Research into Document Literacy at Work

Reading and writing at work has been the subject of a number of studies over the last twenty years. These studies have consistently shown that workers in most jobs spend significant portions of the day reading. The purposes for this reading, the skills used, and the materials read at work are unlike those found in other contexts.

Early research into literacy at work was carried out by the armed forces in the United States.

Research carried out at the San Diego ship yards (Sticht, Fox, Hauke and Zapf, 1975) was probably the first systematic look at reading at work. Sticht and his associates interviewed 178 workers at the shipyard to discover what was being read and how reading tasks were carried out. The first finding was that workers in this setting read or scanned documents for about two hours a day, and that the amount of reading increased for workers at higher ranks. Other studies have since confirmed the fact that nearly all workers spend a significant portion of each day reading and regard reading as an important part of their jobs.

The purpose for reading was also examined and the research team discovered that about 60% of the jobsite reading was reading-to-do, or reading strictly for the purpose of carrying out specific tasks with no intention of learning or remembering what had been read. Workers reported that 76% of the reading would be repeated if the same job task was carried out on the following day. Almost two thirds of what the shipyard workers read involved interpreting a combination of text and figures.

Workers on the job encounter a wider range of reading materials than students in technical college.

In a study of the relationship between high school and technical college reading and reading on-the-job Mikulecky (1982) found considerable differences in the scope and depth of materials encountered (reading demand), the purposes for reading, and the strategies used. He found that middle level workers (clerical, sales, and service industry workers) had to deal with a wider range of materials than high school or college students. Reading in school was almost exclusively (95%) textbook material. Workers, on the other hand, had to contend with manuals, flyers, product directions, labels, computer screen printouts, and a variety of other materials.

Reading at work is primarily 'reading to do' rather than 'reading to learn.'

The purpose and strategies used for completing reading related tasks was also significantly different. Students in school reported that 66% of their reading was for the purpose of learning; workers reported that only 15% of their reading was for this purpose. Reading-to-do tasks comprised only 2% of the students' reading, while workers reported that some 35% of their reading was for this purpose. The difference for blue collar workers (skilled tradespeople) and technical school students was more pronounced; these workers reported that 58% of their reading had application as the goal while this was the purpose of only 7% of students' reading.

Workers also indicated that they used a wider range of strategies for dealing with on-the-job reading. They were more likely to use a combination of problem solving, notetaking, and associating reading with what is already known. Students reported that their major reading strategy was to reread the material several times.

Mikulecky concludes that there is little congruence between the reading done by high school students and that done by middle level occupations studied, nor between reading in technical colleges and the reading required by the blue collar occupations for which the colleges prepare students.

The ability to search documents for specific information is a major document literacy skill.

Kirsch and Guthrie (1984) studied the relationship between total reading volume and the major skills of comprehending text and searching for information. The study of a sample of workers at a telephone company revealed that almost all of the reading at work (95%) involved text search activities while most of the reading outside work involved comprehending continuous text in familiar formats. The authors noted little correlation between scores on separate tests of prose comprehension and text search ability. They concluded that different reading processes are involved.

In recent research, document literacy is recognized as distinct from prose literacy.

The latest survey of adult literacy skills, the International Adult Literacy Survey (IALS) (Statscan/OECD 1995), used a methodology similar to the earlier Literacy Skills Used in Daily Activities (LSUDA) survey. In both surveys, three scales were used to measure ability in three domains. The first domain, *prose literacy,* includes the knowledge and skill to understand and use information in continuous texts such as editorials and news stories. *Document literacy* describes the skills and knowledge needed to locate and use information contained in a variety of document formats-maps, schedules, payroll slips, and entry forms. Lastly, *quantitative literacy* refers to the skills and knowledge required to apply arithmetic operations to numbers embedded in printed formats. Completing an order form or balancing a chequebook are typical tasks requiring quantitative literacy. Measurement scales are divided into five literacy levels. Each level implies the ability to carry out a particular set of adult reading tasks. At level 1, workers are able to read and interpret only short selections of familiar text, while at level 5, workers can read dense and complex texts which often require considerable inference and specialized knowledge.

IALS research reveals that many Canadians have limited ability to carry out tasks involving document use.

The IALS study validates earlier studies which show that many Canadians have limited literacy. About 40% of the population fall within levels I and 2 on all literacy scales. One level 2 question asks for some information which can be found by reading a plant care label from the nursery-basic information written for the general public. Needless to say, workers at, and below, this level of literacy will have great difficulty adjusting to a future economy which offers only jobs requiring high levels of reading and writing ability.

Literacy practices and skills vary considerably between different countries and different economies.

The study provides concrete evidence of the increasing demand for literacy skills in modern industrial economies. In growing industries such as personal and financial services, workers demonstrated literacy skill at high levels; workers in shrinking industries such as agriculture and manufacturing had the lowest average literacy ratings. Workers in these declining industries are less literate and, as consequence, are less able to make the transition to other work.

There are some interesting differences between workers in different countries. German workers read more than Canadian workers. Germans reported reading a variety of workplace documents at rates 10%-15% higher than Canadian workers. Europeans generally scored higher on the document literacy scale and lower on the prose scale than their North American counterparts, a difference which is probably related to variations in the respective educational systems.

Maintaining and building literacy skills is a challenge for many adults.

The study confirms what most workplace educators and trainers know already; literacy is not a one-time accomplishment, but a skill which must be exercised or it will be lost. School provides a foundation for adult literacy, but without continued application to adult demands, literacy decreases. In Germany, literacy levels continue to increase after leaving school, with greater numbers of people at higher reading levels ten years after they finished school. In the United States, the proportion of people at the lowest literacy level increases with age. In Canada also, older people have lower skills than younger people with similar educational attainment. The study indicates that maintaining a high degree of literacy is a challenge not met by some individuals, and underlines the need for recurrent training to maintain skills. Some jobs and some workplaces have not provided an environment where literacy was encouraged or valued, and it is fairly evident that many workers are moving into the 'information age' with insufficient skills to fully participate.

Summary and Preview

The research carried out to date into basic skills used in the workplace has shown that document literacy is important for performing many jobs. It is also a safe bet that workers in the future 'information economy' will need more facility with documents rather than less. The intent of this guide is to provide basic skills instructors with some ideas for developing learning activities for document literacy.

The guide is divided into eight sections:

Section 1	looks at the **structure of lists** and the way that lists provide a framework for many different kinds of information displays.
Section 2	examines **entry forms** and the problems workers have when filling out this type of document.
Section 3	reviews **graphs and charts**. These visual representations of numerical information are a significant feature of many workplaces.
Section 4	describes the variety of mimetic representations found in workplace documents—the **drawings, diagrams and plans** which are an important part of most construction and repair jobs.
Section 5	discusses what is known about **designing usable documents** and includes topics such as readability and typography.
Section 6	presents some ideas for **teaching document use** and document reading skills.
Section 7	gives an overview of **document complexity** and suggests how to assess the difficulty of document use.
Section 8	brings together several **practical examples of teaching** which involve document use.

Note — In the text, important terms are indicated by italic typeface. Many of these terms are defined in the glossary which starts on page 125.