
Functional Literacy in the 21st Century: Employer, Teacher, and Student Perspectives

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Educational critics and pundits have assailed the U.S. educational system over the past several years with alarming statistics and predictions about the lack of preparation of American workers and the marginal educational skills of American high school graduates. These reports and observations have relied on two major sources of information: statistics from internationally administered standardized tests and anecdotes from employers. As a result, educators have felt whipsawed, criticized because of failure to meet standards that are defined after the fact, and derided because of reports of inadequacies of single individuals.

Often, the criticisms have been collected under such headings as "American students can't read" or "millions of Americans are functionally illiterate," with resultant statements about America's loss of position in competition in international markets. Beneath the criticism, however, there has often been confusion about just which weaknesses are present. Some comparisons have focused on perceived weakness in performance on such tests as the Scholastic Aptitude Test (SAT) or on international subject matter examinations. The American Association of Colleges for Teacher Education (AACTE, 1991) noted that central to President Bush's proposed "America 2000" was a testing program "...based on five core subjects and tied to the 'World Class Standards.'" Other comparisons have used examples of students' lack of knowledge, citing "innumeracy" or the lack of "cultural literacy."

On a separate but related plane, American plants have been moved to "third world" locations, where workers are available at less cost to the manufacturer (Moore, 1988; *Time*, 1992). A result of such moves has been the loss of jobs of thousands of American workers. In effect, the relocated jobs require lesser skills/competencies; the remaining jobs that are available to the newly unemployed American workers demand greater skills/competencies. Several writers and researchers (Mikulecky, 1992; Rush, Moe & Storlie, 1986) have pointed to this increasing complexity of the demands of the workplace, including, but not restricted to, literacy demands.

Newman and Beverstock (1990) pointed out that concerns regarding adult literacy grew during the 1980s. They wrote, "[T]he adult literacy movement (evolved) from a slight (but growing) awareness of the problem of illiteracy in the previous generation to national recognition of the literacy needs of adults" (p. vi). There are reports of successful efforts to make changes in school literacy programs; for example, Samuels and Pearson's *Changing School Reading Programs* (1988).

But if education is to respond appropriately to criticisms and challenges, at least two pieces of information are necessary: an estimate of current demands and worker competencies, and perceptions of future demands/competencies. That is, there needs to be a current baseline and some notion of future needs. Further, in order for education to meet future needs it is important to know the current perceptions of the principals who will be directly involved in shaping the workplace in "America 2000" (*Reading Today*, October/November, 1991). The AACTE (1991) article cited American 2000 references to four such parties, "parents, educators, politicians, and employers." In this study, we survey some of the principals, namely business persons, teachers, and students to get their perceptions of workplace literacy demands for the outset of the 21st century.

Objectives

This study has two major purposes: (a) to identify perceptions of potential literacy demands of the workplace now and ten years from now, and (b) to compare perceptions of those demands among some of the principals involved: business persons, teachers, and students. A survey instrument was developed to elicit responses from individuals in each of these groups. The instrument consisted of 25 items to which individuals responded by rating the importance of the particular reading/literacy demand now and in the year 2002, ten years in the future. Questions related to reading, writing, literacy-related interaction, and knowledge thought to be important for on-the-job performance now and in 2002.

Methods

The subjects for this study were two hundred thirty-eight individuals in four small cities located in Georgia, Kansas, Mississippi, and Wisconsin. The subjects represented three groups: business persons, teachers, and students. Business persons were identified through membership in service clubs in the four cities. Teachers were practicing teachers enrolled in university courses in the areas of administration or supervision. Students were high school juniors and seniors. In all seventy-two business persons, ninety-one teachers, and seventy-five students responded to the survey.

A questionnaire was constructed to measure the perceived importance both now and ten years into the future of a variety of literacy-related factors in the areas of reading, writing, interaction, and knowledge. This survey instrument consists of twenty-five items (See Appendix A). Subjects responded on two separate five-point, Likert-type, scales for each item; one scale referred to the perceived importance now (in 1992) and the other scale reflected the perceived importance ten years in the future (in 2002). The wording of the survey directions varied slightly with one set of directions for teachers and students and another set for business persons. The directions for teachers and students referred to importance "for workers in businesses" while those for business persons referred to importance "for workers in your business."

