

Mark S. Sanders, Ph.D., CHFP

Human Factors - Ergonomics

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Resume

EDUCATION:

Ph.D., Human Factors-Industrial Psychology, Purdue University, 1971

M.S., Human Factors-Industrial Psychology, Purdue University, 1968

B.A., Psychology, California State University, Northridge, 1966

PROFESSIONAL BRIEF:

Dr. Sanders has executed or directed over 70 research and development prime contracts, subcontracts, and consulting activities involving human factors analysis, human-machine system design and evaluation, task analysis and design, human performance measurement, anthropometry, workspace design, safety analysis, accident investigations, illumination measurement, coefficient of friction measurement, and personal protective equipment design and evaluation. He has participated in the design of new systems and the modification of existing systems to reduce human error and improve safety and effectiveness.

Dr. Sanders has served as expert witness in over 1500 personal-injury litigations, representing both plaintiff and defense. Dr. Sanders has testified in state and federal courts over 150 times on human factors issues dealing with such areas as: trip and fall accidents, automobile accidents, and product design cases. He has rendered opinions on such areas as: human perception, cognition, motor skills, reaction time, and behavioral expectations; foreseeability of human behavior; and effectiveness of warnings.

Dr. Sanders retired (August, 2000) after almost 30 years as professor and chair of the Human Factors graduate program at California State University, Northridge. He taught graduate and undergraduate university-level courses in human factors, product evaluation, experimental design, statistics, and task analysis. He continues his affiliation with the graduate program as Emeritus Professor. He has authored or co-authored over 100 technical reports, journal articles, and professional presentations, and is senior author of the textbook *Human Factors in Engineering and Design (7th Edition)*.

PROFESSIONAL AFFILIATIONS AND RECOGNITION:

Certified Human Factors Professional (CFHP) (1993 - present): Board of Certification in Professional Ergonomics.

Human Factors and Ergonomics Society (Fellow) (1971 - present):

Offices Held:

President (1989 - 1990)

Secretary-Treasurer (1983 & 1986)

Executive Council Representative (1991-1997)

Boards and Committees:

Editorial Board: Human Factors Journal (1972 - 1989)

Educators' Professional Group Chair (1980)

Education Committee Chair (1979 - 1981)

Awards:

Jack A. Kraft Innovator Award (1982)

Paul M. Fitts Educators Award (1998)

Technical Group Membership:

Educators' Professional Group (Organizer); Industrial Ergonomics; Consumer Products; Safety; Surface Transportation; Forensics

Division 21, American Psychological Association, Division of Applied Experimental and Engineering Psychologists (Fellow) (1990).

Ergonomics Society (Member) (1978 - present).

Society of Automotive Engineers (Member) (1982 - present):

Excellence in Oral Presentation (1981).

Illuminating Engineering Society of North America (Member) (1995 - present).

National Safety Council (Member) (1997 - present)

American College of Forensic Examiners (Fellow & Diplomate) (1997 - present)

Editorial Board: International Reviews of Ergonomics (1985 -1988).

Panel on Utilization and Education of Human Factors Specialists, National Research Council

(1988-1990).

Advisory Board: Handbook of Human Factors and Ergonomics, 2nd ed.

Listed in Who's Who in the West, 18th, 19th, and 20th Editions.

Cited in: Forbes Magazine; Los Angeles Times; Personnel Advisory Bulletin; Los Angeles Times Magazine; San Jose Mercury News.

EXPERIENCE:

CONSULTANT

(1971 - Present)

Expert Witness. Served as expert witness in over 1500 personal-injury litigations, representing both plaintiff and defense. Testified in state and federal courts over 150 times on human factors issues dealing with such areas as: trip and fall accidents, automobile accidents, and product design cases. Rendered opinions on such areas as: human perception, cognition, motor skills, reaction time, and behavioral expectations; foreseeability of human behavior; and effectiveness of warnings.

Consultant. Fleetwood Enterprises. Developed on-product carbon monoxide hazard warning labels for motor homes. Consulted on stairwell switch labeling.

Consultant. Roseburrough Tool Co. Developed on-product electrocution hazard warning labels for extension handles.

Consultant. Speedfam Corp. Identified potential hazards and designed on-product warnings and safety instructions for a disk polishing machine. Wrote safety instructions for product manual.

