

SELECTED REFERENCES

INDUSTRIAL RELATIONS SECTION

PRINCETON UNIVERSITY

No. 244*

Princeton, NJ 08544

December 1988

VIDEO DISPLAY TERMINALS IN THE CHANGING WORKPLACE**

I. THE IMPACT OF TECHNOLOGICAL CHANGE ON WORKERS

Automation of America's offices, 1985-2000. U.S. Congress, Office of Technology Assessment. Washington, DC 20402. Superintendent of Documents, U.S. Government Printing Office. 1985. 348 pp. \$13.00, paper.

This comprehensive study assesses the consequences of the continuing and rapid introduction of information and telecommunications technologies into the workplace of nearly 45 million Americans. The use of computers and new communication systems in offices is bringing about fundamental changes in employment patterns, the skills needed for white-collar occupations, and the quality of the office environment.

Shaiken, Harley. *Work transformed: automation and labor in the computer age.* New York, NY 10017. Holt, Rinehart and Winston (393 Madison Ave.). 1985. 306 pp. \$17.95.

Shaiken views the new computer technology as qualitatively different from previous advancements in the production process. He provides a critique of "superautomation," attempting to separate its technical possibilities from its desired social purposes. Shaiken feels that superautomation can be used to enhance or degrade a worker's environment. To show the uses and abuses of superautomation, Shaiken explores the work environments most directly affected, and the consequences of different production philosophies on the design of automated systems. See also Shaiken's "When the computer runs the office" in the *New York Times* (Sunday, March 22, 1987. Section 3, F3).

Technology and employment: innovation and growth in the U.S. economy.

Panel on Technology and Employment, Committee on Science, Engineering, and Public Policy of the National Academy of Sciences, National Academy of Engineering and Institute of Medicine. Edited by Richard M. Cyert and David C. Mowery. Washington, DC 20418. National Academy Press (2102 Constitution Ave., NW). 1987. 225 pp. \$34.95. \$16.95, paper.

The authors discuss and make policy recommendations concerning the impact of technological change on: levels of employment; the displacement of workers in specific sectors of the economy; skills requirements; the welfare of women, minorities, and labor force entrants in a transformed economy; and the organization of the workplace. It is reported that the number of U.S. computer work stations has increased from approximately 675,000 in 1976 to nearly 28 million in 1986, and that their numbers have grown from 15.4 for every 1,000 white-collar employees in 1976 to 450 per 1,000 white-collar workers in 1986.

* Prepared by Kevin Barry, Librarian and Julienne Waldron, Industrial Relations Library.

** Items from the list should be ordered directly from the publisher. Addresses are given in connection with each reference. Consult libraries for items out of print.

2. HEALTH, SAFETY, AND OTHER ASPECTS OF WORKING WITH VDTs

American Federation of State, County, and Municipal Employees. *Special report: facing the future*. (nos. 1-6). Washington, DC 20036. AFSCME (1625 L Street). n.d. [6 pp.]. On request.

The first report focuses on the most common health problems of VDT operators. Reports nos. 2, 3 and 5 recommend the ideal VDT design, office environment, and job structure. Carpal tunnel syndrome is explored in the fourth report. The final report describes specific VDT legislative initiatives and contract provisions. Two other recommended general interest booklets and a serial include: *Ergonomics: implementing workplace change* (Center for Women in Government at the University of Albany, State University of New York, Draper Hall, Albany, NY 12222. 1988. \$8.00, paper); *The VDT book: a computer user's guide to health and safety* (New York Committee for Occupational Safety and Health, 275 Seventh Ave., New York, NY 10001. 1988. \$6.00, paper); and *VDT news: the VDT health and safety report* (Microwave News, Box 1799, Grand Central Station, New York, NY 10163, Bi-monthly. \$87.00 per year).

Brooks, Gail E. "How have unions addressed the issue of VDT users' health and safety?" *Labor Law Journal* (Commerce Clearing House, 4025 W. Peterson Ave., Chicago, Ill. 60646), September 1986. pp. 668-675. \$10.00.