All subjects were given an introductory letter briefly explaining the purposes of the study (See Appendix B). In addition, respondents were asked to provide some general demographic data. The requested demographic data varied by group (Appendix C).

Data Analysis and Results

Initially, the basic demographic information was summarized for each group. Then, the responses were tabulated and analyses of variance were computed to compare the group responses on each of the questions. In addition, individual items were grouped into four categories: reading, writing, interaction, and knowledge. Separate repeated measures analyses of variance were computed for each of the four categories.

Demographic Information

The business persons in this study represented mainly service and educational occupations, with 52 percent indicating that they were employed in service businesses and 33 percent in education-related jobs. The respondents were owners (15 percent), presidents or vice

presidents (15 percent), other executives (29 percent) and other employees (42 percent). The businesses also varied in size: 26 percent represented businesses with ten or fewer employees, 12 percent were in businesses with 11 to 50 employees, 26 percent with 51 to 200 employees, 26 percent with 201 to 1000 employees, and 7 percent with more than 1000 employees. Most of the business persons had been in their businesses more than ten years (65 percent).

The teachers in this study represented a variety of levels: 21 percent taught at the primary level, 14 percent at the intermediate level, 30 percent at the junior high, middle school level, and 35 percent at the high school level. They described their communities as villages (17 percent), towns (48 percent), small cities (23 percent), and large cities (12 percent). Another measure of the communities was the size of their high schools: 55 percent came from districts that had medium sized high schools (500 to 1000 students).

Most students described their communities as towns (38 percent) or small cities (60 percent). They typically described their high schools as large (78 percent).

Scores on Individual Items

Overall, the three groups did not differ significantly on the individual items either for the present (1992) or for ten years in the future (2002). Tables 1 and 2 show the average ratings of each item by group.

Table 1

Average Ratings of Importance in 1992 for Business Persons, Teachers, and Students

Item Number	Business Persons	Teachers	Students
1	3.82	3.72	3.80
2	4.71	4.71	4.33
3	4.38	4.30	3.97
4	4.44	4.15	3.97
5	4.36	3.98	3.72
6	4.35	4.06	3.89
7	4.39	4.14	4.01
8	4.53	4.29	4.04
9	4.40	4.16	4.17
10	4.19	4.04	3.78
11	4.03	3.77	3.48
12	3.58	3.49	3.65
13	3.86	3.81	3.69

14	3.73	3.80	3.76
15	3.55	3.65	3.83
16	3.44	3.53	3.47
17	4.18	3.90	4.00
18	3.32	3.36	3.42
19	3.97	3.99	3.80
20	4.50	4.35	3.96
21	3.04	3.23	3.49
22	3.24	3.43	3.79
23	3.54	3.62	3.92
24	3.36	3.48	3.57
25	3.57	3.70	3.89

Table 2

**Average Ratings of Importance in 2002
for Business Persons, Teachers, and Students**

Item Number	Business Persons	Teachers	Students
1	4.08	3.83	4.15
2	4.88	4.85	4.45
3	4.75	4.67	4.32
4	4.76	4.58	4.25
5	4.60	4.33	4.00
6	4.68	4.32	4.04
7	4.76	4.50	4.17
8	4.78	4.55	4.39
9	4.81	4.71	4.51
10	4.43	4.31	4.26
11	4.49	4.24	4.04
12	4.14	4.30	4.01
13	4.45	4.47	4.36
14	4.57	4.76	4.53
15	4.50	4.69	4.52
16	3.97	4.02	3.83
17	4.42	3.66	4.09
18	3.83	3.52	3.75
19	4.47	4.40	4.10
20	4.68	4.41	4.21
21	3.60	3.80	3.96
22	3.69	3.88	4.01
23	4.18	4.33	4.28
24	3.90	4.10	4.09
25	4.10	4.17	4.13