Consultant. Microcomputer Accessories. Provided ergonomic evaluations of select computer accessories; worked with designers on development of products.

Consultant. BPI, Inc. Provided ergonomic assessments of computer furniture and future trends in computer furniture needs; wrote ergonomics brochure.

Consultant. Nevada State Board of Pharmacy. Conducted human factors evaluation and human error analysis of mail order pharmacy operations.

Consultant. Vreules Research Corporation. Assisted in human factors evaluation of instructions and warnings for blood glucose monitoring devices.

Consultant. Los Angeles Times; Times-Mirror Corporation; Baltimore Sun; Newsday (New York); Fresno Bee; Riverside Press-Enterprise; Littler, Mendelson, Fastiff & Tichy; Long Beach Press Telegram; Modesto Bee; San Diego Union Tribune; Santa Barbara Press Telegram; Santa Rosa Press Democrat; Tacoma News Tribune; Ventura Star Free Press. Presented training sessions on ergonomic aspects of video display terminals. Conducted walk around inspections of workstations to identify potential human factors problems. Designed ergonomic evaluation of VDT furniture and chairs.

Consultant. Walt Disney Imagineering. Developed human factors standards and guidelines for design of Euro-Disney rides and attractions: Anthropometric Data; Strength Data; Guest Accommodations; Environmental Human Factors; Station Standard; Maintenance Human Factors.

Consultant. Belle de Saint Claire. Developed product operations manuals, advertising copy, and warning labels for dental laboratory products. Assisted in organization of training lectures.

Consultant. Gaffner and Satzman, Attorneys at Law. Reviewed office procedures and recommended changes in information processing and storage procedures, workspace design, and management practices to improve efficiency and reduce errors.

Consultant. Southern California Edison. Developed human factors design criteria for the Safety Display System (SPDS) for San Onofre nuclear Generating Station (SONGS) 1. Performed human factors evaluation of SPDS for SONGS 2&3 and participated in NRC audit.

Consultant. Monterey Power Technologies. Participated in human factors control room design review of San Onofre Nuclear Power Generating Stations 2&3. Developed, administered, and interpreted operator surveys and interviews. Directed task analysis effort. Assisted in human factors evaluation of control room instrumentation and control panels.

Consultant. Dynamic Research Inc. Designed and supervised population stereotype study related to automotive control design.

Consultant. Northrop Corporation. Developed experimental design and statistical analysis of Synthetic Aperture Radar evaluation study. Wrote results section of final report.

Consultant. Perceptronics, Inc. Developed conceptual model and questionnaire/interview forms to analyze the impact of organizational and incentive variables on military maintenance effectiveness. Conducted interviews and planned/supervised data analysis procedures.

Consultant. Perceptronics, Inc. Designed task analysis data collection and analysis procedure to evaluate underground metal/nonmetal jobs and work sites. Developed methodology for prioritizing human factors problems and determining the relative hazard of underground jobs.

Consultant. Perceptronics, Inc. Assisted in development of Human Resource Test and Evaluation System (HRTES) for use in evaluating the human resource component of military hardware systems during operational test. Assisted in development of handbook for planning, conducting, analyzing, and interpreting operational test data for human factors, training, and manpower implications.

Consultant. Kaiser Permanente Medical Center. Conducted workshops on development of performance standards for all personnel at hospital and medical clinics.

Instructor. IBM. Taught 3-day seminars on Ergonomics in Automation to IBM engineers and management.

Instructor. NAVSEA Safety School. Developed and presented full-day lectures on human factors topics related to safety, including workspace and equipment design, effects of noise, and effects of temperature.

Instructor. Integrated Computer Systems. Taught four-day seminars in Designing Effective Man-Machine Dialogs for computer based systems.

CALIFORNIA STATE UNIVERSITY, NORTHRIDGE

(1971 - Present)

Emeritus Professor (2000 - present). Serves on thesis committees and provides lectures and consultation to the Human Factors graduate program.

Full Professor and Chair of Human Factors Graduate Program (1971 - 2000). Developed and teach graduate and undergraduate courses in human factors, experimental design, evaluation research methodology, statistics, training, task analysis, psychometry, motivation, and organizational development. Supervise graduate thesis research. Served on various departmental and university level committees.

