and methodological limitations of the study (problems encountered during research). Section V reports and analyzes the research findings, while Section VI presents conclusions reached from the analysis.

The final portion of the paper, Section VII, offers recommendations based on the conclusions drawn in Section VI.
II. THE PROBLEM AND ITS SETTING

Agency Unit and Description

The internship took place within the Bureau of Personnel and Human Resources (BPHR) of the City of Atlanta. The writer was assigned to the Employee Development and Training Division, one of its sub-units, from September 1985 until July 1987.

The Bureau is a sub-unit of the Department of Administrative Services and functions as a support unit for the City of Atlanta by handling matters pertaining to personnel and human resources management. The Bureau's seven areas of responsibility are shared among seven divisions. They are: 1) Certifications - determines eligibility of job applications for positions, 2) Classifications - determines the category into which a particular position should fit and develops job descriptions, 3) Worker's Compensation - manages disbursement of compensation to injured/ill employees, 4) Recruitment - selects applicants to fill vacant positions, posts/writes job announcements, 5) Records - manages the maintenance of employee personnel files, 6) Affirmative Action - oversees the various departments' compliance with federal laws on Affirmative Action, and, 7) Employee Development and Training (Training).

The Training Division reports to the Director of BPHR. It operates under an Administrative Order (Administrative Order No. 83-6) which contains goals and objectives established by the Office
of the Mayor as guidelines for training the City's employees.

According to the Administrative Order, the Division is responsible for overseeing, coordinating, creating and implementing programs which will enable City employees to carry out their job responsibilities more effectively and efficiently. These tasks are the responsibility of a four-person full-time staff comprising the Division Manager, two project managers and one clerical support person. There were also two part-time graduate interns, one of whom was the writer. These personnel are responsible for achieving the training objectives stipulated in Administrative Order 83-6 for the City's 7,997 employees. The Training Division conducts approximately fifty training programs per year, training an average of 4,705 employees annually. These programs vary in scope, ranging from the offering of classes, such as basic stenography, to large-scale, week-long training events, such as "Excellence Week in City Government," "Women's Week in City Government," and "AIDS Awareness" training. The Division is also responsible for determining the direction of training within the City by conducting a yearly (and ongoing) needs assessment which surveys departments to determine departmental training needs and to receive feedback on which training programs and events to continue.

It is this entity (the Training Division) which has been entrusted with the responsibility for the implementation of literacy training for City employees. This responsibility is primarily a coordinating role. The Training Division serves as the liaison between departments and prospective students for the training program,
2) schedules such employees for eligibility testing, 3) acts as liaison between the City and actual trainers (IBM and Atlanta Public Schools), 4) keeps records of training activity and participants' test scores, 5) interprets and devises impact studies and reports results to the Office of the Mayor, and, 6) makes recommendations (to the Bureau Director and Office of the Mayor) for determining how best to continue and/or modify existing literacy training.

Decentralization within the Atlanta City government somewhat disperses the role of the Training Division. Each Bureau within the City is responsible for selecting at least one employee who, in addition to his/her normal job responsibilities, acts as a Training Coordinator. While Training Coordinators are not part of the Training Division, they fulfill an important liaison role between the individual Bureaus and the Training Division. (The Training Coordinator for the Parks Maintenance Bureau was interviewed for this study and was considered a significant source of data.) (Figure 1 represents an organizational chart of the Bureau of Personnel.)

The Internship Experience

As an intern in the Training Division, the writer assisted the Division in carrying out its objectives by planning and coordinating training projects. The projects varied from annual events like "National Secretaries Week" and an annual microcomputer exhibition, to editing a newsletter aimed at employee skills improvement. In project assignments, the writer was responsible for planning, researching, data analysis, coordination and implementation of the project.
FIGURE 1
Organization Chart of the Bureau of Personnel and Human Resources

Administration

Director

2 Secretaries
1 Administrative Assistant

Equal Employment Opportunity Technician

1 Division Head
1 Personnel Analyst
2 Personnel Assistants
1 Clerk Typist

Recruitment Division

1 Division Head
3 Personnel Assistants
1 Personnel Analyst

Records Division

1 Division Head
3 Personnel Assistants
1 Personnel Analyst

Employee Development & Training Division

Classification Division

1 Division Head
3 Personnel Analysts
2 Personnel Assistants
1 Clerk Typist

Evaluation Division

1 Division Head
3 Personnel Analysts
2 Personnel Analysts
1 Secretary

Certification Division

1 Division Head
3 Personnel Analysts
2 Personnel Analysts

Worker's Compensation Division

1 Division Head
3 Personnel Analysts
2 Claims Investigators

Source: LaVerne J. Hunter, "Low Job Performance as a Function of Low Job Satisfaction in the Bureau of Personnel and Human Resources, City of Atlanta" (Master's thesis, Atlanta University, Atlanta, Georgia, 1985), p. 5
Other duties included compilation of training statistics, designing communiqués to announce training events, and assisting with routine office functions, including scheduling, contacting trainees by phone, and registering participants for classes. Examples of general assignments included attending City Council meetings, attending staff meetings, and acting as a participant in training programs.

