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USE OF COMPUTERS IN EDUCATION

VOLUME I OF II VOLUMES

A DDC BIBLIOGRAPHY

July 1959 - June 1969

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JULY 1959 - JUNE 1969

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F O R E W O R D

This is Volume I of a two-volume bibliography on the Use of Computers in Education.

This bibliography contains 338 unclassified references covering the period from July 1959 through June 1969. However, the computer search covers the period from January 1953 through September 1969.

Success in the use of computerized education and training systems is evaluated. Reports on programmed instruction indicate the feasibility of a wide range of uses of computers in education, in training, and in adaptive learning techniques. Individual entries are arranged in AD number sequence.

The computer-generated indexes are Corporate Author/ Monitoring Agency and Personal Author.

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ROBERT B. STEGMAIER, JR.
Administrator
Defense Documentation Center

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-228 766
GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES RESEARCH OFFICE
AN ANNOTATED BIBLIOGRAPHY ON THE AUTOMATION OF INSTRUCTION (U)
JUL 59 38P DARBY,CHARLES L.;

UNCLASSIFIED REPORT

DESCRIPTORS: *LEARNING, AUTOMATION, BIBLIOGRAPHIES, EDUCATION, PROGRAMMING (COMPUTERS), TEACHING MACHINES, TRAINING DEVICES (U)

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-259 994
BROOKLYN COLL N Y
RESEARCH IN THE AUTOMATION OF TEACHING (U)
FEB 61 IV ZUCKERMAN,CARL B.;MARSHALL,GEORGE R.;
CONTRACT: N61339 661
MONITOR: NTDC 661 1

UNCLASSIFIED REPORT

DESCRIPTORS: *TEACHING MACHINES, AUTOMATION, CIRCUITS, EFFECTIVENESS, LEARNING, TRAINING, TRAINING DEVICES, WIRING DIAGRAMS (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-262 779
NEW YORK UNIV N Y
RESPONSE MODE, PACING, AND MOTIVATIONAL EFFECTS IN TEACHING MACHINES (U)
JUN 61 1V SILVERMAN,ROBERT E.;ALTER,MILLICENT;
CONTRACT: N61339 507
MONITOR: NTDC 507 3

UNCLASSIFIED REPORT

DESCRIPTORS: *TEACHING MACHINES, EFFECTIVENESS, LEARNING, NAVAL PERSONNEL, PERSONNEL, PROGRAMMING (COMPUTERS), TEST METHODS, TEST REACTORS, TESTS, THEORY, TRAINING DEVICES (U)

THREE EXPERIMENTS WERE PERFORMED TO STUDY THE EFFECTS OF RESPONSE MODE; ONE EXPERIMENT WAS DONE TO STUDY PACING AND ONE EXPERIMENT DEALT WITH THE MOTIVATIONAL EFFECTS OF TEACHING MACHINES. THE FIRST THREE EXPERIMENTS INDICATED THAT REQUIRING THE STUDENT TO MAKE AN OVERT RESPONSE DOES NOT FACILITATE PROGRAMMED LEARNING, NOR IS THE CONSTRUCTING OF A RESPONSE, WHETHER IT BE OVERT OR COVERT, NECESSARILY ADVANTAGEOUS. THE FOURTH EXPERIMENT INDICATED THAT PACING WILL NOT IMPAIR PERFORMANCE IF CARE IS TAKEN TO INSURE OPTIMAL PACING RATES. THE FIFTH EXPERIMENT GAVE NO EVIDENCE OF MOTIVATIONAL EFFECTS IN TEACHING MACHINES; PROGRAMMED TEXTBOOKS WERE AS EFFECTIVE AS TEACHING MACHINES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-262 972
SYSTEM RESEARCH LTD RESEARCH LABS RICHMOND (ENGLAND)
RESEARCH ON THE DESIGN OF ADAPTIVE TEACHING SYSTEMS WITH A CAPABILITY FOR SELECTING AND ALTERING CRITERIA FOR ADAPTATION (U)
APR 61 1V
CONTRACT: AF61 052 402

UNCLASSIFIED REPORT

DESCRIPTORS: *TEACHING MACHINES, ANALYSIS, DESIGN, DYNAMICS, LEARNING, THEORY, TRAINING DEVICES, VOCABULARY (U)

IDENTIFICATION BETWEEN LEARNING AND TEACHING PROCESSES AND A SELF ORGANISING SYSTEM, GROUP INTERACTION WITH A TUITIONAL AND STABILISING SYSTEM, AND DESCRIPTION OF THE MACHINE. TECHNICAL SUMMARY. OUTLINE DESCRIPTION OF A SIMPLE ADAPTIVE DEVICE. A SEMANTIC ORDERING MACHINE. HYPOTHESES REGARDING THE STRUCTURE OF THE LEARNING PROCESS. POSSIBLE HYPOTHESES. CRITICAL COMMENTS AND NOMENCLATURE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OMK08

AD-263 439
PITTSBURGH UNIV PA
TRAINING RESEARCH AND EDUCATION (U)
IV GLASER,ROBERT;

UNCLASSIFIED REPORT

DESCRIPTORS: *EDUCATION, *RESEARCH PROGRAM ADMINISTRATION, *TRAINING, INSTRUCTORS, REACTION (PSYCHOLOGY), TEACHING MACHINES, THEORY, TRAINING DEVICES (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-264 230
AIR FORCE CAMBRIDGE RESEARCH LABS L G HANSCOM FIELD MASS
ON THE DESIGN OF A SIMPLE CONDITIONED-RESPONSE MACHINE (U)
APR 61 1V MCINTOSH,J.O.;
REPT. NO. 188
MONITOR: AFCRL 188

UNCLASSIFIED REPORT

DESCRIPTORS: *ANALOG COMPUTERS, *LEARNING, COMPUTERS, CONDITIONED REFLEX, CYBERNETICS, DEPTH INDICATORS, INSTRUMENTATION, MOTOR REACTIONS (U)

LEARNING BY CONDITIONING AS IT OCCURS IN LIVING ORGANISMS IS EXAMINED TO DETERMINE WHICH ASPECTS OF CLASSICAL CONDITIONING CAN BE INSTRUMENTED IN AN ELECTRONIC ANALOG. ELECTRONIC TECHNIQUES FOR THIS INSTRUMENTATION ARE DISCUSSED. A SPECIALPURPOSE CONDITIONED-REFLEX ANALOG AND AN EXPERIMENT FOR IT ARE DESCRIBED. POSSIBLE APPLICATIONS OF CONDITIONED REFLEX IN DATA-PROCESSING ARE CONSIDERED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-264 377
ILLINOIS UNIV URBANA
EFFECTS OF PROGRAMMED PERCEPTUAL TRAINING ON THE LEARNING OF CONTACT LANDING SKILLS (U)
APR 61 1V ADAMS,JACK A.;HUFFORD,LYLE E.;
CONTRACT: N61339 297
MONITOR: NTDC 297 3

UNCLASSIFIED REPORT

DESCRIPTORS: *FLIGHT SIMULATORS, *PERCEPTION, *PROGRAMMING (COMPUTERS), *TRAINING DEVICES, DISPLAY SYSTEMS, LANDINGS, LEARNING, PILOTS, TRAINING (U)

