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WORKPLACE LITERACY TECHNOLOGY FOR NURSING ASSISTANTS

Beverly Richards¹

Abstract: The purpose of this paper is to provide a perspective of workplace literacy technology in one area of health occupations education: nursing assistants. The health care industry is the fastest growing industry in the United States. The current shortage of health care workers is building to crisis proportions and poses a serious **threat** to the ability of health care facilities to provide critical services to citizens. **Some** hospitals have been forced to close because of **staff** shortages. Factors exacerbating this situation include changing demographics and scarce resources- Technology, responsible for the obsolescence of many low-skill jobs, offers a means of upgrading workers' basic skills in order to obtain or to retain employment or improve employment status.

Workforce 2000

As documented in Workforce 2000, long-term labor market trends indicate a great need for large scale worker training and readjustment. Demographic changes in this country are creating a situation in which an adequate **workforce** cannot **be** maintained without actively raising the

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literacy levels of educationally disadvantaged populations. Hodgkinson
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(1985) reports that, in the next few decades, a shrinking labor pool
will force employers to depend **more** heavily on the employment of women
and minorities--many of whom are **un-** or **underprepared** to enter the
workforce. The correlation between dropping out of school and **un- or**
underemployment is well documented (Winters, **Rubenstein**, & Winters,
1987). Unemployment is greatest among those with only an elementary
education, and **Vargas** (1986) and **Hodgkinson** (1985) report that the
growing Hispanic population is the least **educated** population in the
nation. Low-literate **adults** will have to acquire both basic and
intermediate literacy **skills** in order to gain and retain adequate
employment, since increasingly complex literacy skills will be required
by employers.

Functional literacy

Literacy involves a broad spectrum of communication skills--
listening, speaking, reading, and writing (**Sticht, 1987**). Proficient
readers are able to recognize many words quickly without having to
analyze them (word recognition skill) and to understand meanings of
words both in context and in isolation (comprehension skill). As
reading complexity increases, proficient readers use higher order
thinking skills to evaluate, integrate, and assimilate newly learned
information. Unfortunately, many adults lack **all** but basic work
recognition skill.

Functional literacy includes not only being able to read and write
but also possessing knowledge and skills to function effectively in
one's environment (**Harman, 1985**). For instance, calling a telephone
company to **report** a billing error requires **the** ability to **locate** a

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specific piece of information in a complex document, remember that information while finding additional information, transform this information into new knowledge, and then communicate the results of these complex activities. It is the complexity of this type of information processing, and not lack of basic decoding skills, that limited the performance of the mid-level literates in the 1985 National Assessment of Educational Progress (NAEP) study. The study concludes that great numbers of the nation's young adults are unable to perform literacy tasks of moderate complexity, especially where problem solving and critical thinking are required; moreover this lack of higher order literacy skill is more pronounced among minority populations. In the 1990s, a greater percentage of the young adults who are functionally illiterate will be minorities (Kirsch & Jungeblut, 1986; Venezky, Kaestle, & Sum, 1987).

Nursing Assistants

The number of workers in need of literacy skills specific to the nursing assistant occupation is considerable. Nursing assistants are paraprofessionals who directly impact on the nursing care of residents of long term care facilities. Nursing assistants are involved directly with the care of sick or injured people. They also are known as auxiliary nursing workers, hospital attendants, nurse aides, orderlies, and home health aides. Generally, these personnel perform patient care under the direction or supervision of a registered nurse, licensed practical nurse, or physician. Training usually is on-the-job; certification or licensure is rare. However, with the enactment of Public Law 100-203, the Omnibus Budget Reconciliation Act (OBRA) of 1987, Subtitle C Nursing Home Reform, Sections 1819 (e) and 1919 (e),

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unlicensed nursing assistants will no longer be the norm. All states
have had to specify state approved training and competency evaluation
nursing assistant programs available to nursing care facilities
participating in Medicare and Medicaid programs by this year.

OBRA mandates that all nursing assistants employed in long term
care facilities after October 1, 1990, must be certified. Two
competency examinations are required: written/oral and performance.
These individuals must satisfactorily complete a competency evaluation
program which consists of both written/oral and practical components.
The written evaluation component will be in English unless the
individual will be working in a facility in which the predominant
language is other than English. The written or oral examination will
reflect the content and emphasis of the training program in accordance
with accepted education principles. Nursing assistants with limited
literacy skills will answer questions that include content from the
written examination and take a written reading comprehension portion to
determine competency to read job-related information. The employee
will be provided with at least three opportunities to complete the
examinations successfully.

According to the American Health Care Association (1984), nursing
assistants comprise 70% of the total nursing staff for long term care
facilities nationally. The American Health Care Association (1984)
reported that more than half of responding nursing homes are having a
severe (24%) or moderate [30%) shortage of nursing aides in 1987. The
Department of Labor projects an increase of 425,000 new nursing aides
by the year 2000 (Bureau of Labor Statistics, 1988). The demand for
nursing assistants exceeds the supply.