BRIMARK INNOVATIONS

(1984 - 1987)

President. Designed and marketed a drawing aid for use with a computer mouse.

ESSEX CORPORATION

(1974 - 1990)

Project Monitor/Principle Investigator. Human factors analysis and design of Quick Response Multicolor Printer with Xerox Corp., for the Department of Defense. Performed MANPRINT analyses, human factors evaluation of designs and assisted engineers in design and development of system.

Project Monitor/Principal Investigator. Rear stop light glare study. Developed methodology and

conducted laboratory tests of discomfort and disability glare from rear light systems of passenger cars. Measured luminance and intensity of rear light systems.

Project Monitor/Principal Investigator. Human error and accidents in underground mining. Developed methodology for assessment and analysis of contributing factors in underground mining accidents. Analyzed and assessed role of human error and other system factors in over 300 accidents.

Principal Investigator/Project Monitor. Textbook on human factors in mining. Developed and wrote a textbook for mining engineering schools and practicing mine engineers; published by Bureau of Mines.

Principal Investigator/Project Manager. Development and evaluation of personal protective equipment. Designed personal protective equipment for low seam coal miners. Designed and conducted laboratory, simulation, and field evaluations of improved equipment designs, including knee pads, slip resistant boot soles, life vests, retroreflective garments, and hand protection.

Principal Investigator/Project Monitor. Determine visibility requirements for underground mining equipment. Developed a methodology and equipment for determining critical visual attention locations and a methodology for assessing the degree of visibility from underground mining equipment. Measured illumination from machine lights. Conducted field validation of the procedures. (Two contracts)

Senior Staff Scientist. Human factors evaluation of surface mining. Conducted on-site observations and interviews of surface mining operations to identify human factors problems for future Bureau of Mines research efforts.

Principal Investigator/Project Manager. Anthropometric and cab accommodation study of drivers of heavy class trucks. Developed sampling plan and data collection procedures, supervised data analysis, and prepared final reports. Results incorporated into 7 SAE standards and recommended practices. (Two contracts)

Principal Investigator. Survey and anthropometric analysis of interstate bus and truck drivers. Developed sampling plan and questionnaires for nationwide survey. Designed and implemented photometric and direct measurement techniques to collect static and dynamic anthropometric, biomechanical, and strength data. Supervised data analysis and prepared final reports.

Senior Staff Scientist. Training needs assessment. Conducted interviews, designed survey instruments, supervised data collection and analysis to determine operational and training needs for three job classifications at a local rapid transit district.

Project Monitor. Overtime among bus mechanics. Supervised collection and analysis of

overtime data from Southern California Rapid Transit District mechanics to assess the extent of the problem, document overtime practices, and make recommendations for changing policies and procedures.

Principal Investigator. Design requirements analysis for transit vehicle wheelchair lifts. Developed specifications of wheelchair sizes in the population and implications for design of lifts. Developed design recommendations and requirements for bus and lift system to insure safe deployment of lifts on transit vehicles.

Principal Investigator. Development of experimental design plans. Developed experimental design plans for field evaluations of various Urban Mass Transit Administration projects, including computer customer information systems, State-of-the-Art Car, Advanced Concept Train, precast concrete tunnel liners, and smokeless wire.

Principal Investigator. Performed preliminary human factors analysis on prototype concept of a portable personal computer system for Citizen Systems.

Principal Investigator. Critical task analysis. Conducted human factors evaluation and critical task analysis of Missile Impact Prediction operator workstation and computer system for Ballistic Missile Early Warning System.

Project Monitor/Principal Investigator. Human factors evaluation of North Warning System short-range radar and central maintenance facility computer displays. Evaluated and made recommendations for design of human-computer interfaces.

Senior Staff Scientist. Aircrew training device literature review. Conducted review and integration of literature on transfer of training studies related to flight simulators.

Senior Staff Scientist. Evaluation of flight manuals. Evaluated United Airlines flight manuals. Conducted interviews, site visits, and documentation reviews.

Staff Scientist. Functional requirements for air combat maneuvering training simulator. Conducted interviews with Navy instructor pilots and other personnel to identify training objectives, related training tasks, and training equipment requirements.