THIS PROJECT CONSISTED OF AN EXPERIMENT ON THE EFFECT OF ONE TYPE OF PERCEPTUAL (OPEN-LOOP) TRAINING ON THE LEARNING OF CONTACT LANDING. THIRTY NON-PILOTS, DIVIDED EQUALLY INTO TWO MATCHED GROUPS, PARTICIPATED. THE EXPERIMENTAL GROUP RECEIVED PERCEPTUAL TRAINING WITH A PROGRAMMED VISUAL DISPLAY; THE CONTROL GROUP DID NOT RECEIVE THIS TRAINING. AS CRITERION TRIALS, BOTH GROUPS PERFORMED CONTACT LANDINGS IN AN OPERATIONAL FLIGHT TRAINER EQUIPPED WITH A NONPROGRAMMED VISUAL ATTACHEMENT. THE RESULTS INDICATED THAT THE PROGRAMMED PRESENTATION EVALUATED DID NOT CONTRIBUTE TO THE LEARNING OF CONTACT LANDINGS. THE IMPLICATIONS OF THE FINDINGS, AND RESEARCH ISSUES IN THE EVALUATION OF VISUAL ATTACHMENTS AND OF PILOT PERFORMANCE ARE DISCUSSED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-265 070
AMERICAN INST FOR RESEARCH SANTA BARBARA CALIF
A STUDY OF SUBJECT-CONTROLLED PARTIAL CUEING IN
PAIRED-ASSOCIATE LEARNING (U)
SEP 61 1V ANGELL,DAVID;LUNSDAINE,ARTHUR A.;
REPT. NO. C14 9 61 SR4
CONTRACT: AF49 638 681
MONITOR: AFOSR 1342

UNCLASSIFIED REPORT

DESCRIPTORS: *LEARNING, *TRAINING DEVICES, AUTOMATIC, EFFECTIVENESS, TEACHING MACHINES (U)

A STUDY WAS PERFORMED TO DETERMINE WHAT EFFECT, IF ANY, A TRAINING PROCEDURE WHICH UTILIZED PARTIAL CUEING AT THE OPTION OF THE LEARNER WOULD HAVE UPON THE LEARNING OF PAIRED-ASSOCIATE MATERIALS. THE TECHNIQUE WAS A SIMPLE ONE WHICH PROVIDED PARTIAL CUEING BY SUCCESSIVE REVELATION, UPON STUDENT DEMAND, OF THE LETTERS OF THE 3--LETTER RESPONSE TERM IN AN S-R PAIR. NO INSTRUMENTATION WAS EMPLOYED; E SERVED AS THE DE-VICE BY WHICH RESPONSE COMPONENTS WERE REVEALED (AURALLY) TO THE STUDENT. THE DATA SHOWED LITTLE DIFFERENCE IN OVER-ALL EFFECTIVENESS BETWEEN THE PARTIAL-CUEING TECHNIQUE AND A STANDARD ANTICIPATION PROCEDURE FOR LEARNING PAIRED ASSOCIATES. WHEN THE EFFECTIVENESS OF THE TWO TRAINING PROCEDURES WAS EXAMINED WITH RESPECT TO ''TASK DIFFICULTY''--ITEMS HAVING BEEN DICHOTOMIZED INTO DIFFICULT AND EASY, AND SS HAVING BEEN BEEN DICHOTOMIZED INTO SLOW LEARNERS AND FAST LEARNERS--THE PARTIAL-CUEING PROCEDURE WAS FOUND TO BE SOMEWHAT MORE EFFECTIVE FOR SLOW LEARNERS WITH HARD ITEMS, AND SLIGHTLY LESS EFFECTIVE FOR ST LEARNERS WITH EASY ITEMS. THIS INTERACTION WA GINALLY SIGNIFICANT (P < .10). THE FINDINGS CUSSED IN RELATION TO OTHER STUDIES OF PARTIAL ING IN PAIRED-ASSOCIATE LEARNING. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-268 223
AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB OHIO
A SURVEY OF AUTO-INSTRUCTION DEVICES (U)
SEP 61 IV KOPSTEIN,FELIX F.;SHILLESTAD,ISABEL J.;
MONITOR: ASD TR61 414

UNCLASSIFIED REPORT

DESCRIPTORS: *TEACHING MACHINES, AUTOMATIC, EDUCATION, HANGARS, TRAINING, TRAINING DEVICES (U)

THE STATE OF THE ART OF AUTO-INSTRUCTION AND TEACHING DEVICES AND CATALOGS INSTRUCTIONAL DEVICES TO APRIL 1961 IS SUMMRIZED IN THE INTEREST OF SUGGESTING POSSIBLE APPLICATIONS TO LOCAL TRAINING OR EDUCATION PROBLEMS. THE FIRST SECTION BRIEFLY REVIEWS WHAT AUTO-INSTRUCTION IS, WHETHER IT IS AN ENTIRELY NEW CONCEPT, ITS PRACTICAL BENEFITS, AUTO-INSTUCTION TERMINOLOGY, PROGRAMS AND DEVICES, CURRENT PROGRAMMING FORMATS, EVALUATING A PROGRAM, AND DISCUSSES PROSPECTS FOR THE FUTURE OF AUTOINSTRUCTION. THE SECOND SECTION CATALOGS AND DESCRIBES ALL MAJOR CURRENT AUTO-INSTRUCTIONAL DEVICES: SKINNER MACHINES, PRESSEY MACHINES, CROWDER TECHNIQUE, SELF-ORGANIZING SYSTEMS, AUDIO-VISUAL MACHINES, DIGITAL COMPUTERS AS TEACHING MACHINES, AND MISCELLANEOUS DEVICES. A LIST OF TEACHING MACHINE PATENTS IS APPENDED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-276 703
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
COMPUTER SIMULATIONS OF A PERCEPTUAL LEARNING MODEL
FOR SENSORY PATTERN RECOGNITION, CONCEPT FORMATION,
AND SYMBOL TRANSFORMATION (U)
MAR 62 1v VOSSLER,CHARLES;UHR,LEONARD;
REPT. NO. SP 562

UNCLASSIFIED REPORT

DESCRIPTORS: *COMPUTERS, *LEARNING *SIMULATION,
LANGUAGE, TRANSLATIONS, VISION (U)

COMPUTER SIMULATIONS OF A PERCEPTUAL LEARNING MODEL FOR
SENSORY PATTERN RECOGNITION, CONCEPT FORMATION, AND
SYMBOL TRANSFORMATION.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-277 287
AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB OHIO
MOTIVATION AND THE AUTOMATION OF TRAINING. A LITERATURE REVIEW (U)
MAR 62 1V UGELOW,ALVIN;
REPT. NO. TDR62 15

UNCLASSIFIED REPORT

DESCRIPTORS: *LEARNING, *TEACHING MACHINES, AUTOMATION, BIBLIOGRAPHIES, EFFECTIVENESS, GROUP DYNAMICS, MOTIVATION, PSYCHOLOGY (U)

CONTROLLING THE MOTIVATION OF LEARNER IN THEIR CONTINUING USE OF THE NEW AUTO-INSTRUCTIONAL DEVICES COULD BECOME A SERIOUS PROBLEM, SINCE NEITHER THE DEVICES THEMSELVES NOR THE PERFORMANCE KNOWLEDGE THEY PROVIDE SEEMS SUFFICIENT TO MAINTAIN EXTENDED PARTICIPATION IN THE INSTRUCTION. A SELECTIVE REVIEW OF THE LITERATURE ON KNOWLEDGE OF RESULTS, PRAISE AND REPROOF, COMPETITION, TASK INTERRUPTION, AND READABILITY SUGGESTS TECHNIQUES FOR BETTER CONTROLLING SUCH PARTICIPATION. POTENTIALLY USEFUL APPLICATIONS ARE DISCUSSED, AND LIMITED TRY-OUT OF VARIATIONS, BOTH WITHIN THE PROGRAM AND INSTRUCTIONAL ENVIRONMENT, IS ENCOURAGED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-277 493
MELPAR INC FALLS CHURCH VA
A STUDY OF GENERALIZED MACHINE LEARNING (U)
APR 62 1V CARNE,E.B.;
REPT. NO. TDR62 166
CONTRACT: AF33 616 76822
MONITOR: ASD TDR62 166

UNCLASSIFIED REPORT

DESCRIPTORS: *DIGITAL COMPUTERS, *DIGITAL SYSTEMS, CODING, COMMUNICATION THEORY, ELECTRICAL NETWORKS, FEEDBACK, GAME THEORY, LEARNING, MATHEMATICAL PREDICTION, NERVES, RELIABILITY, SEQUENCES, SEQUENTIAL ANALYSIS, SIMULATION, SWITCHING CIRCUITS, TRIGGER CIRCUITS (U)