Detailed Identification of the Problem

In the fall of 1986, during a press briefing publicizing the PALS pilot literacy program for City employees, Mayor Andrew Young, citing statistics on illiteracy, expressed his concern over the high incidence of illiteracy in the United States. Then in January 1987, at a graduation ceremony for the first employees to complete the literacy program, the Mayor reaffirmed his commitment to literacy training for City employees by stating that the City would continue to pay employees for their participation in the program. His words were:

Its (literacy training) important enough to give people the incentive to come. In the long run it will save the City money.9

With the current estimate of functionally illiterate City of Atlanta employees hovering at approximately 2,000, the Mayor's concern with alleviating illiteracy within the City government is well-taken. Given the toll illiteracy is shown to take on productivity, the

Atlanta City government, with one-fourth of its workforce as functionally illiterate, faces a serious problem.

Section III of this paper provides a more in-depth analysis of functional literacy. However, a brief discussion of the term is provided here in identifying the context of the problem.

For the purposes of this paper, functional literacy is defined as being

... relative to the requirements of an individual within a particular society; it is the degree of literacy required for effective functioning in a particular community .... The term literate ... (has) two main uses, one referring to the ability to read and write, one referring to wideness of education, and both these uses are relative to cultural expectations.10

Conversely, functional illiteracy is the inability to read and write at a level which permits functioning at an effective level in one's environment. (This "effective level" of functioning is known as "functional competency." Section III contains a detailed explanation of the term.)

The specific environment isolated for discussion here is the workplace. A form of illiteracy found only in the workplace, often resulting from functional illiteracy, is known as occupational illiteracy. For the purposes of this paper, occupational illiteracy is defined here as the inability to read "required, work-related materials"11 at a level which permits functioning effectively within

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the work environment.

Some employees may be functionally literate yet occupationally illiterate. However, the latter is often a result of the former. The City of Atlanta employees observed in this study were both functionally and occupationally illiterate before receiving literacy training.

Description of the Problem Unit

This study examines illiteracy within the Bureau of Parks Maintenance. This Bureau was selected for observation on the basis of the following criteria:

1. **Participation in the Literacy Program** - The Bureau contains graduates from the first PALS literacy class for City employees.

2. **Level of Interest in the Program** - This Bureau is one of only two to supply employees to be tested for participation in the second class session; in fact, it supplied the largest number of participants of any single bureau within City government to the first PALS class.

3. **Commitment of Training Coordinator** - The extent to which a bureau participates in an Atlanta City government training program rests heavily upon the efforts of the bureau's Training Coordinator. This is particularly important in literacy training where outreach and efforts to publicize the program are extremely important.

The Bureau of Parks Maintenance is a sub-unit of the Department of Parks, Recreation and Cultural Affairs (see Figure 2). The Bureau is responsible for maintaining the City's park property and buildings located on that property. This includes grounds maintenance, minor building repairs of recreation centers, and custodial services. It also maintains one golf course, an historic cemetery, greenhouses, and tree care and tree removal on all public right-of-ways in parks throughout the City.
Figure 2
BUREAU OF PARKS MAINTENANCE
(As of July 17, 1985)

Source: Bureau of Parks Maintenance
These tasks are divided into five sub-divisions. The Manager of each division reports to the Bureau Director. The divisions are:
1) District Operations - handles ground maintenance for six geographical locations, 2) Skilled Services - handles carpentry, masonry, electrical work, etc., 3) Arboriculture - handles forestry, 4) Golf, and 5) Cemeteries.

It is primarily within the District Operations Division that the Bureau has identified employees in need of literacy training. Of the Parks employees participating in the first literacy class, the classifications represented were Laborers, Equipment Operators - both from District Operations - and one semi-skilled employee from the Skilled Services division.

According to the Parks Maintenance Training Coordinator, laborers do not have required, work-related materials to read in order to perform their jobs, while equipment operators and semi-skilled workers must be able to follow and understand "simple" oral and written instructions. Illiterate employees within Parks Maintenance were identified by supervisors who have knowledge of employees' performance and work closely enough with them to observe behaviors which indicate reading difficulties, such as the inability to sign the attendance sheet. Some employees identified themselves and volunteered to go through the training program.