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These nursing assistants provide 80 to 90% of the care to residents of long term care facilities at an average salary of \$350 per month (Grant & Cooney, 1983) and a majority are their family's prime wage earner (Quinlan, 1988). Pre-service training of nursing assistants ranges from 0 to 6 months with an average turnover of 75% per year (Hagstel, 1983; U.S. Senate, Special Committee on Aging, 1985) .

Nursing assistants are described as mostly women (93%) with disproportionate minorities (31% Black & 7% Hispanic) in contrast to a labor force of 45% women, 10% Black and 7% Hispanic in 1987 (Employment and Earnings, 1978-1988). Educational backgrounds for currently employed nursing assistants vary from grade school education to college education (U.S. Department of Health and Human Services, 1984). Those with college education courses tend to occupy such positions on a temporary basis, usually while attending college. The Department reported that 44% of employed nursing aides had exactly 12 years of education; 23% had some college, mostly one or two years; and 33% had less than 12 years of education with 10% of the latter (46,979) reporting no high school education.

In Pennsylvania, the Department of Education (1988) in a special presentation to Vocational Administrators of Pennsylvania in December, reported 78,400 currently employed nursing assistants will be taking the examinations with an estimated pass/fail rate of 50% for the first attempt and 40% for the second attempt. Remediation after the second attempt would affect approximately 15,000 nursing assistants at a cost ranging from \$85 to \$140 per individual. They project that, based on literacy proficiency, there should be a 75% pass rate; but in reality,

this entire group could be lost if these people are not provided the
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opportunity to learn basic reading and writing along with work skills
(p. 4). The loss of these individuals, in a labor force that
demonstrates a 75% turnover rate per year, could impair seriously the
health of residents of nursing care facilities and contradicts the
founding principles of PL 100-203.

Elderly Population

In the U.S., 5,500 people celebrate their 65th birthday each day. That means about 2 million persons celebrated their 65th birthday in 1984. In the same year, about 1.4 million persons 65 or older died resulting in a net increase of 560,000 or 1,550 per day. Over 12% of the U.S. population is 65 years or older (229 million in 1984). The number of older Americans increased by 2.3 million or 10% since 1980 compared to an increase of 4% for the under 65 populations (American Association of Retired Persons, 1985). Since 1900, the percentage of Americans 65 and over has tripled (4.1% in 1900 to 11.9% in 1984) and the number increased nine times from 3.1 million to 28 million (U.S. Senate, Special Committee on Aging, 1985). The older population itself is getting older. In 1984, the 65-74 age group (16.7 million) was over seven times larger than it was in 1900, the 75-84 age group (8.6 million) was 11 times larger and the 85+ age group (2.7 million) was 21 times larger (American Association of Retired Person, 1985; U.S. Senate, Committee on Aging, 1985). A child born in 1984 could expect to live to 74.7 years, about 27 years long than a child born in 1900. This is not just a graying of America but a worldwide phenomenon. The growing number of elderly has resulted in increased numbers of long term care facilities, which is the fastest growing segment of the health care industry.

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Long Term Care

According to the American Hospital Association (1987), there were 25,646 nursing homes providing bed and care to 1,609,419 residents in the United States as of January 1986. Federal requirements for certification of all nursing assistants employed in long term care facilities by October 1, 1990, place an additional burden on long term care facilities which currently are unable to fill nursing assistant positions.

Harper (1986) reported over 20 million people in the long term care (LTC) system. The goals of this system include health promotion and disease prevention, increased longevity, enhanced independence, and enhanced quality of life. Strategies for LTC include delaying the onset of preventable disease in healthy adults, lengthening the period of functional independence in those elderly with chronic disease, and improving the quality of one's later life. The average number of conditions increase with age with 2.9 conditions/disorders for the under 65 years of age group, 4.0 conditions/disorders for the 64-69 age group, and 5.0 conditions/disorders for the over 70 years' group. Definition of health for the elderly is defined as the ability to live and function effectively in society and exercise self reliance and autonomy to the maximum extent feasible--but not necessarily total freedom from disease. Critical to this definition are three characteristics: interdependence, live and function effectively, and self-reliance and autonomy. In 14,000 patient assessments, efforts were made to identify the needs of over 8,000 patients. Grant and Cooney (1983) found that the aide spent 25 minutes in the least intense group of patient activities--dressing and feeding patient, etc. and 104

incontinence, bathing, feeding, etc. The overall mean length of time spent was 52 minutes for all patients cared for in the study. In summary, we have many elderly people who need institutional care with the burden of this care frequently left to untrained and unlicensed workers in the past.