MACHINE LEARNING WITH THE ARTRON NETWORKS AND THE SELF-ORGANIZING BINARY LOGICAL NETWORK. FEASIBILITY OF CONSTRUCTION OF MACHINES WHICH LEARN EFFICIENTLY. LEARNING ABILITY OF SOBLN TO FORM ANY BOOLEAN FUNCTION OF N VARIABLES.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-281 936
NATIONAL ACADEMY OF SCIENCES - NATIONAL RESEARCH COUNCIL
WASHINGTON D C
STUDENT RESPONSE IN PROGRAMMED INSTRUCTION. A
SYMPOSIUM ON EXPERIMENTAL STUDIES OF CUE AND RESPONSE
FACTORS IN GROUP AND INDIVIDUAL LEARNING FROM
INSTRUCTIONAL MEDIA. (U)
61 555P LUMSDAINE,A. A. ;
REPT. NO. 943

UNCLASSIFIED REPORT

DESCRIPTORS: *LEARNING, *REACTION (PSYCHOLOGY),
*TEACHING MACHINES, *TRAINING, FILMS, PROGRAMMING
(COMPUTERS), SYMPOSIA, VERBAL BEHAVIOR (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-282 679
AERONAUTICAL SYSTEMS DIV WRIGHT-PATTERSON AFB OHIO
INVESTIGATIONS IN COMPUTER-AIDED DESIGN FOR
NUMERICALLY CONTROLLED PRODUCTION (U)
MAY 62 IV ROSS,D.T.;COONS,S.A.;
REPT. NO. TR7 8201R 138
CONTRACT: AF33 600 42859
MONITOR: ASD TR7 820

UNCLASSIFIED REPORT

DESCRIPTORS: *AUTOMATIC, *DATA PROCESSING SYSTEMS, *MACHINE TOOLS, *PROGRAMMING (COMPUTERS), ANALYSIS, COMPUTERS, DESIGN, DISPLAY SYSTEMS, INSTRUMENTATION, INTEGRATION, MECHANICAL ENGINEERING, NUMERICAL ANALYSIS, OPERATORS (MATHEMATICS), OSCILLOSCOPES, STRESSES (U)

THE COMPUTER-AIDED DESIGN PROJECT IS ENGAGED IN A PROGRAM OF RESEARCH INTO THE APPLICATION OF THE CONCEPTS AND TECHNIQUES OF MODERN DATA PROCESSING TO THE DESIGN OF MECHANICAL PARTS, AND THE FURTHER DEVELOPMENT OF AUTOMATIC PROGRAMMING (APT) SYSTEMS FOR NUMERICALLY CONTROLLED MACHINE TOOLS. THIS COMBINED INTERIM REPORT COVERS THE FIFTEENTH THROUGH TWENTY-SIXTH MONTHS OF THE PROJECT. TOPICS COVERED INCLUDE: A DESCRIPTION OF CURRENT STATUS ON THE BASIC BOOTSTRAP COMPILER, THE AVAILABLE PROGRAMS OF THE BOOTSTRAP PLATEAU SYSTEM, AND THE MULTI-PASS COMPILER; DISCUSSION OF A NEW FIRST-PASS ALGORITHM WHICH IS BELIEVED TO HAVE WIDE APPLICABILITY TO ALL FORMS OF PROBLEM STATEMENT; DESCRIPTIONS OF THREE MANUAL INTERVENTION CONSOLE DESIGNS--A RUDIMENTARY VERSION NOW OPERATING ON THE 709 COMPUTER, A PROPOSED VERSION FOR THE 709, AND A STUDY OF A REMOTE CONSOLE FOR A LARGE-SCALE CENTRAL COMPUTER; COMPUTER STUDIES IN THREE-DIMENSIONAL SHAPE DESCRIPTION AND STRESS ANALYSIS; AND PLANS FOR PILOT STUDIES IN PIN-JOINTED TRUSSES AND SCULPTURED PARTS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-283 359
EDUCATIONAL TESTING SERVICE PRINCETON N J
SOME IMPLICATIONS OF TESTING PROCEDURES FOR AUTO-
INSTRUCTIONAL PROGRAMMING (U)
DESCRIPTIVE NOTE: FINAL REPT. JAN-DEC 61.
JUN 62 74P JACOBS,PAUL I.;
CONTRACT: AF33 616 7795
MONITOR: MRL TDR-62-67

UNCLASSIFIED REPORT

DESCRIPTORS: *LEARNING, *PROGRAMMING (COMPUTERS), *TEACHING MACHINES, ACHIEVEMENT TESTS, APTITUDE TESTS, EFFECTIVENESS, TEST CONSTRUCTION (PSYCHOLOGY), TEST METHODS, TESTS, THEORY (U)

A SYSTEMATIC COMPARISON OF PROBLEMS AND PROCEDURES REVEALS IMPORTANT IMPLICATIONS FOR PROGRAMMING FROM THE OLDER FIELD OF TESTING. THEORY AND EXPERIENCE IN TEST CONSTRUCTION CAN BE ESPECIALLY USEFUL IN THE SELECTION OF VALID CRITERIA FOR ASSESSING THE EFFECTIVENESS OF A PROGRAM, THE ORDERING OF INSTRUCTIONAL SUBJECT MATTER, THE WRITING OF INSTRUCTIONAL FRAMES, AND THE FORMAL EVALUATION OF THE PROGRAM. ADAPTIVE PROGRAMMING IMPLIES MEASUREMENT OF BOTH APTITUDE AND ACHIEVEMENT IN ORDER TO ASSIGN TRAINEES TO APPROPRIATE INDIVIDUAL SEQUENCES OF INSTRUCTION. POSSIBLE APPLICATIONS RESULTING FROM EXAMINATION OF THESE AND OTHER ISSUES ARE EXPLORED, AND NECESSARY FURTHER RESEARCH IS SUGGESTED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-284 821
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
THE USE OF SELF-INSTRUCTIONAL DEVICES IN
COUNSELING (U)
AUG 62 1v COGSWELL,JOHN F,ISORENSON,A. GARTH;
REPT. NO. SP 940

UNCLASSIFIED REPORT

DESCRIPTORS: *EDUCATION, *TEACHING MACHINES (U)

ADVANTAGES OF THE USE OF SELF-INSTRUCTIONAL DEVICES IN COUNSELING ARE DISCUSSED. THE USE OF SELF-INSTRUCTIONAL DEVICES AND PROGRAMS TO HELP IN THE INTERPRETING OF TESTS TO STUDENTS IS SUGGESTED AND ILLUSTRATED. THE TECHNIQUE OF CONSTRUCTED SELF-INSTRUCTIONAL MATERIALS AS A MEANS FOR DEVELOPING MORE EFFECTIVE COMMUNICATION AND AS A MEANS FOR STUDYING THE PROBLEMS OF THE COMMUNICATIONS PROCESS IS DISCUSSED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-285 324
AMERICAN INST FOR RESEARCH SANTA BARBARA CALIF
RETENTION OF MATERIAL PRESENTED BY AUTOINSTRUCTIONAL PROGRAMS WHICH VANISH AND WHICH DO NOT VANISH VERBAL CUES (U)
AUG 62 IV ANGELL,DAVID;LUMSDAINE,ARTHUR A.;
CONTRACT: AF49 638 681

UNCLASSIFIED REPORT

DESCRIPTORS: *LEARNING, *TEACHING MACHINES (U)

RETENTION OF MATERIAL PRESENTED BY AUTOINSTRUCTIONAL PROGRAMS WHICH VANISH AND WHICH DO NOT VANISH VERBAL CUES.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OMK08