The results did differ significantly, however, from 1992 to 2002 ($F=138.5$, $p<.0001$). Individual differences ($p<.05$) were seen on nine

items in the perceptions of the needs in 1992. Differences were seen between students and the other two groups on items 2, 3, and 20. These items reflected the ability to read and understand directions, the ability to critically analyze what is read and the ability to correctly fill out forms. On all three items, the students' rating of importance was significantly lower than that of business persons or teachers. Differences between business persons and students were seen on items 4, 6, 8, 11, and 22. These items dealt with using information from several sources, explaining what is read, reacting appropriately to written information, writing a description of a work process, and knowledge of U.S. history. On the first four of those items, students rated the items significantly less important than did business persons. On the history knowledge item, students rated the item as more important. Differences between business persons and the other two groups were seen on item 5: discussing what is read with co-workers. Business persons rated this item more important.

Differences ($p < .05$) in the perceptions of the importance of items for 2002 were seen on twelve items. On items 2, 3, 4, 5, and 19, students differed from the other groups. These items included directions, critically analyzing what is read, combining information from several sources, discussing what is read with co-workers, and using a variety of references. Students rated these items as less important than did business persons and teachers. On items 6, 7, 8, 9, and 11, all three groups differed. These items included explaining what is read to co-workers, writing directions or memos, reacting appropriately to written communication, reading information in a variety of formats, and writing a description of a work process. In each case, business persons rated the importance the highest, followed by teachers and then students. Teachers differed from the other groups on item 17. They rated the ability to spell lower than did the other groups. Business persons differed from students on item 20. They rated the ability to fill out forms higher than did students.

Scores on Groups of Items

The items in the questionnaire were grouped into four categories for analysis. The category "reading" included items 1-4, 8, 9, 13, and 19. The category "writing" included items 7, 11, 12, 14, 15, 17, and 20. Items 5, 6, 10, 16, and 18 were placed in the category "interaction." The final five items, items 21-25, were in the category "knowledge." Repeated measures analyses of variance were used to examine differences among the three groups and to look at differences across time.

Generally, the respondents saw all four groups of items as "somewhat important" to "important" for workers in businesses in 1992;

average scores ranged from 3.52 (knowledge) to 4.10 (reading). For each of the four groups of items, significant differences were seen between the perceptions of current demands (1992) and perceptions of future demands (2002). Average scores for importance in 2002 were all at least "important," ranging from 2.10 (knowledge) to 4.46 (reading). Tables 3-6 show the total scores as well as the scores for each of the subgroups.

Table 3

Mean Scores on Reading Items by Group for 1992 and 2002

	<u>1992</u>	<u>2002</u>
BusinessPersons (n=72)	4.24	4.60
Teachers (n=91)	4.11	4.49
Students (n=75)	3.96	4.30
Total Groups (p<.01), Years (p<.01)	4.10	4.46

Table 4

Mean Scores on Writing Items by Group for 1992 and 2002

	<u>1992</u>	<u>2002</u>
Business Persons (n=72)	3.96	4.50
Teachers (n=91)	3.84	4.36
Students (n=75)	3.82	4.23
Total Years (p<.01)	3.87	4.36

Table 5**Mean Scores on Interaction Items by Group for 1992 and 2002**

	<u>1992</u>	<u>2002</u>
Business Persons (n=72)	3.93	4.31
Teachers (n=91)	3.78	4.08
Students (n=75)	3.62	3.96
Total Groups (p<.01), Years (p<.01)	3.78	4.11

Table 6**Mean Scores on Knowledge Items by Group for 1992 and 2002**

	<u>1992</u>	<u>2002</u>
Business Persons (n=72)	3.35	3.89
Teachers (n=91)	3.49	4.06
Students (n=75)	3.71	4.10
Total Years (p<.01)	3.52	4.02

Significant differences were seen among the groups of respondents on the reading items (Table 3) and the interaction items (Table 5). Business persons found both sets of items to be most important, followed by teachers and then students. Although a similar pattern was noted on writing items (Table 4), the differences were not significant.

Differences were also not significant for knowledge items (Table 6), although the observed differences were opposite of those noted on reading, writing, and interaction items. Students' observed ratings of knowledge items were the highest, followed by teachers and then business persons.