Principal Investigator. Analysis of transfer of training data. Analyzed data from transfer of training experiment on the F-14 aircraft. Formatted and prepared sections of final report.

Senior Staff Scientist. Human factors evaluation of nuclear power plant demineralizer panel. Reviewed panel design for compliance with NUREG 0700 and recommended changes to enhance operator performance and plant safety.

Principal Investigator/Project Monitor. Validation/verification of EOPs. Designed procedures to

validate and verify human factors aspects of nuclear power plant control room emergency operating procedures.

Senior Staff Scientist. Effects of machine pacing on employee health. Developed experimental design and data collection procedures. Analyzed data using univariate and multivariate statistical techniques, and prepared final report.

NAVAL PERSONNEL RESEARCH & DEVELOPMENT CENTER (1977, 1980)

Principal Investigator. Environmental irritants in railroad locomotives and cabooses. Reviewed and synthesized literature regarding the health and safety consequences of exposures to diesel fumes. Analyzed interview and archival data to assess the magnitude of the problem in training operations.

Research Consultant. Review of technical reports. Evaluated and edited reports dealing with manpower simulation models.

NAVAL WEAPON SUPPORT CENTER (1971 - 1974)
Crane, Indiana

Principal Investigator. Organizational variables and mine safety. Planned and developed questionnaire survey and interview methods for appraising coal miners' perceptions of organizational climate variables. Designed and performed cross-lag correlational techniques to relate data to mine injury rates.

Principal Investigator. Human factors in underground coal mining. Conducted extensive on-site observations and interviews of coal miners. Outlined future research needs, objectives, and possible approaches in the areas of equipment design, environmental factors, communication equipment, safety procedures, and personal protective equipment.

Principal Investigator. Injury and safety at NAD Crane. Planned and directed questionnaire survey, on-site hazard analyses, and injury report reviews to isolate individual, environmental, and organizational variables related to injury rate. Developed recommendations for improving safety and injury reporting at NAD Crane.

Principal Investigator. Human factors evaluation of thermal bomb line. Conducted on-site observations and in-depth interviews. Recommended and documented the need for over 100 changes in workspace design and work procedures to reduce worker fatigue, increase efficiency, and reduce accidents.

Research Psychologist. Evaluation of locomotive warning light system. Planned experimental design for field research and data analysis. Interpreted results and made recommendations on relative cost effectiveness of proposed light systems.

Principal Investigator. Task analysis of brakemen and conductors for through freight railroad operations. Conducted in-depth interviews and field observations. Analyzed tasks in terms of information input, decision, and response requirements. Developed operational sequence diagrams for each task.

Principal Investigator. Evaluation of helicopters for railroad crime control. Organized fourteen railroad security forces to coordinate a helicopter patrol. Developed data collection procedures, including questionnaire and interview forms to evaluate the effectiveness of the patrol. Developed guidelines for setting up similar programs in the future.

Principal Investigator. Survey of railroad vandalism. Surveyed and critically evaluated literature dealing with vandalism. Developed questionnaires for nationwide sampling of railroad security officials. Made recommendations for future research and development efforts to combat railroad vandalism.

Principal Investigator. Survey of performance evaluation literature. Planned and conducted a survey of the psychological and business literature pertaining to performance evaluation. Critically evaluated and integrated the information into a management guide for implementation of a performance evaluation system.

Principal Investigator. Occupational alcoholism programs. Surveyed, critically evaluated and synthesized literature concerning the operation and effectiveness of occupational alcoholism programs.

DOUGLAS AIRCRAFT

(1968)

Research Psychologist. Assessment of aircraft crew fatigue. Developed tests to assess and predict onset of flying fatigue. Supervised physiological data collection procedures.

PURDUE UNIVERSITY

(1966 - 1971)

Program Manager. Mail scheme training in the U.S. Post Office. Conducted nationwide field interviews with Post Office officials and employees. Developed and supervised laboratory

simulation of scheme learning, evaluated transfer of training, and validated tests for prediction of training performance.

PUBLICATIONS:

1993

Sanders, M.S. & McCormick, E. (1993). *Human factors in engineering and design (7th ed.)*. McGraw Hill Book Co.: New York.