AD-285 534
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
APPLICATION OF RESEARCH ON PROGRAMED INSTRUCTION TO SCHOOL SYSTEMS (U)
AUG 62 1V SILBERMAN,HARRY F.;
REPT. NO. SP 949

UNCLASSIFIED REPORT

DESCRIPTORS: *EDUCATION, *TEACHING MACHINES, AUTOMATION, COMMUNICATION SYSTEMS, DATA TRANSMISSION SYSTEMS (U)

THE ARGUMENT IS PRESENTED THAT A BETTER IMPEDANCE MATCH BETWEEN LABORATORY AND SCHOOL WOULD BE MADE IF ONE TOOK A WIDER VIEW OF THE MEDIA THROUGH WHICH PROGRAMING PRINCIPLES ARE IMPLEMENTED. RESEARCH REPORTS SHOULD ALLOW THE EDUCATIONAL DECISION-MAKER TO TAKE ACTION ON THE BASIS OF THESE REPORTS. CLASS (COMPUTER-BASED LABORATORY FOR AUTOMATED SCHOOL SYSTEMS), AN EXPERIMENTAL FACILITY DEVELOPED AT SDC AS AN APPROACH TO DESIGNING A SEQUENCE OF STEPS LEADING FROM RESEARCH ON PROGRAMING TO ITS PRACTICAL APPLICATION IN SCHOOLS, IS DISCUSSED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-285 535
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
INFORMATION RETRIEVAL SYSTEMS AND EDUCATION (U)
AUG 62 1V BUSHNELL,DON;BORKO,HAROLD;
REPT. NO. SP 947

UNCLASSIFIED REPORT

DESCRIPTORS: *EDUCATION, *INFORMATION RETRIEVAL, *TEACHING MACHINES, AUTOMATION, DATA TRANSMISSION SYSTEMS (U)

AN INFORMATION RETRIEVAL (IR) SYSTEM THAT WOULD ADEQUATELY SERVE THE INFORMATION NEEDS OF THE EDUCATOR AND STUDENT IS DISCUSSED. SUCH A SYSTEM WOULD INCLUDE FUNCTIONS ALREADY AUTOMATED IN PRESENT IR HARDWARE SYSTEMS AND, IN ADDITION, THE AUTOMATION OF ACQUISITION, LASSIFICATION, AND DISSEMINATION FUNCTIONS. EXTRAPOLATION FROM THE RESEARCH IN THE LAST THREE AREAS LEADS TO A DESCRIPTION OF AN ADVANCED SCHOOL SYSTEM OF THE 1970'S IN WHICH UNIVERSITIES OR SECONDARY SCHOOLS WILL BE LINKED BY DATA TRANSMISSION LINES TO REGIONAL INFORMATION CENTERS. THESE CENTERS WILL ACQUIRE, TRANSLATE, AND SELECT ITEMS OF INFORMATION FOR AUTOMATIC INDEXING, ABSTRACTING, AND CODING INTO MAGNETIC TAPE FILES AND FOR SUBSEQUENT FEEDING TO REMOTE SCHOOL SYSTEMS. ALL ELEMENTS IN THE EDUCATIONAL SYSTEM WILL BE SERVICED BY THE INTEGRATED INFORMATION RETRIEVAL SYSTEMS WHICH WILL ORGANIZE AND DISSEMINATE THE INFORMATION ACCORDING TO INDIVIDUAL NEEDS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-285 650
RAND CORP SANTA MONICA CALIF
LEARNING, GENERALITY AND PROBLEM SOLVING (U)
IV NEWELL,ALLEN

UNCLASSIFIED REPORT

DESCRIPTORS: *COMPUTER LOGIC, *LEARNING, ARTIFICIAL INTELLIGENCE, COMPUTERS, GAME THEORY, PATTERN RECOGNITION (U)

LEARNING, GENERALITY, AND PROBLEM SOLVING IN ARTIFICIAL INTELLIGENCE MECHANISMS, ABILITY TO GENERALIZE AS A GOAL IN THE DESIGN OF ARTIFICAL LEARNING MECHANISMS, GENERAL PROBLEM SOLVER, A COMPUTER PROGRAM OF THE GAME-PLAYING AND THEOREMPROVING CLASS.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-285 880
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
COMPUTER SIMULATIONS OF A PERCEPTUAL LEARNING MODEL
FOR SENSORY PATTERN RECOGNITION, CONCEPT FORMATION,
AND SYMBOL TRANSFORMATION (U)
AUG 62 1V VOSSLER,CHARLES;UHR,LEONARD;
REPT. NO. SP 562 000 01

UNCLASSIFIED REPORT

DESCRIPTORS: *COMPUTER LOGIC, *LEARNING, *PERCEPTION,
AUTOMATION, COMPUTERS, DECISION MAKING, MACHINE
TRANSLATION, NERVES, PATTERN RECOGNITION (U)

COMPUTER SIMULATIONS OF A PERCEPTUAL LEARNING MODEL FOR
SENSORY PATTERN RECOGNITION, CONCEPT FORMATION, AND
SYMBOL TRANSFORMATION. A NEURON NET MODEL FOR DISCOVERY,
GENERALIZATION, AND TRANSFORMATION OF PATTERNED
INFORMATION.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-285 882
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
SIMULATION: A VEHICLE FOR FACILITATING INNOVATION AND
SYSTEM DESIGN IN EDUCATION (U)
SEP 62 1V EGBERT,ROBERT L.;
REPT. NO. SP 890

UNCLASSIFIED REPORT

DESCRIPTORS: *EDUCATION, SIMULATION, TEACHING MACHINE(U)

APPLICATION OF SIMULATION TO EDUCATION. SIMULATION OF AN ELEMENTARY SCHOOL. A MODEL FOR THE STUDY OF NEW ORGANIZATIONAL DESIGNS. POSSIBLE REASONS FOR LACK OF ACCEPTANCE OF NEW KNOWLEDGE AND TECHNOLOGY.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-286 729
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
FLES--A NEW APPROACH (U)
SEP 62 1V NEWMARK,GERALD;
REPT. NO. SP 971

UNCLASSIFIED REPORT

DESCRIPTORS: *EDUCATION, *LANGUAGE, *TEACHING MACHINES, EFFECTIVENESS, HEARING, TRAINING (U)

A LISTENING COMPREHENSION APPROACH IS PROPOSED FOR TEACHING FOREIGN LANGUAGES IN ELEMENTARY SCHOOLS (FLES), ESPECIALLY WHERE QUALIFIED LANGUAGE INSTRUCTORS ARE NOT AVAILABLE. PROGRAMMED MATERIALS FOR LISTENING COMPREHENSION IN FRENCH ARE DESCRIBED. THE ORGANIZATION OF INTERSTATE COMMITTEES OR A NATIONAL COMMITTEE OF EXPERTS TO AVOID DUPLICATION IN THE PRODUCTION OF FLES MATERIAL IS RECOMMENDED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-287 791
WASHINGTON UNIV SEATTLE
MAN-COMPUTER INTERFACE STUDY (U)
JUN 62 lv JOHNSON,D.L.;KOBLER,A.L.;
CONTRACT: AF49 638 1070

UNCLASSIFIED REPORT

DESCRIPTORS: *DIGITAL COMPUTERS, APPLIED PSYCHOLOGY, ATTITUDES, HUMAN ENGINEERING, LEARNING, MAN, PERSONAL(U)

AN INVESTIGAION AND ANALYSIS WERE MADE OF THOSE FACTORS FIXING THE INTERFACE EXISTANT IN MANCOMPUTER SYSTEMS. EMPHASIS WAS PACED UPON THREE SPECIFIC AREAS: (1) HUMAN ATTITUDES, TOWARD COMPUTER USE AND RESULTS, (2) MACHINE LEARNING PROCESSES, AND (3) MEMORY ORGANIZATION FOR MEANING ASSOCIATION AND RETRIEVAL. ALL THREE OF THESE AREAS WERE EXAMINED IN RESPECT TO THEIR POTENIAL IN MOVING OR FIXING THE MANMACHINE INTERFACE FOR VARIOUS TYPES OF PROBLEMS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-288 836
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
INFORMATION RETRIEVAL SYSTEMS AND EDUCATION (U)
SEP 62 IV BUSHNELL,DON;BORKO,HAROLD;
REPT. NO. SP 947 000 01