Discussion

This study looked at the perceptions of business persons, teachers, and students about current and future literacy demands. Specifically, the study was designed to (a) identify perceptions of potential literacy demands of the workplace now and ten years from now, and (b) compare perceptions of those demands among business persons, teachers, and students. The responses to the questionnaire point to several characteristics of those perceptions.

First, the respondents see all the literacy items contained in the questionnaire as at least "somewhat important" (3.0 or higher). For 12 of the 25 items, at least one group saw the items as "important" (4.0 or higher) in 1992.

Second, all three groups see an increasing demand for the literacy skills, abilities, and knowledge reflected in the questionnaire. The overall average rating increased from 3.86 to 4.27. While the items are generally seen as important now (in 1992), they are seen as likely to be more important in the future (2002).

Third, the reading skills and abilities are seen as the most important, both now and in the future. The knowledge items are seen as the least important.

Fourth, the groups differ in their perceptions of the importance of the reading and interaction items. Business persons see the group of reading items and the group of interaction items as more important than do the other two groups. The gap between the perceptions of business persons and students is particularly large.

Fifth, although the differences are not significant, the general pattern of responses on the knowledge items is opposite that of the other sets of items. That is, students seem to see these items as relatively more important than do the other groups.

The results suggest that some differences exist in perceptions of the importance of various current and future literacy demands. As educators work to build curricula that address both current and future needs, ascertaining the perceptions of involved groups is essential for two reasons. One, educators need to gain a better understanding of those needs. By consulting those involved, they will gain a better under-

standing. Two, educators need to help reconcile discrepancies in perceptions of those demands. Discrepancies among the perceptions of the three groups need to be addressed to ensure that involved parties have a shared understanding of the educational needs of students who will become workers in our society. Discrepancies between current requirements and future requirements will help us identify the need for change and the direction of the required change. These perceptions from several different stakeholders will help us address the need for school reform.

Results from this study, then, will help educators better understand potential literacy demands and expectations for the beginning of the twenty-first century and also help identify areas of common concern and areas of disagreement. By identifying areas of common perception, we can work together to enhance literacy development. By highlighting areas of disagreement, we can begin to work to bridge those disagreements and solve literacy problems.

Knowledge of perceptions of literacy demands in the early 21st century will help us prepare to meet those demands. As demands change, schools must be aware of those changes and continually re-examine the effectiveness of programs for meeting such changing demands. Rather than going "back to the basics," educators need to help establish ways of meeting future needs. Essential to meeting future needs is a willingness to change on the part of all parties involved. However, before change can take place, differences in goals and expectations must be identified and addressed. By looking at the perceptions of employers, teachers, and students, this study will help to highlight common perceptions as well as critical differences.

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Appendix A

Survey of Business Literacy Needs

Directions: Indicate the current importance of each of the following items for workers in your business by rating each item in the column headed 1992 from 1 (very unimportant) to 5 (very important). Then, indicate the expected importance of each of the items ten years in the future by rating each item in the column headed 2002.

<u>1992</u>	<u>2002</u>	
1 2 3 4 5	1 2 3 4 5	1. ability to read aloud fluently
1 2 3 4 5	1 2 3 4 5	2. ability to read and understand directions
1 2 3 4 5	1 2 3 4 5	3. ability to critically analyze what is read
1 2 3 4 5	1 2 3 4 5	4. ability to read and combine information from several sources
1 2 3 4 5	1 2 3 4 5	5. ability to discuss what is read with co-workers
1 2 3 4 5	1 2 3 4 5	6. ability to explain what is read to co-workers
1 2 3 4 5	1 2 3 4 5	7. ability to write a clear set of directions or a clear memo
1 2 3 4 5	1 2 3 4 5	8. ability to react appropriately to written communication
1 2 3 4 5	1 2 3 4 5	9. ability to read information in a variety of formats (memos, instructions, electronic formats)
1 2 3 4 5	1 2 3 4 5	10. ability to describe a work process orally
1 2 3 4 5	1 2 3 4 5	11. ability to write a description of a work process
1 2 3 4 5	1 2 3 4 5	12. ability to write a technical report
1 2 3 4 5	1 2 3 4 5	13. ability to read a technical report or professional journal