Sanders, M.S. & McCormick, E. (1993). *Workbook for Human Factors in Engineering and Design*. Kendall/Hunt: Dubuque, Iowa.

Sanders, M.S. (1993). *Ergonomics: Questions and answers*. BPI, Inc.: Kent, WA.

Sanders, M.S. (1993). Salary Survey. *Human Factors & Ergonomics Bulletin*, 36(11), 1-3.

1990

Sanders, M.S., Shaw, B.E., Nicholson, B.L., and Merritt, J. (1990). *Evaluation of glare from the center-high-mounted stop light*. Washington, D.C.: National Highway Traffic Safety Administration.

Sanders, M.S. (1990). The color or money: 1989 salary survey results. *Human Factors Society Bulletin*, 32(3), 1-3.

1989

Shaw, B.E. and Sanders, M.S. (1989). Research to determine the frequency and cause of injury accidents in underground mining. *Proceedings of the Human Factors Society, 33rd Annual Meeting*, 1004-1008.

1988

Sanders, M.S., & Peay, J.M. (1988). *Human factors in mining (IC 9182)*. Pittsburgh, PA: U.S. Department of the Interior, Bureau of Mines.

Sanders, M.S., & Shaw, B.E. (1988). *Human error in underground mining accidents*. Pittsburgh, PA: U.S. Department of the Interior, Bureau of Mines.

Sanders, M.S. (1988). Human factors graduate education: An update. *Human Factors Society Bulletin*, 28(12), 1-3.

1987

Sanders, M.S., & McCormick, E.J. (1987). *Human factors in engineering and design (6th ed.)*. New York: McGraw-Hill Book Company.

Downing, J., & Sanders, M.S. (1987). The effects of panel arrangement and locus of attention on performance. *Human Factors*, 29(5), 551-562.

Sanders, M.S., & McCormick, E.J. (1987). *Workbook to accompany human factors in engineering and design*. Dubuque, IA: Kendall-Hunt Publishing Co.

Shaw, B.E., & Sanders, M.S. (1987). Research to determine the frequency and cause of injury

accidents in underground mining. *Proceedings of the 31st Annual Meeting of the Human Factors Society*, 2, 926-930

1986

Curran, P., Bied, B., & Sanders, M. (1986). HFS job survey: What do we need to know? *Proceedings of the 30th Annual Meeting of the Human Factors Society*.

Bied, B., Curran, P., & Sanders, M. (1986). HFS job survey: What are we doing? *Proceedings of the 30th Annual Meeting of the Human Factors Society*.

Sanders, M.S., & Shaw, B.E. (1986). *Personal equipment for low seam coal miners: X. Improved knee pads, a modified design* (Contract No. J0387213). Pittsburgh, PA: U.S. Department of the Interior, Bureau of Mines.

1985

Sanders, M.S., & Shaw, B.E. (1985). *U.S. truck driver anthropometric and truck work space data survey: Sample selection and methodology* (SAE Technical Paper Series 852315). Warrendale, PA: Society of Automotive Engineers.

Shaw, B.E., & Sanders, M.S. (1985). *U.S. truck driver anthropometric and truck work space data survey: Demographics and static anthropometry* (SAE Technical Paper Series 852316). Warrendale, PA: Society of Automotive Engineers.

Sanders, M.S., Krohn, G.S., Downing, J.V., & Shaw, B.E. (1985). *Personal equipment for low seam coal miners: IX. Development and testing of knit fabric gloves* (Contract No. J0387213). Pittsburgh, PA: U.S. Department of the Interior, Bureau of Mines.

Sanders, M.S., Krohn, G.S., & Shaw, B.E. (1985). *Development and testing of ergonomically improved personal flotation devices for dredge operations* (Contract No. J0387213). Pittsburgh, PA: U.S. Department of the Interior, Bureau of Mines.

Sanders, M.S., & Strother, L. (1985). *Directory of human factors graduate programs in the U.S.* Santa Monica, CA: Human Factors Society.

1984

Shaw, B.E., & Sanders, M.S. (1984). *Female U.S. truck driver anthropometric and truck work space data survey*. Warrendale, PA: Society of Automotive Engineers.