UNCLASSIFIED REPORT

DESCRIPTORS: *EDUCATION, *INFORMATION RETRIEVAL, *LIBRARIES, CODING, COMPUTERS, DATA PROCESSING SYSTEMS, DOCUMENTATION, LITERATURE, SUCCINIMIDES, TEACHING MACHINES (U)

A SURVEY CONDUCTED TO DETERMINE THE SUITABILITY OF GENERAL-PURPOSE INFORMATION RETRIEVAL SYSTEMS TO SCHOOL SYSTEMS.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-288 837
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
PROGRAMMED DECISIONS IN PROGRAMMED INSTRUCTION (U)
AUG 62 iv COULSON,JOHN E.;
REPT. NO. SP 933 001 00

UNCLASSIFIED REPORT

DESCRIPTORS:. *AUTOMATION, *EDUCATION, *TEACHING MACHINES, DATA PROCESSING SYSTEMS, DIGITAL COMPUTERS, HUMAN ENGINEERING, LEARNING, PROGRAMMING (COMPUTERS), STUDENTS (U)

FLEXIBLE SEQUENCES KNOWN AS BRANCHING PROGRAMS ARE USED TO ADAPT TEACHING MATERIALS TO INDIVIDUALSTUDENTS.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-289 817
MITRE CORP BEDFORD MASS
PROGRAMMED INSTRUCTION. A SELECTED BIBLIOGRAPHY (U)
IV MORRILL,CHARLES S.;HALPERT,DOROTHEA T.;PILSUCKI,SYLVIA H.;
REPT. NO. TDR62 225
CONTRACT: AF33 600 39852
MONITOR: ESD TDR62 225

UNCLASSIFIED REPORT

DESCRIPTORS: *BIBLIOGRAPHIES, *TEACHING MACHINES, *TRAINING, EDUCATION, LEARNING (U)

THIS BIBLIOGRAPHY IS INTENDED TO PROVIDE THE READER WITH AN EXTENSIVE LIST OF PUBLICATIONS CONCERNED WITH PROGRAMMED INSTRUCTION. AVAILABLE PROGRAMS FOR INSTRUCTION ARE NOT LISTED HERE. HOWEVER, THE APRIL 1962 ISSUE OF PROGRAMED INSTRUCTION, THE BIMONTHLY BULLETIN OF THE CENTER FOR PROGRAMED INSTRUCTION, STATES THAT THE CENTER HAS PREPARED A PAMPHLET ENTITLED PROGRAMS '62: A GUIDE TO PROGRAMED INSTRUCTIONAL MATERIAL AVAILABLE TO EDUCATORS BY SEPTEMBER, 1962. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-298 073
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
COMPUTERS IN PROGRAMED INSTRUCTION AND EDUCATIONAL DATA PROCESSING (U)
JAN 63 24P COULSON,JOHN E.;
REPT. NO. SP 950

UNCLASSIFIED REPORT

DESCRIPTORS: *EDUCATION, *TEACHING MACHINES, AUTOMATION, EFFECTIVENESS, GROUP DYNAMICS, JOB ANALYSIS, PROGRAMMING (COMPUTERS), REACTION (PSYCHOLOGY), TELEVISION DISPLAY SYSTEMS (U)

AUTOMATED TEACHING PROGRAM TECHNIQUES AND AUTOMATED FEEDBACK TO THE STUDENT CONCERNING HIS RESPONSES.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-298 711
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
THE APPLICATION OF PROGRAMMED INSTRUCTION AND AUTO-INSTRUCTIONAL DEVICES IN COLLEGES AND THEIR RELATION TO A THEORY OF INSTRUCTION (U)
FEB 63 1V RYANS,DAVID G.;
REPT. NO. SP 1084 000 01

UNCLASSIFIED REPORT

DESCRIPTORS: *EDUCATION, *TEACHING MACHINES, ATTITUDES, AUTOMATION, BEHAVIOR, INSTRUCTORS, LEARNING, PROGRAMMING (COMPUTERS), RESEARCH PROGRAM ADMINISTRATION, THEORY, TRAINING (U)

A STUDY OF THE THEORY OF INSTRUCTION BASED ON THE APPLICATION OF PROGRAMMED INSTRUCTION AND AUTO-INSTRUCTIONAL DEVICES IN COLLEGES.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-298 949
RAND CORP SANTA MONICA CALIF
LEARNING, GENERALITY AND PROBLEM-SOLVING (U)
IV NEWELL,ALLEN;

UNCLASSIFIED REPORT

DESCRIPTORS: *ARTIFICIAL INTELLIGENCE, *LEARNING, MEMORY, OPERATORS (MATHEMATICS), PATTERN RECOGNITION, PROGRAMMING (COMPUTERS) (U)

LEARNING, GENERALITY, AND PROBLEM-SOLVING. THE CONCEPT OF LEARNING IN ARTIFICIAL INTELLIGENCEAND ITS RELATIONSHIP TO GENERALITY AND PROBLEMSOLVING.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-401 454
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
SYSTEM DESIGN IN THE BASSETT HIGH SCHOOL. (U)
APR 63 22P EGBERT ,ROBERT L. ;COGSWELL,
JOHN F. ;
REPT. NO. TM1147

UNCLASSIFIED REPORT

DESCRIPTORS: *EDUCATION, DESIGN, LANGUAGE, LEARNING, MODELS (SIMULATIONS), OPERATIONS RESEARCH, STUDENTS, TEACHING MACHINES (U)

THE NEW BASSETT HIGH SCHOOL, USING THE CONTINUOUS PROGRESS PLAN WHICH UTILIZES SMALL-GROUP INSTRUCTION AND BOTH PROGRAMMED AND TRADITIONAL LEARNING MATERIALS, INDIVIDUAL STUDY AND PROGRESS.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-402 646
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
THE EFFECTS OF ELECTRONIC DATA PROCESSING IN FUTURE INSTRUCTIONAL SYSTEMS. (U)
IV
REPT. NO. SP.
CONTRACT: REPT. NO. SP1118/001/00

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNCLASSIFIED REPORT

DESCRIPTORS: *DATA PROCESSING SYSTEMS, LEARNING, MANAGEMENT ENGINEERING, SIMULATION, COMPUTERS, SYMPOSIA, INFORMATION RETRIEVAL, TEACHING MACHINES. (U)

SUMMARIZES COMPUTER DEVELOPMENTS AS FOLLOWS: THE COMPUSED TEACHING MACHINE: BY BRANCH ING STUDENTS LATERALLY, BACKWARD, AND FORWARD THROUGH SUBJECT MATERIAL, THE MACHINES DEVELOPS A COURSE OF STUDY PARTICULARLY SUITED TO THE INDI VIDUAL STUDENT'S EDUCATIONAL BACKGROUND, LEVEL OF MOTIVATION, AND APTITUDE. INFORMATION RE TRIEVAL SYSTEMS: UP-TO-DATE INFORMATION IN ANY AREA OF THE ARTS AND SCIENCES CAN BE PROVIDED BY INFORMATION CENTERS UTILIZING ABSTRACTING AND TRANSLATING MACHINES, TECHNIQUES OF RAPID RE TRIEVAL AND DISSEMINATION OF DATA. SIMULATION PROGRAMS: COMPUTER-BASED SIMULATION PROGRAMS WILL AID ONGOING MANAGEMENT AND INSTRUCTION AC TIVITIES BY: SUPPLYING PERIODIC ECONOMIC OR POP ULATION FORECASTS; HELPING TO BALANCE BUDGETS; GIVING GUIDANCE IN THE PLANNING OF NEW EDUCATION AL FACILITIES; EXPEDITING THE TRAINING AND SELEC TION OF EDUCATORS; FACILITATING CLASSROOM AND VO CATIONAL INSTRUCTION. THE AUTOMATED CLASSROOM: NEW TECHNOLOGY FOR PROCESSING EDUCATIONAL DATA AND FOR ORGANIZING INSTRUCTIONAL MATERIAL IN THE CLASSROOM. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-404 086
MITRE CORP BEDFORD MASS
PROGRAMMED INSTRUCTION. A SELECTED BIBLIOGRAPHY, (U)