As mentioned previously, the Bureau of Parks Maintenance was a "pioneer" in sending employees to the pilot class for the City of Atlanta PALS program. Six of the total employees to attend and
complete the first training course (from which data for this study were gathered) were Parks Maintenance employees. This accounts for 40 percent of the entire class, which contained a total of fifteen participants who completed the training.

Additionally, the Parks Bureau has identified twenty employees to be tested for participation in the second literacy training class, which is currently in session. Thirteen of the twenty employees evaluated read at least at a fifth grade reading level and are therefore eligible to participate in the program. (More information about the PALS program is provided in Section IV.) According to the Training Coordinator, Parks Maintenance is committed to literacy training because:

We realize the benefits of having people who can read. Equipment and (operating) techniques are getting more sophisticated and we can only fight it with increased education. It is hard to educate someone who can't read.\(^{12}\)

Statement of the Problem

As Mayor Young pointed out during the press briefing for the PALS program, workplace illiteracy, whether rooted in functional or occupational illiteracy, has been recognized as a costly problem for employers. The Mayor is hardly alone in his observation, for an article from *Nation's Business* pointed out that:

For employers, who are frequently unaware of a worker's deficiency because it is cleverly concealed, this can mean enormous dollar losses due to incorrectly filled order, shipments sent to wrong destinations, spoiled

\(^{12}\text{Interview with Wayne Darcey, Training Coordinator, Bureau of Parks Maintenance, City of Atlanta, Atlanta, Georgia, March 1987.}\)
products, low productivity and equipment breakdowns caused by workers unable to read operating instructions.13 Each of the occurrences cited above is economically problematic because each represents reduced efficiency, defined here as the maximization of the organization's resources (manpower, equipment, staff hours, etc.). Moreover, a reduction in effectiveness, the realization of organizational goals and objectives, occurs when efficiency decreases. For example, a general goal of private sector companies is to achieve maximum profits. Yet the above-mentioned behavior caused by illiteracy produces "enormous dollar losses," thereby lessening companies' profitability as well.

Although public sector goals are not profit-oriented, effectiveness in the public sector is also reduced by decreased efficiency. For example, Administrative Order 83-6 by the Mayor states that it is:

... the City's mission (to provide) quality services to its citizens ... (and to) increase efficiency and economy within City Government.14

Such goals are difficult and costly to attain when illiteracy-induced behavior prevails. This fact has been substantiated in the case of City of Atlanta operations by a $2 million efficiency study of the City government completed last year by the APC Skills Company. The study cited illiteracy amongst city supervisors as particularly problematic.15 This elucidates the problematic nature of workplace

13Wantuck, "Can Your Employees Read This?," p. 34
14Atlanta, Georgia, Administrative Order 83-6 (1983), p. i.
15Galloway, "Literacy Class Turns Out Its First Grads," p. 1B.
The presence of functional illiteracy limits an individual's effectiveness in his/her environment. In the work environment, this is believed by researchers to be indicated by specific behaviors, such as on-the-job accidents and improperly-operated equipment. These kinds of behaviors (and others) cause a reduction in overall efficiency and effectiveness. Therefore, the primary intent of this paper is to examine the impact of literacy training on workplace illiteracy. Specifically, it examines the effectiveness of a computer-based literacy training program called the Principle of the Alphabet System which was organized for an identified group of City of Atlanta illiterate employees. This paper focuses primarily on five employees of the Bureau of Parks Maintenance.
III. REVIEW OF LITERATURE

As background for discussion of this study, a review of relevant research in the following areas is helpful: 1) Functional Literacy, 2) Workplace Literacy and Job Performance, and 3) Literacy Training.

Functional Literacy

The literature and research on literacy suggest that there are divergent views on what constitutes literacy. Nonetheless, researchers agree that there is a level of literacy attainable which permits members of a society to function "effectively" within that society. This is known as "functional literacy." The term, coined by noted researcher William Gray in 1956, is best summarized by Jeffries (1967):

Minimum literacy is not of much use except in so far as it may be developed into what is now termed 'functional literacy'. Obviously, no exact or universal definition of this term is possible, but its meaning is clear enough. 'A person is functionally literate', writes Professor William Gray '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 .... This is the kind of literacy which matters and at which literacy campaigns are directed.'16

In short, functional literacy refers to an individual's ability to cope with and function within a given society (or environment) as a result of his ability to read and write. The level or

extent to which an individual successfully copes and/or functions is known as functional competency.

Some researchers assert that functional competency is attainable at a certain reading grade level. For example, the Department of Education believes that a fourth grade reading level is sufficient for functional competency while other researchers, such as those involved with the Adult Performance Level Project, believe functional competency occurs with the acquisition of certain societal skills.

Definitions of literacy have changed with societal changes. At one time, the United States was a more agrarian society, and the ability to read at a fourth grade level yielded the necessary skills to function in society. With the advent of technology, however, more advanced skills are required for individuals to function successfully within society. These kinds of factors, as well as the needs of the individual, employer, or educator, all account for the variance in the definitions of functional literacy.