Krohn, G., & Sanders, M. (1984). Development of an improved work vest for dredge operations. *Proceedings of the 28th Annual Meeting of the Human Factors Society*.

1983

Krohn, G.S. & Sanders, M.S. (1983). *Recommendations for improving the jobs of supervisor of vehicle operations, instructors, and radio dispatchers*. Los Angeles, CA: Southern California Rapid Transit District.

Shaw, B.E., & Sanders, M.S. (1983). *A study of overtime in the Southern California rapid transit district maintenance department*. Los Angeles, CA: Southern California Rapid Transit District.

Sanders, M.S. (1983). *U.S. truck driver anthropometric and truck workspace data survey*. Warrendale, PA: Society of Automotive Engineers.

Sanders, M.S., & Krohn, G.S. (1983). *Validation and extension of visibility requirements analysis for underground mining equipment* (Contract No. J0318072). Pittsburgh, PA: U.S. Department of the Interior, Bureau of Mines.

1982

McCormick, E. & Sanders, M.S. (1982). *Human factors in engineering and design (5th ed.)*. McGraw Hill Book Co.: New York.

Sanders, M.S. & McCormick, E. (1982). *Workbook for Human Factors in Engineering and Design*. Dubuque, Iowa: Kendall/Hunt.

Beith, B.H., Sanders, M.S., & Peay, J.M. (1982). Using retroreflective material to enhance the conspicuity of coal miners. *Human Factors*, 24(6), 727-735.

- Conway, E.J., & Sanders, M.S. (1982). *Recommendations for human factors research and development projects in surface mining* (Contract No. J0395080). Pittsburgh, PA: U.S. Department of the Interior, Bureau of Mines.
- Sanders, M.S., & Downing, J.V. (1982). *Personal protective equipment for low seam coal miners: VIII. Improved traction rubber boot soles* (Contract No. J0387213). Pittsburgh, PA: U.S. Department of the Interior, Bureau of Mines.
- Sanders, M.S. (1982). *Personal protective equipment for low seam coal miners: VII. Improved knee pads* (Contract No. J0387213). Pittsburgh, PA: U.S. Department of the Interior, Bureau of Mines.
- Sanders, M.S. (1982). Visual attention locations and a methodology for assessing visibility from underground mining equipment. Mine Illumination. *Proceedings of the Second International Mine Lighting Conference of the International Commission on Illumination* (IC 8886). Pittsburgh, PA: U.S. Department of the Interior, Bureau of Mines.
- Sanders, M.S. (1982). Human factors graduate education programs: The state of the union. *Human Factors Society Bulletin*, 25(11), 1-4.
- Sanders, M.S., & Downing, J. (1982). HFS job description survey: Where we work, what we do. *Proceedings of the 28th Annual Human Factors Society Meeting*.
- Downing, J., & Sanders, M.S. (1982). HFS job description survey: Job dimensions, satisfaction, and motivation. *Proceedings of the 28th Annual Human Factors Society Meeting*.
- Sanders, M. (1982). HFS job description survey: The question of salary. *Human Factors Society Bulletin*, 25(2), 1-3.

1981

- Conway, E.J., Sanders, M.S., & Schurick, J.M. (1981). *Human factors in mining: An annotated bibliography of selected research performed in the United States, 1970 - 1980* (TR-81-002). Westlake Village, CA: Canyon Research Group. Also *JSAS Catalog of Selected Documents in Psychology*, 1981, 11. (Ms. No. 2318)
- Sanders, M.S. & Kelley, G.R. (1981). *Visual attention locations for operating continuous miners, shuttle cars, and scoops*. Pittsburgh, PA: U.S. Department of the Interior, Bureau of Mines.