APR 63 111P MORRILL,C.S.;HALPERT,D.T.;
PILSUCKC,S.H.;
REPT. NO. SR69 1
CONTRACT: AF33 600 39852
PROJ: 702
MONITOR: ESD TDR62 225

UNCLASSIFIED REPORT

DESCRIPTORS: *EDUCATION, *PROGRAMMING COM PUTERS, *BIBLIOGRAPHIES, AUTOMATION, TRAINING DEVICES, DOCUMENTATION, TEACHING MACHINES, READING, INSTRUCTORS. (U)

BIBLIOGRAPHY OF REFERENCES ON PROGRAMMED INSTRUCTION.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-407 743
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
A STUDY OF PSYCHO-EDUCATIONAL APPRAISAL BY DIGITAL COMPUTER. (U)
APR 63 5P COGSWELL,JOHN F.;
REPT. NO. TM1187

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMING (COMPUTERS), PSYCHOMETRICS), (*EDUCATION, APTITUDE TESTS), (*DECISION MAKING, MODELS (SIMULATIONS), TRAINING. (U)
IDENTIFIERS: 1963, GUIDANCE COUNSELING. (U)

PROPOSES TO DEVELOP A DEMONSTRABLE AND WIDELY APPLICABLE MEANS OF IMPROVING THE GUIDANCE PROC ESS BY: (1) DEVELOPING A COMPUTER PROGRAM TO PERFORM THE TASK OF PSYCHO-EDUCATIONAL APPRAISAL; (2) EXPLICATING AND STUDYING THE DECISION-MAKING BEHAVIOR OF COUNSELORS IN PSYCHO-EDUCATIONAL APPRAISAL; (3) IMPROVING THE VALIDITY OF PSYCHO EDUCATIONAL APPRAISAL IN COUNSELING. REPORTS THAT A NEW METHODOLOGY FOR AUTOMATING, STUDYING, AND IMPROVING THE APPRAISAL PROCESS HAS RECENTLY BEEN DEMONSTRATED (KLEINMUNTZ 1963). CONCLUDES THAT THE KLEINMUNTZ STUDY DEMONSTRATES THE VALUE OF HIS METHOD FOR STUDYING THE DECISION-MAKING BEHAVIOR OF DIAGNOSTICIANS AND IMPROVING THE VALIDITY OF THE DIAGNOSTIC TASK. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-414 776
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
AN INFORMATION-SYSTEM APPROACH TO THEORY OF
INSTRUCTION WITH SPECIAL REFERENCE TO THE TEACHER, (U)
MAR 63 65P RYANS,DAVID G. ;

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*COMMUNICATION THEORY, INSTRUCTORS),
(*INSTRUCTORS, BEHAVIOR), INFORMATION RETRIEVAL,
LEARNING (U)
IDENTIFIERS: 1963 (U)

THIS IS AN ATTEMPT AT CONCEPTUALIZATION OR THEORY BUILDINGS WITH RESPECT TO THE INSTRUCTIONAL PROCESS. THE PURPOSE IS TO BLOCK OUT SOME OF THE CONDITIONS AND BEHAVIORAL CONSTRUCTS WHICH MAY BE HYPOTHESIZED TO CONTRIBUTE TO TEACHER BEHAVIOR AND THE INSTRUCTIONAL PROCESS. IN THIS PAPER, THE WRITER'S POSITION IS PRESENTED IN DETAIL, ADDITIONAL CONSTRUCTS ARE INTRODUCED AND EMPHASIZED, AND AN EFFORT IS MADE TO LOOK FURTHER INTO SOME OF THE IMPLICATIONS. THE TEACHER SYSTEM AND THE PUPIL SYSTEM ARE DESCRIBED IN TERMS OF THE ESSENTIAL CHARACTERISTICS OF ALL SYSTEMS--INFORMATION FLOW OR INFORMATION PROCESSING. THE INFLUENCING CONDITIONS THAT HAVE LED TO THIS ''INFORMATION SYSTEM THEORY OF INSTRUCTION'' ARE FOUR: (1) THE THINKING AND THE RESEARCH GROWING OUT OF A TEACHER CHARACTERISTICS STUDY, RELEVANT TEACHER BEHAVIOR RESEARCH REPORTED BY OTHER INVESTIGATIONS, AND EXPERIENCE WITH THE DATA ACCUMULATED IN CONNECTION WITH THE NATIONAL TEACHER EXAMINATIONS; (2) THE INTRODUCTION OF THE CONCEPTS OF ''GENERAL SYSTEM THEORY''; (3) SEARS' DIRECTION OF ATTENTION TO THE ''DYADIC SEQUENCE'' AS AN EXPLANATION OF SOCIAL BEHAVIOR; AND (4) THE GROWING INTEREST IN CONCEPTS ASSOCIATED WITH INFORMATION THEORY AND COMMUNICATION THEORY. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-415 936
AMERICAN INSTITUTES FOR RESEARCH IN THE BEHAVIORAL SCIENCES
PALO ALTO CALIF
LEARNING VIA PROGRAMED READING AND CUE VERSUS
RESPONSE IN PROGRAMED READING. (U)
1V HERSHBERGER,WAYNE I

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*LEARNING, READING), (*READING,
EFFECTIVENESS), TEXTBOOKS, DESIGN, EFFECTIVENESS,
STATISTICAL DATA, ANALYSIS OF VARIANCE (U)
IDENTIFIERS: PROGRAMED READING, TYPOGRAPHICAL CUEING,
READING TIME, 1963 (U)

LEARNING VIA PROGRAMED READING AND CUE VERSUS RESPONSE IN
PROGRAMED READING.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-417 376
AMERICAN INSTITUTES FOR RESEARCH IN THE BEHAVIORAL SCIENCES
PALO ALTO CALIF
LEARNING VIA PROGRAMED READING. (U)
JUL 63 1V HERSHBERGER,WAYNE ;BRIGGS,
LESLIE J.;
REPT. NO. TECHNICAL REPT. NO; 5;
CONTRACT: NONR3077 00

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: ORIGINAL CONTAINS COLOR PLATES; ALL DDC RE PRODUCTIONS WILL BE IN BLACK AND WHITE, ORIGINAL MAY BE SEEN IN DDC HEADQUARTERS.