Further controversy occurs when researchers try to determine whether the same level of competency is needed for all strata of society. Several different approaches to defining functional competency have been utilized by various researchers over the years, yielding a variety of reading grade levels, from fourth to ninth, as the standard for functional competency. Where reading grade levels are used to determine illiteracy, individuals who read below a fourth grade level are generally regarded as functionally illiterate. 17

17Interview with Barbara Kawulich, State Project Coordinator, State of Georgia, Department of Labor, Atlanta, Georgia, March 1987.
In the early 1970s, a task force called the Adult Performance Level Project (APL) was commissioned to "establish standards of functional competency which are free of school-based notions of literacy," i.e., that is, standards based on the completion of certain tasks, rather than on the ability to read at a certain grade level.

Findings of the APL project suggest that functional literacy is based upon occupation, education, and income. Essentially, this would mean that a lawyer is more functionally competent than a janitor, according to this project.

Some researchers, such as Levine (1982), Kazemek (1986), Griffith and Cervero (1977) and Acland (1976), question the applicability of the APL findings. Their basic contention is that there are many different levels of functional literacy which may be attained to suit differing lifestyles and ambitions. However, where tasks or functional areas are used to define functional literacy, the APL findings are generally accepted by such noted literacy researchers as Kozol, Hunter and Harman, and by the media and public officials.

Workplace Literacy and Job Performance

That workplace illiteracy has become a national behemoth is no longer subject to dispute. It has been repeatedly documented by


19 Kozol has authored several books on illiteracy and is highly regarded for his expertise.

the economic losses being felt and absorbed by employers:

There is widespread belief that employers must teach their workers basic literacy skills (emphasis mine) or risk sacrificing efficiency and profits.21

Whether these "basic literacy skills" are attainable via functional or occupational literacy depends upon the literacy demands of the job:

Industry reports seem to indicate increased economic problems resulting from workers unable to meet the literacy demands of their jobs.22 (Emphasis mine.)

Mikulecky and Ehlinger (1986) note that considerable research of recent years has examined literacy in the workplace by writers such as Sticht (1975, 1980, 1982), Mikulecky (1982), Moe, Rush and Storlie (1979), Smith (1973), Heath (1980), and Heineman (1978). According to Mikulecky and Ehlinger, the major findings that are common to these studies include:

Literal is called for in most jobs; workplace literacy differs from school literacy in that workplaces call for a variety of materials while schools do not; literacy in the workplace is repetitive and usually for the purpose of accomplishing a task; ... training for a job is usually more demanding in terms of literacy than in performing the job ....23

However, this information neither gives any indication of how literacy relates to the performance of job tasks, nor of the impact of literacy


training on job performance. Therefore, a discussion of the correlation between workplace literacy and job performance is important.

Milulecky and Winchester (1983) found that there are many unanswered questions about the relationship between literacy and job performance. In their study with twenty-seven nurses at various employment levels, they examined:

... the undocumented assumption that ... superior workers usually have higher literacy abilities than other workers and, that superior workers spend their time differently than other workers and approach literacy tasks differently. They postulated that an examination of differences in workers' literacy behaviors can help adult educators produce training which will yield high job performance. In reviewing research in this area for their study, they also found that:

Research regarding the relationship between literacy and job performance is sketchy and based to a large extent upon findings of military studies ... Kulp (1974) found, in a controlled study, that performance of an assembly task decreased significantly when worker reading skills were more than two grade levels below the difficulty level of instructions. Kern (1980) found that use of the print materials was much more likely among inexperienced workers.

Their conclusion about these correlations was that:

Although these correlations are significant, they only explain 8% to 13% of job performance variance. A good deal more than basic reading ability as measured by a reading test is needed to explain job performance ability.

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25 Ibid., p. 3.

26 Ibid.
Mikulecky and Winchester (1983) concluded in their study of nurses that the way an employee uses his/her literacy skills, not merely the skills, makes the difference in his/her job performance. This involves the development and utilization of "literacy abilities," such as the ability to think through tasks and apply the appropriate literacy skill, or the ability to organize information. They also found that other factors like intuition, motivation, judgment, and job role models impact the way literacy skills are used, which in turn, impacts performance.

In a 1986 study of performance with electronics technicians, Mikulecky and Ehlinger drew a similar conclusion to that found in the nursing study that:

The ability to efficiently use literacy to solve job problems was called for during a significant proportion of job time and was an effective indicator of job performance.27

**Literacy Training**

The goals of literacy training have much to do with the outcome desired and the environment in which the trained individual is to function. Some researchers, like Kazemek (1986), believe that goals of literacy training are viewable in a social context and are an important aspect of training implementation. In a different vein, Goodman (1968) notes:

The 'functional literacy' that is so much talked about has no relation to reading for truth, beauty, or citizenship

but is entirely training to read directions and to be personnel ....28

Goodman's observation has particular relevance to this study.