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|-----------|-----------|---|
| 1 2 3 4 5 | 1 2 3 4 5 | 14. ability to use a word processor |
| 1 2 3 4 5 | 1 2 3 4 5 | 15. ability to use a computer database, spread sheet, or statistical program |
| 1 2 3 4 5 | 1 2 3 4 5 | 16. ability to critique and/or edit the written work of another |
| 1 2 3 4 5 | 1 2 3 4 5 | 17. ability to spell correctly |
| 1 2 3 4 5 | 1 2 3 4 5 | 18. ability to help someone else improve his/her writing |
| 1 2 3 4 5 | 1 2 3 4 5 | 19. ability to use a variety of references to seek information |
| 1 2 3 4 5 | 1 2 3 4 5 | 20. ability to correctly fill out forms |
| 1 2 3 4 5 | 1 2 3 4 5 | 21. knowledge of world history |
| 1 2 3 4 5 | 1 2 3 4 5 | 22. knowledge of United States history |
| 1 2 3 4 5 | 1 2 3 4 5 | 23. knowledge of the interrelationships between events in the United States and events in the rest of the world |
| 1 2 3 4 5 | 1 2 3 4 5 | 24. knowledge of world geography |
| 1 2 3 4 5 | 1 2 3 4 5 | 25. knowledge of United States geography |
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Appendix B

Date

Dear :

What literacy demands are posed for workers at all levels of employment and in all segments of our country? What will they be in 2002, a short ten years from now? These are important questions since knowing about and preparing for such demands is vital for the well being of our country. One might suspect that any major corporation might have differing literacy needs for its employees now and ten years from now. So, too, might smaller businesses. The researchers involved in this project are attempting to find the views of business people, teachers, and students regarding their perceptions of current and future job requirements regarding literacy skills.

Your assistance with this pilot survey will yield three types of valuable information: (a) your perceptions of job-place literacy needs now and in the future; (b) differences in perceptions of job-place literacy needs between and among business people, teachers, and

students; and (c) needed information for further developing and refining the survey itself. An appropriately refined survey instrument will yield information providing necessary pieces of information for building curricula and methodology to meet our country's education needs ten years from now, including programs for adult education programs designed to "update" literacy skills as technology continues to grow and to change.

Will you please take a few minutes to respond to the following survey items? Thank you for your help.

Sincerely,

Appendix C

Survey of Business Literacy Needs

Directions: Please fill out the following information. We are seeking this information to better understand your ideas concerning current and future literacy needs. You will not be specifically identified in any reports of the results of this survey. The reports will describe general characteristics of students who respond.

Size of High School

- 0-500 students
- 501-1000 students
- 1001 or more students

Years in School

- Freshman
- Sophomore
- Junior
- Senior

After I Graduate From High School I Plan to:

- go to work
- attend college or university
- attend technical school or technical college
- other

Survey of Business Literacy Needs

Directions: Please fill out the following information. We are seeking this information to better understand your estimates of current and future workplace literacy needs. You will not be specifically identified in any reports of the results of this survey. The reports will describe general characteristics of teachers who respond.

Type of Community in Which Your School is Located

- Large City (over 50,000)
- Small City (25,000 - 50,000)
- Town (2,500 - 25,000)
- Village (less than 2,500)

Size of High School

- 0-500 students
- 501-1000 students
- 1001 or more students

Grade Level(s) Taught (check all that apply)

- K-3
- 4-6
- 7-9
- 10-12

Survey of Business Literacy Needs

Directions: Please fill out the following information about your business. We are seeking this information to better understand your estimates of current and future literacy needs. Your business will not be specifically identified in any reports of the results of this study. The reports will identify types of business, however. Thank you for taking this time to respond to this survey.

Type of Business

- Service
- Manufacturing
- Retail
- Farming
- Sales
- Education

Number of Employees in Business

- 0-10
- 11-50
- 51-200
- 201-1000
- 1000 or more

Number of Years You Have Been in this Business

- 0-5
- 6-10
- 11 or more

Your Position with the Business

- Owner or Co-Owner
- President
- Vice President
- Personnel Director
- Other Executive Officer/Administrator
- Other