DESCRIPTORS: (*READING, BEHAVIOR), (*LEARNING, READING), PSYCHOLOGY, PSYCHOMETRICS, TEST CONSTRUCTION (PSYCHOLOGY), REACTION (PSYCHO LOGY), EFFECTIVENESS, LEARNING. (U)
IDENTIFIERS: PROGRAMED READING, TYPOGRAPHY, 1963. (U)

THE FIRST PART OF THIS STUDY REPORTS THE FINDING THAT DISCURSIVELY WRITTEN TEXTS PROGRAMED TO INCLUDE (A) HETEROGENEOUS TYPOGRAPHY HIGHLIGHT ING ESSENTIAL CORE CONTENT, AND (B) SELF EVALUATIONAL RESPONSE ITEMS QUIZZING THE READER ON THE CORE CONTENT, WERE CONSIDERABLY MORE EFFECTIVE IN TEACHING THE ESSENTIAL MATERIAL THAN DISCURSIVELY AND TERSELY WRITTEN TEXTS IN CORPORATING NEITHER PROGRAM CHARACTERISTIC. THE SECOND PART OF THE STUDY REPORTS THE FINDINGS OF A FOLLOW-UP STUDY DESIGNED TO ASSESS THE RELATIVE EFFECTIVENESS OF TYPOGRAPHICAL CUEING VERSUS SELF-EVALUATIONAL RESPONDING ON THE LEARNING AND RETENTION OF ESSENTIAL LESSON CONTENT IN BOTH DISCURSIVELY AND TERSELY WRITTEN TEXTS. IT WAS FOUND THAT UNDER NO CONDITIONS DID TYPOGRAPHICAL CUEING INCREASE EITHER THE EFFICIENCY OR THE EFFECTIVENESS OF THE TEXTS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-419 916
AIR FORCE COMMAND AND CONTROL DEVELOPMENT DIV AIR RESEARCH AND DEVELOPMENT COMMAND BEDFORD MASS
USE OF A TEACHING MACHINE FOR AIR FORCE ON-THEJOB TRAINING IN THE SAGE SYSTEM. (U)
SEP 60 16P MAYER, SYLVIA R. ;
PROJ: 1975
TASK: 76893
MONITOR: AFCCDD TN60 51

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TEACHING MACHINES, MILITARY TRAINING), (*MILITARY TRAINING, TRAINING DEVICES), (*TRAINING DEVICES, EFFECTIVENESS), LEARNING, TRAINING (U)
IDENTIFIERS: 1960, SAGE (U)

A TEACHING MACHINE WAS USED FOR MILITARY ON-THEJOB TRAINING IN SAGE OPERATIONS OVER A 16-MONTH PERIOD. THIS WAS A FOLLOW-UP OF A BRIEF FEASIBILITY STUDY. THE PURPOSE WAS (1) TO SEE IF THE INITIAL ENTHUSIASM FOR AUTO-INSTRUCTION WOULD CONTINUE AND INCREASE AS THE NOVELTY EFFECT WANED, AND (2) TO UNCOVER UNANTICIPATED IMPLEMENTATION PROBLEMS. OPERATORS SUSTAINED AND INCREASED THEIR USE OF THE TEACHING MACHINE DURING THE OBSERVATION PERIOD. THE TRAINING STAFF CONTINUED TO FAVOR USE OF THE DEVICE. PATTERNS OF USAGE RELATED TO PROGRAM FAMILIARITY AND CREW PROFICIENCY ARE DESCRIBED. PROBLEMS IN APPLICATION OF AUTO-INSTRUCTION ARE NOTED. SOME MAY BE UNIQUE TO MILITARY ON-THE-JOB TRAINING FOR COMPLEX ELECTRONIC SYSTEMS SUCH AS SAGE. THESE PROBLEMS RELATE TO (1) PROGRAMING CAPABILITY, (2) TYPES OF TRAINING TASKS, (3) TEACHING MACHINE DESIGN, AND (4) PROGRAM DESIGN. SOME RESEARCH REQUIREMENTS ARE INDICATED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-420 521
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
THE DESIGN OF INFORMATION PROCESSING SYSTEMS FOR
REALIZING EDUCATIONAL IDEALS, (U)
AUG 63 22P COGSWELL,JOHN F. ;EGBERT,
ROBERT L.;
REPT. NO. SP1326

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*DATA PROCESSING SYSTEMS, EDUCATION),
(*EDUCATION, DATA PROCESSING SYSTEM), LEARNING,
TEACHING MACHINES, SIMULATION, STUDENTS, PERFORMANCE
TESTS, GROUP DYNAMICS, INFORMATION RETRIEVAL (U)
IDENTIFIERS: 1963, INFORMATION PROCESSING (U)

DISCUSSES A CURRENT RESEARCH PROJECT AIMED TOWARD
THE REALIZATION OF TWO EDUCATIONAL IDEALS: 1. THE
INDIVIDUALIZATION OF INSTRUCTION, AND 2. THE
UNDERSTANDING OF STUDENTS AS INDIVIDUALS. DESCRIBES
THE CONTINUOUS PROGRESS PLAN (CPP) TO BE USED
AT THE BASSETT HIGH SCHOOL DISTRICT IN
EASTERN LOS ANGELES COUNTY, USING THESE
STUDIES AS A SPRINGBOARD FOR PROJECTING AHEAD,
SUGGESTS SEVERAL HYPOTHESES ABOUT THE USE OF
INFORMATION PROCESSING IN EDUCATION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-421 465
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
READING AND RELATED VERBAL LEARNING, (U)
AUG 63 59P SILBERMAN,HARRY F. ;
PROJ: SP1105 001 01

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*LEARNING, VERBAL BEHAVIOR), (*VERBAL BEHAVIOR, LEARNING), (*READING), EDUCATION, REACTION (PSYCHOLOGY), SEQUENCES (U)
IDENTIFIERS: PROGRAMMED READING, 1963 (U)

PRESENTS A REVIEW THAT INCLUDES RELEVANT TO THE APPLICATION OF PROGRAMMING PRINCIPLES TO READING INSTRUCTION, WITH EMPHASIS ON BEGINNING READING. STATES THAT THE ORGANIZATION OF THIS PAPER DIFFERS FROM THE USUAL DIVISION OF READING RESEARCH INTO SUCH TOPICS AS METHODS, MATERIALS, COMPREHENSION, AND REMEDIATION. INSTEAD, THE FOLLOWING TOPICS HAVE BEEN USED: SEQUENCING FACTORS, STIMULUS-RESPONSE FACTORS, REINFORCEMENT FACTORS, MEDIATION EFFECTS, INDIVDUAL DIFFERENCES, AND PROGRAM EVALUATIONS. REPORTS THAT THIS STRUCTURE CORRESPONDS WITH THE PARADIGM OF PROGRAMMED INSTRUCTION IN WHICH DESIRED OVERT AND COVERT RESPONSES ARE DEFINED, STIMULI ARE DESIGNED TO EVOKE THEM, REINFORCERS ARE APPLIED AS NEEDED, ITEMS ARE ARRANGED IN A SYSTEMATIC SEQUENCE WITH PROVISION FOR INDIVIDUAL DIFFERENCES IN LEARNING RATE, AND PROCEDURES ARE MODIFIED ON THE BASIS OF LEARNER PERFORMANCE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-422 762
NAVAL PERSONNEL RESEARCH ACTIVITY SAN DIEGO CALIF
THE USE OF OBJECTIVES IN TEACHING MATHEMATICS. (U)
MAY 63 21P JONES,E. I. ;DUDEK,E. E. ;
BOAZ,H. B. ;
MONITOR: NPRA C TB63 7

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE;

DESCRIPTORS: (*LEARNING, MATHEMATICS), (*EDUCATION, SONAR PERSONNEL), (*TRAINING, MATHEMATICS) (U)
IDENTIFIERS: 1963, PROGRAMMED INSTRUCTION (U)