Mikulecky and Winchester (1983) point out that there is a difference between the literacy demands of classrooms and those of the workplace. Most reading done on the job is for the purpose of completing a task, while that done in class is for the purpose of learning some concept.

The question of how well classroom settings prepare students to meet job literacy demands remains an open question (Mikulecky, 1982). Diehl and Mikulecky (1980) point out that classroom literacy training has often been ineffective in preparing individuals to meet the demands of job literacy because representative literacy tasks have been used to indicate proficiency. Such tasks usually have little relationship to "real" work literacy demands.

Elements of Effective Literacy Training Programs

Nevertheless, many researchers conclude that certain elements must be present to promote effective literacy training programs. Specifically, these researchers, Wangberg (1986), Goudreau (1986), Thistlewaite (1986), and Anthony (1985), agree that the following elements should be part of an effective literacy training program:

1. Self-confidence promoting aspects;
2. Meaning-based materials;

28Kazemek, "An Examination of the Adult Performance Level Project," p. 27.
3. As much individualized instruction as possible;

4. Cognitive skills challenge;

5. Emphasis on communication of ideas, rather than perfect grammar.
IV. METHODOLOGY

Sources of Data

This study employed data collected from three sources: 1) existing literature on literacy and literacy training, 2) interviews with the following: employees in the Training Division responsible for oversight of the City's literacy program, b) trainers for the City of Atlanta literacy program, and, 3) a survey with graduates of the training program.

Data collected from interviews with personnel in the Training Division, IBM, personnel from Atlanta Public Schools, and the Training Coordinator in the Parks Bureau were used in conjunction with data collected from existing literature throughout the body of the paper. Together, this information forms the basis for the study's conceptual framework.

Population

Of the fifteen employees completing the PALS training, eleven were surveyed. Of those eleven, five were employees of the Bureau of Parks Maintenance. (As mentioned earlier, the bureau sent a total of six employees for training.) This study focuses on the five employees in Parks. However, because it is interesting to compare their responses with those of participants from the other bureaus, reference is made in Section V to the responses of participants from the other
bureaus as well. The bureaus represented were Sanitation, Pollution Control, General Services and Highways and Streets.

Data Collection Procedures

A telephone survey consisting of seven questions was the instrument used for the study. Because the population comprised individuals with low reading skills, a phone survey was believed to be the most effective way of communicating the questions and receiving accurate feedback. Use of the telephone survey also reduced embarrassment to participants.

Questions 1, 2, 4, and 8 were closed-ended (i.e., answered by "yes" or "no"), but probed for an open-ended answer if the respondents answered "yes." Examples of probes are provided in the list of questions below. Questions 3 and 7 are open-ended questions with multiple choice answers which were read to the respondents. A listing of the questions follows:

1. Do you feel better equipped to perform your job? If yes, in what way?

2. Are you required to read specific materials while working? What kind?

3. Have you ever experienced any of the following occurrences on the job? a) job accidents; b) equipment failure/breakdown?

4. Do you feel any differently about yourself since taking the literacy training? If yes, in what way?

5. Do you think you will (eventually) be better qualified for promotions because of your literacy training/ability to read?

6. What did you like most/least about the PALS training?

   a) equipment;
   b) learning to type;
c) written materials;
d) approach;
e) other.

7. Would you recommend the PALS program to someone else? If yes, why?

Data collected were recorded in a table (see Appendix, page 42) which listed the question numbers vertically and respondents and responses were recorded horizontally. Respondents were assigned numbers (to provide anonymity), beginning with 1 through 15, and the responses were recorded beside these numbers. The numbers 1, 3, 4, 7, 8, and 10 represent Parks employees only. Open-ended responses were recorded as well.

**Methodological Limitations of the Study**

One major limitation of this study involves the experimental approach toward literacy training for Atlanta City government employees. The PALS program is a new concept (first tested in 1983) and was just implemented for City of Atlanta employees in 1986. Moreover, because the City's literacy training efforts have been inconsistent and decentralized (located in certain departments/bureaus), there was little room for comparison between past efforts and the current PALS training.

It then follows that there is little information available about the impact of the PALS program on City employees, another limitation of the study. For example, of an estimated 2,000 functional illiterates within the City's workforce, the pilot class for PALS comprised twenty-one employees, of which fifteen successfully completed the program. This provided a very small number of respondents from which to gather data. Of these fifteen graduates, six (or 40 percent) were
employees of the Bureau of Parks Maintenance. These few observations did not allow a more rigorous analysis and identification of variation with respect to the effect of illiteracy in the workplace. Our results are therefore more tentative.