- Sanders, M.S., Bobick T.G., & Stengel, J.W. (1981). *Personal equipment development for use in underground mining* (81-ENAs-48). New York: The American Society of Mechanical Engineers. Paper presented at the Intersociety Conference on Environmental Systems, July 13-15, San Francisco, CA.
- Sanders, M.S. (1981). Peak and sustained isometric forces applied to a truck steering wheel. *Human Factors*, 23(6), 655-660.
- Beith, B., & Sanders, M. (1981). Assessing visibility from underground coal mining equipment. *Proceedings of the 27th Annual Human Factors Society Meeting*.
- Sanders, M.S. (1981). Determining what needs to be seen and what can be seen from underground mining equipment. *Ergonomics - Human Factors in Mining* (IC 8866). Pittsburgh, PA: U.S. Department of the Interior, Bureau of Mines.
- Sanders, M.S., Peay, J.M., & Bobick, T.G. (1981). Research on the development of personal protective equipment for underground coal miners. *Ergonomics-Human Factors in Mining* (IC 8866). Pittsburgh, PA: U.S. Department of the Interior, Bureau of Mines.
- Conway, E.J., Muckler, F.A., & Sanders, M.S. (1981). *Reduction of human error, injury and accidents as a result of training: A literature review*. Second International Symposium on Training in the Prevention of Occupational Risks in the Mining Industry. Pittsburgh, PA: Mine Safety and Health Administration.

1980

- Semple, C.A., Hennessey, R.T., Sanders, M.S., Cross, B.K., Beith, B.H., & McCauley, M.E. (1980). *Aircrew training devices: Fidelity features* (TR-80-36). Wright-Patterson Air Force Base, OH: Air Force Human Resources Lab. Also *JSAS Catalog of Selected Documents in Psychology*, 1981, 11. (Ms. No. 2330)

- Sanders, M.S., Krohn, G., Volkmer, K., Wick, D., Miller, H., Blake, T., & Beith, B. (1980). *Experiments on personal equipment design for low seam coal miners: I. Comparison of 10/60 and standard self-rescue devices* (Contract No. J0387213). Pittsburgh, PA: U.S. Department of the Interior, Bureau of Mines.
- Krohn, G., Sanders, M.S., Volkmer, K., Wick, D., Miller, H., Beith, B., & Blake, T. (1980). *Experiments on personal equipment for low seam coal miners: II. Dexterity, protection and performance with padded gloves* (Contract No. J0387213). Pittsburgh, PA: U.S. Department of the Interior, Bureau of Mines.
- Sanders, M.S., Krohn, G., Wick, D., Volkmer, K. & Beith, B. (1980). *Experiments on personal equipment for low seam coal miners: III. Effect of size and weight of battery pack on performance* (Contract No. J0387213). Pittsburgh, PA: U.S. Department of the Interior, Bureau of Mines.
- Blake, T., Sanders, M., Krohn, G., Wick, D., Volkmer, K., & Beith, B. (1980). *Experiments on personal equipment for low seam coal miners: IV. Incorporating coiled cord into cap lamp battery cords* (Contract No. J0387213). Pittsburgh, PA: U.S. Department of the Interior, Bureau of Mines.
- Beith, B., & Sanders, M. (1980). *Experiments on personal equipment for low seam coal miners: V. Effect of reflectorized outer garments on detection and conspicuity of miners* (Contract No. J0387213). Pittsburgh, PA: U.S. Department of the Interior, Bureau of Mines.
- Sanders, M.S., Wick, D., & Krohn, G. (1980). *Experiments on personal equipment for low seam coal miners: VI. Comparison of bumping hazards with high and low profile helmets* (Contract No. J0387213). Pittsburgh, PA: U.S. Department of the Interior, Bureau of Mines.
- Sanders, M.S. (1980). Sleep envelopes and sleeper berth requirements. *Human Factors*, 22, 313-317.

Pre 1980

- Sanders, M.S., & Sullivan, D.J. (1978). *Experimental design plan for evaluation of Washington metropolitan area transit authority automated transit information system*. Washington, DC: Urban Mass Transportation Administration.