Unions are increasingly recommending rest breaks, improved worker education, and the elimination of excessive job demands for VDT operators. A glimpse at what several organizations are currently doing, and encouragement for active corporate support of research on the possible dangers of electromagnetic emissions highlight David Kirkpatrick's "How safe are video terminals?" in the August 29, 1988 issues of *Fortune* (Time & Life Bldg., Rockefeller Center, New York, NY 10020. pp. 61-71. \$5.00).

Bureau of National Affairs. *VDTs in the workplace: new issues, new answers*. Edison, NJ 08818. BNA Distribution Center (300 Raritan Center Parkway. CN94). 1987. 2nd ed. 233 pp. \$75.00.

This very useful report offers chapters discussing: automation and the effects of new technology on employment; the issue of performance standards and computer pacing and monitoring; and the relevant ergonomic and health issues. Case studies illustrate how such organizations as International Business Machines, Pacific Southwest Airlines, and the Communications Workers of America are dealing with VDT matters. Legislative and regulatory developments are presented. An appendix contains: selected corporate documents offering guidelines on VDT use; a review of VDT studies by NIOSH; the ergonomic guidelines developed by Kaiser-Permanente with the Services Employees International Union and the United Food and Commercial Workers; a factsheet on carpal tunnel syndrome; and excerpts from *Legal Rights of VDT Users*, a 9to5, National Association of Working Women publication. Another helpful BNA Special Report, *Working women's health concerns: a gender at risk?* (1989. 267 + pp. \$95.00, paper), devotes one full chapter to research on VDT's and worker health and part of another chapter to VDT's and psychological stress.

Goldhaber, Marilyn K., Michael R. Polen, and Robert A. Hiatt. "The risk of miscarriage and birth defects among women who use visual display terminals during pregnancy." *American Journal of Industrial Medicine* (Alan Liss, Inc., 41 E. 11th St., New York, NY 10003), vol. 13, 1988, pp. 695-706. Reprints on request from Northern California Kaiser Permanente Medical Care Program, 3451 Piedmont Ave., Oakland, CA 94611.

This study, which covered 1,583 pregnant women, revealed that women who spent more than 20 hours per week at VDTs in the first three months

of pregnancy were more likely to have suffered a miscarriage than working women who did not use VDTs. The researchers stress that these findings are preliminary, and other explanations for the results are possible. Readers should also be aware of another study that will look at the possible connection between reproductive problems and the use of VDTs. Due for release in late 1989, this study by NIOSH scientists will analyze interviews with nearly 4,000 VDT operators from BellSouth and AT&T.

Mallory, Maria and Hazel Bradford. "An invisible workplace hazard gets harder to ignore." *Business Week* (1221 Avenue of the Americas, New York, NY 10020), January 30, 1989. pp. 92-93. \$2.00.

Repetitive motion disorders constitute the fastest growing occupational injury. NIOSH estimates that more than 5 million people suffered from them in 1986. This article describes the symptoms of carpal tunnel syndrome and ways to forestall the problem.

Marriott, Jan A. and Maria A. Stuchly. "Health aspects of work with visual display terminals." *Journal of Occupational Medicine* (American Occupational Medical Association, 428 E. Preston St., Baltimore, MD 21202), September 1986. pp. 833-848. \$8.00.

The authors suggest that postural problems, visual fatigue, and musculoskeletal ailments can all be controlled or eliminated through the proper design, layout, and use of work stations. Exposure to radiation at the levels produced by workplace VDTs is not expected to cause problems. In the December 1986 issue of this journal (pp. 1226-1231), Alison D. McDonald and others report on a study of pregnancy outcomes conducted among VDT users and nonusers that does not support the suggestion that work with VDTs increases the risk of congenital defect or spontaneous abortion.

OSHA oversight—video display terminals in the workplace: hearing before the Subcommittee on Health and Safety of the Committee on Health and Safety, House of Representatives, 98th Congress, second session. Washington, DC 20402. Superintendent of Documents, U.S. Government Printing Office, 1984. 623 pp. o.p.

This hearing was conducted to examine the occupational health and safety effects of VDT use. Among the several witnesses testifying are: a VDT operator from Equitable Life Assurance Association; a human factors manager from Digital Equipment Corporation; an ophthalmologist from the American Academy of Ophthalmology, and the director of NIOSH.