Another limitation of the study was that all the subjects work "out in the field" providing maintenance to the City's parks. Therefore, they were very difficult to survey during "normal" working hours. Hence, five of the six Parks employees were successfully surveyed. (Of the entire graduating class of fifteen students, eleven were surveyed for this study. This includes the five employees from Parks Maintenance.)
V. FINDINGS

Background of the Training Program

As background information for the findings presented in this section, a brief description of the PALS program, the literacy training program implemented by the City of Atlanta, is presented here.

The Principle of the Alphabet System (PALS) was employed by the City of Atlanta to train employees identified as illiterate. The City of Atlanta, Atlanta Public Schools (APS) and IBM engaged in a concerted effort to pilot the program in Atlanta. Each member of the triad had a distinct role. IBM provided the equipment and an instructor/laboratory supervisor, while Atlanta Public Schools and the City of Atlanta provided the pupils. Atlanta Public Schools provided adolescents and high school dropouts, while the City provided municipal employees. Atlanta Public Schools also provided the funds for the purchase of the equipment being used.

The participants were pre-tested by APS using the Test of Adult Basic Education (TABE). It is a standardized test which measures reading ability based on the number of test items an individual is able to answer. (The post-test also uses TABE.) The PALS program also utilizes a functional reading pre-test using common household items such as soup can labels, newspapers, and other practical items. Before being admitted to the program, it must be determined, by testing, that a participant reads on a 5.0 (or fifth grade level) or below. Individuals who read at
a 5.1 or higher level are not admitted to the program.

The PALS system's high technology approach to literacy training was developed by John Henry Martin, a noted educator. The concept involves using the study of phonics - the way vowels and consonants sound - to teach reading. The approach encourages students to learn to read and write words based on how they sound, not on proper dictionary spellings. That accomplishment is then used as a basis for teaching them to consult a dictionary for proper spellings.

The system employs interactive videodisc technology to convey the relationship between words, pictures and sounds. The technology allows students to work at their own pace and to repeat the material as often as necessary. Human quality voice enables the computers to "talk" to users. IBM supplies personal computers which are equipped with voice capability, allowing students to actually hear a word as it is being displayed on the screen. The system is operated by simply touching the computer's display screen, so no prior computer or typing skills are required.

Other materials include six full-picture booklets of thirty-two pages each. These provide a fictional and dramatic account of the invention of the alphabet in which the characters are adolescents of varied backgrounds. Each booklet is accompanied by a taped cassette recording dramatizing, word for word, the content and dialogue of the story.

The learning process takes place in a laboratory setting with one instructor (preferably a trained educator) who supervises the activity. However, the actual instruction is managed by the computer
and audiovisual equipment. The laboratory can accommodate sixteen students per hour. This maximizes the number of students who can be taught at one time, yielding a 16 to 1, rather than a 1 to 1 teacher-student ratio. The training lasts twenty weeks, for one hour per day, five days per week.

The PALS program is a concept based upon five years of research by John Henry Martin, educator, on how younger children learn to read and write (they learn by phonics). It was tested for four months from February through June 1983, in Cardoza High School, Washington, D. C.

The results of the field test showed a gain of 2.88 grade levels for twenty-three students during the four-month period. (This figure represents a mean number for all twenty-three students.) According to the field test report, 80 percent of the test population can make the kind of progress reported above, in a four-month period. The report estimates that less than 5 percent of the general population of the United States do not learn phonetically, and may not benefit from the PALS program.

Presentation and Analysis of Data

Responses to each of the seven survey questions are presented and analyzed in this section.

Responses to Question 1: As a result of your literacy training, do you feel better equipped to perform your job? If yes, in what way?

Answers to this question were unanimously affirmative from all five Parks employees, as well as from the participants from the other bureaus represented. When probed for specific ways in which they felt
better equipped, some responses included:

I can read now. I can do (my job) better
I have better thinking ability, alertness and awareness
I can listen and respond better

The unanimity of responses to this question indicates that literacy training impacts job performance in a positive way by enabling students to improve their job performance. Hence, Goodman's (1986) observation that "functional literacy... is entirely training to be personnel..." is an accurate one, according to this study. In other words, literacy training which is targeted toward the acquisition of basic literacy skills will additionally provide the skills to meet the basic literacy demands of one's job, as well.

This finding also indicates that imparting functional literacy should be the target or goal for literacy training efforts, as William Gray (1956) pointed out:

'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.... This is the kind of literacy which matters and at which literacy campaigns are directed.'

Responses to Question 2: Are you required to read specific materials while working? If yes, what kind?