- Sanders, M.S., Beith, B., & Blake, T. (1978). *Use of personal equipment in low coal: A review of the personal equipment literature* (Contract No. J0387213). Pittsburgh, PA: U.S. Department of the Interior, Bureau of Mines. Also *JSAS Catalog of Selected Documents in Psychology* (MS 2032).
- Sanders, M.S. (1978). *Health and safety implications of diesel locomotive emissions* (TR-78-17). San Diego, CA: Navy Personnel Research and Development Center.
- Crooks, W., Sanders, M.S. & Kaplan, J. (1978). *Task and evaluation of human resource considerations during the development of Army weapon systems*. U.S. Army Research Institute for the Behavioral and Social Sciences: Alexandria, VA.
- Sanders, M.S. (1978). *A requirement analysis document for transit vehicle wheelchair left devices*. Urban Mass Transportation Administration: Washington, D.C.
- Sanders, M.S. (1977). *A nationwide survey of truck and bus drivers*. Washington, DC: Department of Transportation, Bureau of Motor Carrier Safety.
- Sanders, M.S. (1977). *Anthropometric survey of truck and bus drivers: Anthropometry, control, reach and control force*. Washington, DC: Department of Transportation, Bureau of Motor Carrier Safety.
- Drake, K., Sanders, M.S., Crooks, W. & Weltman, G. (1977). *Comparative studies of organizational factors in military maintenance*. Arlington, VA: Defense Advanced Research Projects Agency, Cybernetics Technology Office.
- Sanders, M.S., & Sullivan, D.J. (1977). *Experimental design plan for evaluation of Southern California rapid transit district computer information service*. Washington, DC: Urban Mass Transportation Administration.
- Conway, E., Sanders, M.S., Streimer, I., & Reimer, S.E. (1977). *Search for health and safety data on machine-paced assembly lines* (Contract No. 210-76-0148). Cincinnati, OH: National Institute for Occupational Safety and Health.
- Sanders, M.S., Patterson, T., & Peay, J. (1976). *The effect of organizational climate and policy on coal mine safety*. Crane, IN: Naval Weapon Support Center, Applied Sciences Department.

- Sanders, M.S., & Peay, J.M. (1976). *A survey of alcohol and drug abuse programs in the railroad industry* (FRA/DDPD-OR&D 76-283). Washington, DC: Federal Railroad Administration.
- Sanders, M.S. & McCormick, E. (1976). *Workbook for Human Factors in Engineering and Design*. Dubuque, Iowa: Kendall/Hunt.
- Reynolds, D., & Sanders, M. (1975). Effect of defendant attractiveness, age, and injury on severity of sentence given by simulated jurors. *Journal of Social Psychology*, 96, 149150.
- Sanders, M., & Dudycha, A. (1975). Prediction of learning speed on long paired-associate lists. *Journal of General Psychology*, 93, 297-289.
- Hitchcock, L., & Sanders, M.S. (1975). *Employee performance evaluation and review: A summary of the literature* (RDTR 282). Crane, IN: Naval Ammunition Depot, Applied Sciences Department. Also in *JSAS Catalog of Selected Documents in Psychology*, 5, (MS 1135).
- Hitchcock, L., & Sanders, M.S. (1975.) *A comprehensive analysis of safety and injuries at NAD Crane* (RDTR 279). Crane, IN: Naval Ammunition Depot, Applied Sciences Department. Also in *JSAS Catalog of Selected Documents in Psychology*, 5, (MS 900).
- Sanders, M.S., & Dudycha, A. (1974). Learning a 720-item paired-associate list by a part method: Effect of list length on learning time per item. *Psychological Reports*, 35, 199-206.
- Sanders, M.S. (1974). *Task analysis for the jobs of train conductor and brakeman* (RDTR 263). Crane, IN: Naval Ammunition Depot.
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PRESENTATIONS:

Dr. Sanders has presented papers and talks to the following professional societies and business organizations:

Human Factors and Ergonomics Society
Human Factors Society, Los Angeles Chapter
American Psychological Association
Western Psychological Association
Midwestern Psychological Association
California State Psychological Association
American Industrial Hygiene Association
Commission Internationale de l'Eclairage (CIE)
American Society of Mechanical Engineering
American Society of Safety Engineers
California Society of Newspaper Editors
Orange County Press Club
Industrial Relations Bureau
King and Ballou
Little, Mendelson, Fastiff & Tichy
NAVSEA Safety School
IBM
Kaiser Permanente Medical Services
National Medical Enterprises
U.S. Bureau of Mines
Los Angeles Times
Baltimore Sun-Times
Newsday (New York)
Fresno Bee
Times-Mirror Corporation
Riverside Press-Enterprise
Long Beach Press Telegram
Modesto Bee
San Diego Union Tribune
Santa Barbara Press Telegram
Santa Rosa Press Democrat
Tacoma News Tribune
Ventura Star Free Press
California Technical Processing Group