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AUTHOR Rush, R. Timothy
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ABSTRACT

The average worker spends 2.5 hours per day in occupational reading or writing, yet most classrooms fail to teach the reading and writing competencies required in skilled and semi-skilled job contexts. Occupational reading requires use of external references and following of directions, with a heavy dependence on prior knowledge and on insight. Occupational writing is very informal and "ungrammatical." Clear written communication depends more on knowledge of subject and audience than on grammar and mechanics. Cooperative efforts between English communication experts and vocational educators are essential to the successful teaching of occupational reading and writing at the high school level. A curriculum called "Applied Communication," developed through such a cooperative effort under the leadership of the Agency for Instructional Technology, should be available for dissemination in the United States and Canada in mid-1988. It will include videotapes of job-related problems to which reading and writing skills are applied. (Examples of occupational reading, examples of occupational writing, and 10 references are attached.) (MHC)

OCCUPATIONAL LITERACY:

REQUIREMENTS AND INSTRUCTIONAL RESPONSE

R. Timothy Rush
University of Wyoming

Reading and writing are almost universally required in work and occupational training. As literacy processes, they are complex and somewhat paradoxical: the reading requirements of work and training are sophisticated and often appear to exceed the abilities of workers and students. Writing is often simultaneously so technically esoteric and syntactically simple as to defy interpretation. Yet, its essentials are clarity and precision.

It is these discrepancies between demands and abilities which has prompted study groups (National Commission on Secondary Vocational Education, 1985; Southern Regional Education Board Commission on Vocational Education, 1985) to call for national efforts to improve the communication skills of high school vocational students.

A look at workplace and occupational training settings reveals that the reading and writing competencies required in skilled and semi-skilled occupational contexts are very different from those emphasized in elementary and secondary school classrooms. Sticht (1975), Mikulecky (1982), and Rush (1985) show that the reading demands of work and

vocational training emphasize efficient learning and task performance. The writing of workers and students in occupational training programs must be concise and accurate, although it may violate standards of convention and style. Workers and students rely heavily on the abilities of a narrow audience of informed readers to interpret the full meaning of what is written..

This paper has three purposes. First, to describe the nature of reading and writing in work and vocational training. Second, to suggest that occupational reading and writing can be taught cooperatively by English and vocational educators. Third, to describe a North American project, Applied Communication, which uses a cooperative format to develop the literacy-related skills of high school vocational students.

Occupational Reading and Writing

Reading

The average American worker spends two hours per day engaged in occupational reading (Diehl, 1980; Sticht, 1982, Rush, 1985). In vocational training programs, students engage in reading for at least this amount of time while attending classes (Rush, Moe, and Storlie, 1986). Reading requirements involve familiar (to teachers and students) reading-to-learn tasks as well as reading-to-do. In work

and vocational school laboratory settings, performance-related (reading-to-do) is the dominant form of reading. Other school activities require mainly reading-to-learn from textbook and and other expository sources.

Workers and vocational students perform reading tasks requiring primarily finding/using information (about two-thirds of on-the-job reading) and following directions. These tasks involve use of checklists, forms, work orders, and reference manuals in which information is presented in various text and graphic formats. On the job and in vocational training situations, it is typical for essential information to appear in combinations of text and graphics.

Occupational reading, which requires use of external references and following of directions, is typified by the samples in Example 1. While such tasks seem simple, they depend heavily on use of prior knowledge and insightful interpretation.

Insert Example 1 about here

Mikulecky (1982) and Kirsch and Guthrie (1983) observe that high school students (vocational and academic) are poorly prepared for the reading demands of work. Compared to workers, students read less frequently and less competently. The reading strategies of students are less effective, and their reading materials less difficult than those of workers.

Writing

Writing, like reading, is an important component of job performance. Recent research (Mikulecky and Ehlinger, 1986) indicates that workers in skilled jobs spend about thirty minutes per work day in tasks involving writing, but that their writing rarely continues uninterrupted for more than a minute at a time; speaking, listening, reading and task performance intervene. Writing is, however, an essential part of intricate occupational problem solving processes.

Much about occupational writing might dishearten teachers of English. Occupational writing is very informal and "ungrammatical," (Rush, Moe, and Storlie, 1986). Notes are typically written in sentence fragments, with sketches, diagrams, attachments, or references to objects serving to clarify meaning. In both work and occupational training settings, writers assume that their readers will know enough about the task at hand to interpret written messages correctly. As Example 2 suggests, clear written communication in occupational settings seems to depend more

on knowledge of subject and audience than on grammar and mechanics.

Insert Example 2 about here

In workplace writing, use of incomplete sentences and "bending" of the rules of written English is accepted practice. It is equally acceptable to do so in many occupational training situations (Moe, Rush, and Storlie, 1980).

The products of performance-related writing may be simplistic, but its composition is more complex. It seems a simple matter to dash off notes using the "telegram syntax" of work. But, when such notes are poorly prepared, they are very difficult to interpret. In occupational writing, context, audience assessment, attention to detail, concise clarity, and message organization are more important than style and mechanics. Yet, mastery of style and mechanics can enhance the clarity which is so essential in work settings. Instruction should reflect these realities.

Cooperative Instruction

Because there are essential performance-related writing competencies which are best acquired in the context of their

applications, English and vocational educators have a common frame of reference. Writing in occupational contexts requires technical knowledge which most English educators lack. Vocational educators have the occupational expertise, but are seldom qualified to teach writing. Collaboration between these, often too distant, disciplines seems essential if occupational writing is to be successfully taught as part of required formal education.