As the table shows, three of five Parks employees (or eight of eleven total respondents) are required to read some materials in order to perform their jobs. This supports two of the findings in the

29 Kazemek, "An Examination of the Adult Performance Level Project," p. 27.
30 Jeffries, Illiteracy: A World Problem, p. 11.
Mikulecky and Ehlinger studies (1986) that:

Literacy is called for in most jobs; workplace literacy differs from school literacy in that workplaces call for a variety of materials while schools do not.31

Examples of required, work-related reading materials for Parks employees varied. They included names of and instructions for fertilizers, street signs, work orders, memos, requisitions and names of parks. (It is interesting to note that while the Parks Training Coordinator reported that laborers do not use required, work-related reading materials, laborers labelled anything related to their jobs, as in the examples above, as occupational reading materials.)

A combination of the responses to questions 1 and 2 also indicates that many workers do not have basic literacy skills and are therefore not meeting the literacy demands of their jobs.

Responses to Question 3: Have you ever experienced any of the following occurrences on the job: a) job accidents; b) equipment failure/breakdowns?

Two of the five Parks employees answered "no" to having experienced these on-the-job occurrences, while the total responses (employees outside of the Parks bureau also) were split: 5 - NO to both (a) and (b), 2 - YES to one and NO to the other, and 1 respondent answered that his job required no equipment operation.

However, it is important to point out that certain kinds of equipment failures, respondents indicated, such as flat tires, are common

31 Mikulecky and Ehlinger, "The Influence of Metacognitive Aspects of Literacy on Job Performance of Electronics Technicians," p. 43.
workplace occurrences. There is no clear correlation between job accidents or equipment failures and low literacy.

**Question 4:** Do you feel any differently about yourself since taking the literacy training? If yes, in what way?

All five Parks participants (and all eleven respondents) responded in the affirmative to this question. When asked in what way they felt "differently", answers included:

- More confident in my job performance
- I don't feel ashamed or embarrassed now
- I'm less frustrated now and patient enough to finish my work
- I have more faith in myself; I want to expand my career and
- I'm positive (now) I can do it
- I'm more confident
- (Now) I want to get my GED (Graduation Equivalency Diploma)

A combination of these responses with responses to question #1 supports the Mikulecky and Winchester studies (1983) which found that:

A good deal more than basic reading ability as measured by a reading test is needed to explain job performance ability. 32

The respondents' comments tied "feeling differently" in with their job performance. (See Question 1 again.) Mikulecky and Winchester found that motivation (which is measured in this question) helped employees to efficiently use literacy skills, and thereby improve their job performance.

**Question 5:** Do you think you will (eventually) be better qualified for promotions because of your literacy training/ability to read?

---

32 Mikulecky and Winchester, "Job Literacy and Job Performance Among Nurses," p. 3.
According to their unanimous affirmative responses, all Parks employees believe that they now stand a better chance of getting a promotion because of their training (all other respondents but one felt the same). This finding indicates that by becoming functionally literate, an individual may find him/herself better able to function more effectively in society.

Question 6: What did you like most about the training? Least? a) equipment, b) approach, c) learning to type, d) materials used, e) other.

Responses from the five Parks employees as to what they liked most were: Equipment - 3, Learning to type - 1, Approach - 1. When the responses of all eleven surveyed were tallied, the equipment (the IBM PC, videodiscs, cassette recorders) was the overall favorite, with 7 of 11 favoring it.

Without exception, all eleven respondents were initially unable to give a response as to what they liked least about the training. The writer accepted those responses as valid, particularly as a pattern of unanimity developed. However, when random participants (approximately four) were probed further for what they liked least, all felt that the program was too short - they were sorry to see it end. All expressed real gratitude for having had the opportunity to learn to read, thus, criticism of the program was scarce and difficult to obtain.

The success of the PALS program, as indicated by this survey, is supported by the research of Wangbert (1986), Goudreau (1986), Thistlewaite (1986), and Anthony (1985) who agree that certain elements should be contained in any literacy training program, namely:
1. Self-confidence promoting aspects
2. Meaning-based materials
3. As much individualized instruction as possible
4. Cognitive skills challenge
5. Emphasis on communication of ideas, rather than perfect grammar

The PALS program contains each of these elements. For example, self-confidence promoting aspects and emphasis on communication of ideas are both embodied in the PALS program through the phonics approach to teaching reading:

By pointing the blame for their (students') past reading troubles at the ambiguities of English spelling we have replaced their past failures. When success comes quickly, they internalize the results with observable personality changes due to their new found self-confidence.33

The workbooks and film strips (displayed using the videodisc equipment) are meaning-based materials, not only because they tell an interesting story of how the alphabet was developed, but are a fresh deviation for adults from the elementary school books used in some literacy training programs. Additionally, since the computer and other pieces of equipment are actually the pupil's instructor, the student receives individual attention. Finally, the cognitive skills challenge is found in the multifaceted approach taken by the PALS program. An individual is challenged not only to learn to read, but also to learn to operate sophisticated equipment (which also promotes self-confidence).