Fictional Context Basic Skills Instruction

Functional context approach, the ability to tie basic skills instruction to workplace needs, is important and innovative. Basic skills that are essential to performing a job or job domain are identified and then taught within the functional context of work so that the worker not only learns the basic skills that are important to performing one's job well but also master's the content knowledge associated with the job. Job-related basic skills instruction has been proven to be more effective in enhancing productivity on the job than general basic skills instruction offered by many instructional packages (Sticht, 1987). Many low-literate individuals are unable to succeed in training programs for entry level occupations as they are handicapped by inadequate skill development (Johnston & Packer, 1987). Also, many may jeopardize their job security if they cannot pass a written certification examination. However, the problem of workplace literacy extends beyond the certification issue: functional literacy levels of the workforce are now understood to be central to the economic health of the nations.

Literacy Training and Technology

Recent research indicates that the use of technology in providing adult literacy instruction is extremely successful (Askov, 1986; Askov,

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Maclay & Bixler, 1987; and Maclay & Askov, 1987). In general, adult students learn more rapidly using computers. An extensive evaluation of computer-based instruction (Turner & Stockdill, 1987) indicates that computers offer a face-saving way to learn basic skills effectively and efficiently.

Computer-assisted instruction is used successfully with non-English speaking populations. Dunkel (1987) reports that both computer-assisted instruction (CAI) and computer-assisted language learning (CALL) are effective tools in the enhancement of language minority students' opportunities for academic success. Mackillop (1986) reported on an adult basic education (ABE) program that used work processing as a method of generating student initiated writing. The program was successful with both the English speaking and the non-English speaking students. Lavier, who conducts an adult basic skills technology project, reports "tremendous dedication among our English Second Language (ESL) students when working on CAI" (A. Lavier, personal communication, 12 February 1990).

Technology, responsible for the obsolescence of many low-skill jobs, offers a means of upgrading workers' basic skills to enable workers to find or to retain employment or improve employment status. When instruction is matched to the context and demands of the job situation, the computer affords not only privacy, ease of scheduling, individualized instruction and self-pacing, but also familiarity with computer operations. Many jobs now require workers to be able to read computer screens and perform simple operations. For example, nursing assistants, employed in large health care facilities with computer capabilities, are required to document their performance for the

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patient on the computerized nursing care plan- Comfort with computer
operations **helps** adults to make faster progress in training programs
requiring use of computers (**Askov** & Turner, 1989).

Interactive Videodisc Technology

While **CAI** has become an accepted tool for **improving** the basic skills of low-literate **people** of all ages, a serious gap exists in reaching those without certain skills: a degree of keyboard and language competence must precede **CAI skills** training. The required keyboard and language competence can bar educationally disadvantaged and disabled students from **CAI** basic instruction. However, recent technological developments, **touch** screen **and** laser videodisc, can make interactive computer instruction effective for these adults.

Touch screen technology can overcome keyboard and language barriers for low-literate adults. Touch screen is an interface that allows students to use computer programs **by** touch selecting words, **symbols**, and **images**; students can begin without knowing how to **spell** or locate keyboard commands.

Touch screen can offer students the instructional benefits of simultaneity and alternation. Students have the options of seeing concepts expressed in **image** and hearing vocalizations in English, all at a touch command, and as often as they need- Interactive **CAI** keeps the instruction individually paced, branching, non-repeating, and engaging.

The advantages of laser videodisc instruction over conventional **CAI** and videotape are numerous. Foremost is the rapid and precise access to every frame in the program, due to the speed of the data searches. Laser videodisc instruction, exceptionally **good** at rendering

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motion and still frame offers unlimited still frame capability, with far greater clarity, as well as the closest simulation of live-action decision-making. The laser disc, virtually indestructible, suffers no wear and tear from daily use. Economic benefits include its extremely low duplicating costs for large numbers of copies and its greater memory storage capacity. Unlike video-enhanced instructional methods, laser disc has the only proven random access capability, which is essential for interactive responsive instruction. Touch screen enables students of all levels to gain immediate control over the computer-assisting learning environment (Iuppa, 1984).

summary

The health care industry is the fastest growing industry in the United States. Hodgkinson (1985) reported that the shrinking labor pool will force employers to depend more heavily on the employment of women and minorities--many of whom are un- or underprepared to enter the workforce. Low-literate adults will have to acquire both basic and intermediate literacy skills in order to gain employment as more complex literacy skills are required by employers.

Technology, responsible for the obsolescence of many low-skills jobs, offers a means of upgrading workers' basic skills. Computer assisted instruction (CAI) has become an accepted tool for improving the basic skills of low-literate people of all ages but the success of CAI skills training requires a degree of keyboard and language competency. Recent technological developments, touch screen and laser videodisc, can make interactive computer instruction effective for those individuals who lack keyboard and language competency. Touch screen enables adults at all literacy levels to gain control over the computer-assisted learning environment.

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