Cooperative efforts should establish logical connections between reading, writing and vocational applications. Reading and writing are used in solving occupational problems, so these can be documented and used to make instruction more meaningful. After observing instructors or workers modelling the use of note taking or memo reading and writing in job performance, students can apply written language skills to similar occupational problems.

An International Instructional Project

During the summer of 1986, the nonprofit Agency for Instructional Technology (AIT) enlisted the financial support of educational agencies in nearly all states and provinces of the United States and Canada to fund the development of Applied Communication, a problem-based learning curriculum which focuses on the needs of high school vocational students. The curriculum involves

videotape presentations of work situations to which reading, writing, and oral language are applied in solving vocationally relevant problems.

Applied Communication is being developed through the cooperative efforts of vocational and English communication experts, and will yield ten instructional modules. Each module addresses specific objectives in written and oral language and problem solving. The curriculum is designed for use as a "stand alone" course, as part of existing vocational or English courses, or to support resource room instruction.

AIT has recently completed the instructional design phase of the project and has begun development of videotape programs which form the core of each module. Each module will contain a teacher's handbook and print materials for student use in group and independent activity.

Field testing and initial evaluation of the curriculum will be conducted during the coming school year. Dissemination of Applied Communication to state- and province-level education departments will occur during mid-1988.

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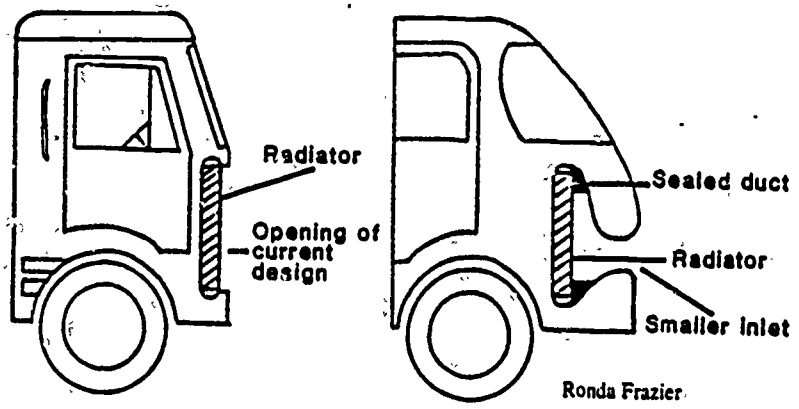
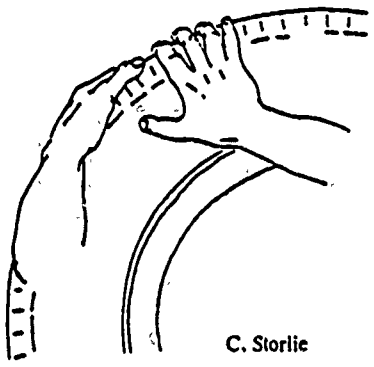
EXAMPLE 1
Samples of Typical Occupational Reading

TEXT AND PICTURE*



Ronda Frazier

Current truck radiator installation design (left) requires flat front. Air resistance can be reduced by a streamlined design (right) where ducts bring sufficient cooling air to the radiator.



C. Storlie

Placement of Hands in Checking Wheel Bearing Play

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.

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

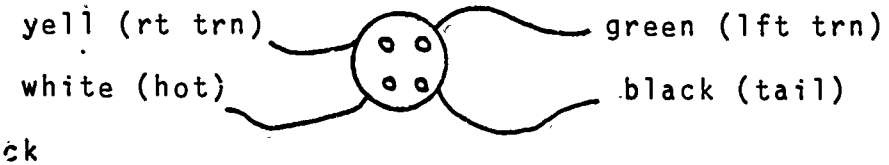
Building Element	Type I	Type II			Type III		Type IV	Type V	
	Noncombustible				Combustible				
	Fire Resistive	Fire Resistive	1 Hr.	N	1 Hr.	N	M.T.	1 Hr.	N
Exterior Bearing Walls	4 Sec. 1803 (a)	4 1903 (a)	1	N	4 2103 (a)	4 2103 (a)	4 2103 (a)	1	N
Interior Bearing Walls	3	2	1	N	1	N	1	1	N
Exterior Nonbearing Walls	4 Sec. 1803 (a)	4 1903 (a)	1	N	4 2103 (a)	4 2103 (a)	4 2103 (a)	1	N

EXAMPLE 2

Samples of Typical Occupational Writing

A. Automotive Electrical (note from a worker on one shift to a co-worker on the next)

Pete -
Internal runs finished. Hook up external like this.



TNX Mack

B. Account Clerk (memo attached to voucher)

Mr. Swain
A new one. Balance less than payment. Please advise.

C. Machinist (remarks on required form)

Operation Performed: "press in bushing and burnish"
Procedures: "Sizes on print. Have gages set or checked for size. Read and fill out work card."

D. Drafting (corrective remarks on drawing)

Sht 1 - D-603E
Add platform & ladder galvanizing - use cad. plated bolting-remove vessel painting requirement & make blast cleaned to spec SSPC-SP10-G3T (Note #5)
Add "Stencil P. O. N#," etc. (Note #6)

E. Heating/Air Conditioning (work orders)

Job 1: Men's restroom copper tubing in tank broke. Is leaking on floor.
Job 2: No water coming into washbowl in bathroom.
Job 3: Broken line under house. Crawl space full of water.

F. Licensed Practical Nurse (hospital training questionnaire)
Q: Why must you read the material?
A: "understand diabetic, clinitest teaching, knowledge of diabetic (full understanding)"