Question 7: Would you recommend the PALS program to anyone else? If yes, why?

Again, all Parks employees (and all other respondents) indicated that they would recommend the PALS program to others. In fact, some had already done so at the time of the survey.

When asked why they would recommend the program, respondents' answers varied but were mostly:

- It helped me tremendously
- Everything is going toward computers
- Good starting point for adults who want to read
- Great confidence builder.
VI. CONCLUSION

The major findings reported in Section V lead the writer to make the following conclusions:

- While functional illiteracy takes a toll on worker productivity, via reduced efficiency and effectiveness, literacy training has a positive impact upon adult illiterates in the workplace. The extent of that impact is seen in improved work performance and in the effectiveness of the program to better prepare employees to perform their jobs by enabling them to meet the basic literacy demands of their jobs.

- Imparting functional literacy should be the target of literacy training, since the acquisition of functional literacy alleviates occupational illiteracy amongst unskilled and semi-skilled workers.

- Behaviors like job accidents and equipment failures may be caused by functional illiteracy where instructions must be read for successful equipment operation. However, this theory is not supported by the survey research for this study. There is no observable correlation between equipment operation and functional illiteracy.

A correlation exists between motivation and job performance. Literacy training has a positive effect on an individual's self-confidence. This alleviates frustration and heightens motivation to perform the job better.

- Literacy training gives employees the motivation to pursue higher career goals, and helps prepare them to meet the demands of
those aspirations.

- Effectiveness in a literacy training program, i.e., results as those reported here, is achieved when the program's design contains the following elements:

1. Self-confidence promoting aspects
2. Meaning-based materials
3. As much individualized instruction as possible
4. Cognitive skills challenge
5. Emphasis on communication of ideas, rather than perfect grammar.

- Computer-based literacy training is advantageous for two main reasons: 1) It is highly appealing to most adult literacy training students, encouraging them to be consistent and diligent with the training, thereby completing the program; 2) It is possible to teach more students at one time because of the "tirelessness" of the equipment, yet the student is still able to receive individualized instruction.
VII. RECOMMENDATIONS

Based on the conclusions from the study, the following recommendations are made:

1. The Office of the Mayor should direct the Training Division to devise a uniform method for identifying illiterate employees, which can be used across departments.

2. The responsibility for implementing the education program in each bureau should be given to that bureau's Training Coordinator. The efforts of the Training Coordinator in Parks to inform and recruit participants resulted in a higher-than-average (compared to other bureaus) level of participation in the training program from that bureau's illiterate employees. Because publicity is essential to participation, an education program to inform all employees of the benefits of literacy training should be designed by the Training Division.

3. In like manner, the Office of the Mayor should require the support of upper level management, i.e., Commissioners and Bureau Directors. The advantages of doing so will minimize the chances of sporadic, decentralized efforts by departments, and increase the possibility of a successful program City-wide. Support from the Mayor in the form of paid time for literacy training is the kind of commitment which offers an incentive for employees who wish to participate. It also sends a message to upper level management that the Mayor is serious about the program's success.
4. A follow-up study to determine the correlation between illiteracy and job behaviors such as absenteeism, job accidents, and equipment failures/breakdowns, is needed and should be conducted by the Training Division. The findings may be used to find additional ways to identify illiterate employees in the workplace.
APPENDIX

RESPONSES TO SURVEY QUESTIONS
## RESPONSES TO SURVEY QUESTIONS

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**Q = Question**

**R = Respondent**

*These numbers represent employees from the Parks bureau. Gaps in numbers represent the employees not surveyed.*

**T = learning to type; E = equipment; A = approach**

Source: Compiled from data.
BIBLIOGRAPHY

Books


Journal Articles


Periodicals

Anthony, Carolyn. "Literacy Programs in Action: Learning to Read in Order to 'Be Somebody' is the Goal of Six Women in an East Harlem Adult Literacy Class." Publisher's Weekly. May 1984, p. 39.


Wantuck, Mary-Margaret. "Can Your Employees Read This?" Nation's Business, June 1984, pp. 34-36.

Interviews


Jones, Marian. Legislative Liaison. City of Atlanta, Office of the Mayor, Atlanta, Georgia. Interview, April 1987.


Marmo, Frank R. Training Division Manager, City of Atlanta, Atlanta, Georgia. Interview, December 1986.

Sherrill, Ruby. Planning Specialist. Atlanta Public Schools, Atlanta, Georgia. Interview, March 1987.
Unpublished Reports


Public Documents