Rados, Bill. "Use of video display terminals by pregnant women." FDA Talk Paper (Food and Drug Administration, U.S. Dept. of Health and Human Services, 5600 Fishers Lane, Rockville, Md 20857), February 1983. 2 pp. On request.

Rados explains that the FDA's National Center for Devices and Radiological Health has routinely tested VDTs for radiation leakage over the years, and found that terminals emit little or no harmful radiation under ordinary operating conditions. Similar findings among other health and scientific organizations lead the FDA to conclude that at this time it is improbable that problem pregnancies are the result of radiation emissions from VDTs.

Rapport, Sara. "Health rights of video display terminal operators." *Harvard Women's Law Journal* (Harvard Law School, Cambridge, MA 02138), Spring 1985. pp. 247-264. \$10.00.

Rapport analyzes how clerical workers might use the law to help remedy health problems created or aggravated by VDT work. She discusses cases in which VDT operators have left their positions and collected unemployment compensation. The role of the Occupational Safety and Health Act of 1970 and the special concerns of pregnant VDT workers, including their "right to transfer," are among the issues reviewed.

Smith, Michael J., et al. "An investigation of health complaints and job stress in video display operations." *Human Factors* (Human Factors Society, P.O. Box 1369, Santa Monica, CA 90406), August 1981. pp. 387-400. (Order from: Xerox University Microfilms, 300 N. Zeeb Rd., Ann Arbor, MI 48106).

Clerical VDT operators reported higher levels of job stress and health complaints than did professional VDT operators and control subjects. Workload, workplace, lack of control over job activities, boredom, and concerns with career development had a strong impact on clerical workers' responses, suggesting that job content factors and VDT use interact to contribute to VDT operator problems.

Suffolk County, NY. *Laws*. Section 484. 1-8. (10/25/1988).

Suffolk County, the first area of the country to enact a law regulating VDT use, requires companies with 20 or more video display terminals to have training programs in place for educating employees about the possible dangers of VDT use. Employees who work more than 26 hours a week on a VDT terminal must be given alternative work breaks for fifteen minutes every three hours. Workstation and lighting standards are clearly stated, and all VDT office furniture and equipment bought or leased after January of 1990 must comply with these requirements (now pending the outcome of a lawsuit). Employer assistance with the costs of eye examinations, eyeglasses, and frames for VDT operators is another aspect of the law.

VDT syndrome: the physical and mental trauma of computer work. By 9t05, National Association of Working Women. Cleveland, OH 44113 (614 Superior Ave., NW), and Service Employees' International Union (1313 L St., NW, Washington, DC 20005). 1988. 58 pp. \$10.00, paper.

Using 34 case studies, this report looks at common illnesses and injuries associated with VDT work, and offers recommendations for their prevention. Among the observations: because injuries develop gradually, they may often be overlooked or not recognized as job-related; and most VDT injuries and illnesses appear to be linked to particular job conditions. Also available from 9t05 is a compilation of brief surveys done on computer monitoring entitled, *Computer monitoring and other dirty tricks* (1986. 9+ pp. \$8.00, paper). Unfair performance evaluations, lack of worker control, work speed-ups, and increased stress are just some of the problems associated with monitoring. Methods of evaluating employees without computer monitoring are offered.

Westin, Alan F., et al. *The changing workplace: guide to managing the people, organizational, and regulatory aspects of office technology*. Boston, MA 02111. G. K. Hall (70 Lincoln St.). 1985. \$49.00.

This multi-faceted guide reports on the findings of a two-year national field study conducted by The Educational Fund for Individual Rights. It offers a comprehensive analysis of the VDT controversy and advises managers on what they must understand and plan for in order to address the many office systems technology issues they are confronting. It also serves as a reference volume on a broad range of very specific VDT topics.

3. NIOSH BIBLIOGRAPHY

National Institute for Occupational Safety and Health. *NIOSH publications on video display terminals*. Cincinnati, OH 45226-1998. (Robert A. Taft Laboratories, 4676 Columbia Parkway, MS). 1987. 38 pp. On request.

This excellent, annotated bibliography includes: NIOSH-numbered publications; Hazard Evaluations and Technical Assistance reports; contract reports; journal articles, book chapters and miscellaneous reports.