THIS STUDY WAS DONE TO FIND OUT WHETHER TELLING STUDENTS WHAT WAS EXPECTED OF THEM IN A VERY SPECIFIC FASHION, AND ALSO TELLING THEM HOW THEY WOULD BE EVALUATED, WOULD IMPROVE THEIR PERFORMANCE. THE AREA THAT WAS SELECTED FOR INVESTIGATION WAS THE MATHEMATICS PORTION OF THE ADVANCED SONARMAN COURSE (C-570), GIVEN AT THE FLEET ANTI-SUBMARINE WARFARE SCHOOL, SAN DIEGO. FOR EACH SUB-SECTION OF THE COURSE THE STUDENTS IN THE EXPERIMENTAL CLASS WERE GIVEN EXPLICIT STATEMENTS OF THE MATHEMATICAL OPERATIONS AND CONCEPTS THAT THEY WERE EXPECTED TO LEARN. IN ADDITION, THEY WERE GIVEN THE CRITERIA THAT WOULD BE USED TO MEASURE THEIR LEARNING. THE PERFORMANCE OF THE EXPERIMENTAL CLASS WAS COMPARED WITH THAT OF TWO PREVIOUS CLASSES ON TWO TESTS WHICH COVERED THE MATHEMATICS AREAS GIVEN IN THE COURSE. THE EXPERIMENTAL CLASS DID PERFORM SIGNIFICANTLY BETTER ON THESE TWO TESTS THAN THE PREVIOUS CLASSES. THE SUCCESSFUL USE OF OBJECTIVES AND CRITERIA HAS LED THE FLEET ANTI-SUBMARINE WARFARE SCHOOL TO ADOPT THIS TECHNIQUE IN THE TEACHING OF MATHEMATICS IN COURSE C-570. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-422 846
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
CONSTRUCTION OF SCHOOL SIMULATION VEHICLE, (U)
AUG 63 41P COGSWELL, J. F. ;EGBERT, R. L.
;MARSH, D. G. ;YETT, FRANK ;
REPT. NO. 1409

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TEACHING MACHINES, MODELS (SIMULATION)),
(*EDUCATION), (*PROGRAMMING (COMPUTERS)) (U)
IDENTIFIERS: 1963 (U)

DESCRIBES THE CURRENT STATUS OF THE SCHOOL
SIMULATION VEHICLE BEING CONSTRUCTED UNDER PARTIAL
SUPPORT OF USOE (U. S. OFFICE OF EDUCATION)
GRANT NUMBER 7-14-9120-217 (EGBERT, 1963).
DESCRIBES A GENERAL SCHOOL SIMULATOR, WHICH IS BEING
PROGRAMMED IN SIMPAC AND THE RULES GENERATED FOR A
COMPUTER TRY-OUT OF THE FIRST, PILOT VERSION.
(AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-423 005
GEORGE WASHINGTON UNIV WASHINGTON D C SCHOOL OF ENGINEERING
THE INTRODUCTION OF PROGRAMMED LEARNING TECHNIQUES INTO THE ON-THE-JOB TRAINING FUNCTION OF AN AIR FORCE COMMUNICATIONS CENTER. (U)
AUG 63 134P CADWELL,HARRY B. ;

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: MASTER'S THESIS.

DESCRIPTORS: (*TEACHING MACHINES, EFFECTIVENESS), (*PROGRAMMING (COMPUTERS), LEARNING), (*LEARNING, EFFECTIVENESS) (U)
IDENTIFIERS: 1963 (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-425 184
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
GAKU: AN ARTIFICIAL STUDENT OF PROBLEM SOLVING. (U)
SEP 63 45P HORMANN,AIKO M. ;SHAFFER,
STUART S. ;VAN WORMER,THEODORE A. ;
REPT. NO. TM1524 000 00

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE;

DESCRIPTORS: (*PROGRAMMING (COMPUTERS), DATA PROCESSING SYSTEMS), (*DATA PROCESSING SYSTEMS, PROGRAMMING (COMPUTERS)), LEARNING, TEST CONSTRUCTION (PSYCHOLOGY), PERFORMANCE TESTS (U)
IDENTIFIERS: 1963, GAKU, PROBLEM SOLVING (U)

DESCRIBES RESEARCH TO CONSTRUCT, BY PROGRAMMING ON A COMPUTER, AN INTELLIGENT LEARNING SYSTEM CAPABLE OF HANDLING A SET OF VARYING AND INCREASINGLY COMPLEX TASKS WHICH, WHEN PERFORMED BY A HUMAN BEING, ARE USUALLY SAID TO REQUIRE INTELLIGENCE. STATES THAT THE BEHAVIOR OF THE SYSTEM IS DETERMINED BY BOTH DIRECT AND INDIRECT MEANS. REPORTS THAT THE DIRECT MEANS INVOLVES DETAILED, EXPLICIT SPECIFICATION OF RESPONSES OR RESPONSE PATTERNS IN THE FORM OF BUILT-IN PROGRAMS, AND THAT THE INDIRECT MEANS IS SUPPLIED BY MECHANISMS WHICH THEMSELVES ARE BUILT-IN PROGRAMS BUT WHICH ARE CAPABLE OF COLLECTING, ORGANIZING, AND TRANSFORMING INFORMATION AS WELL AS GENERATING AND MODIFYING PROGRAMS UNDER A SET OF CONDITIONS INCLUDING INTERACTIONS WITH THE SYSTEM'S ENVIRONMENT. STATES THAT THE INFORMATION AND PROGRAMS GENERATED OR MODIFIED INFLUENCE SUBSEQUENT ACTION (OVERT OR COVERT) OF THE SYSTEM AND THAT THE MECHANISMS ARE USED TO SUPPLY A BASIC FRAMEWORK WHICH PROVIDES POTENTIAL CAPABILITIES IN A VARIETY OF SITUATIONS. DESCRIBES AN ATTEMPT TO COORDINATE THREE MECHANISMS, EACH WORKING IN A DIFFERENT PHASE OF PROBLEM-SOLVING ACTIVITIES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-427 029
MITRE CORP BEDFORD MASS
FIRST CONGRESS ON THE INFORMATION SYSTEM SCIENCES, SESSION 14. AUTOMATED INSTRUCTIONAL TECHNIQUES. (U)
NOV 63 142P
REPT. NO. SS 14
CONTRACT: AF33 600 39852
PROJ: 704
MONITOR: ESD TDR63 474 14

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*DATA PROCESSING SYSTEMS, EDUCATION), (*EDUCATION, COMPUTERS), (*TEACHING MACHINES, LINEAR PROGRAMMING), TEACHING MACHINES, EDUCATION, COMPUTERS (U)
IDENTIFIERS: INFORMATION PROCESSING, 1963, PROGRAMMED INSTRUCTION, COMPUTER BASED INSTRUCTIONAL SYSTEMS (U)

A SAMPLE MANUAL LINEAR TEACHING EXERCISE IS PRESENTED, AND THE DIFFERENCES BETWEEN IT AND BRANCHING PROGRAMS ARE EXPLAINED BY EXAMPLES AND FLOW CHARTS. THE USE OF COMPUTER-BASED INSTRUCTIONAL SYSTEMS IS DISCUSSED, AND THE THREE MAJOR SITUATIONS WHICH WOULD JUSTIFY THE EXTRA COST AND COMPLEXITY OF COMPUTER EQUIPMENT ARE COVERED IN DETAIL. THESE SITUATIONS INCLUDE: (1) RESEARCH, WHERE PRACTICAL APPLICABILITY IS NOT A MAJOR CONSIDERATION; (2) SPECIAL TEACHING PROBLEMS, WHERE THE EFFICIENCY OF THE SYSTEM OUTWEIGHS EQUIPMENT COST CONSIDERATIONS; AND (3) THE USE OF SPECIAL-PURPOSE, REALISTICALLY-PRICED EQUIPMENT OR TIME-SHARING THE USE OF A HIGHER-PRICED CENTRALIZED SYSTEM WHERE THE PROGRAMS REACH A LARGE NUMBER OF STUDENTS. THE PAPER CONCLUDES WITH A BRIEF FORECAST OF THE FUTURE OF COMPUTERBASED INSTRUCTIONAL SYSTEMS. A CONCEPT OF COMPUTER TEACHING IS INTRODUCED, AND EXPERIMENTAL METHODS, EQUIPMENT, AND RESULTS ARE USED TO FORM A FRAMEWORK FOR DISCUSSION. THE VIEW-POINT IS TAKEN THAT A CONVERSATIONAL INTERACTION OR FEEDBACK TAKES PLACE BETWEEN THE STUDENT AND TEACHER, HUMAN OR COMPUTER, MAKING LEARNING MUCH EASIER. THE USE OF LARGE, HIGH-SPEED, GENERAL PURPOSE, DIGITAL COMPUTERS AS TEACHING MACHINES IS DISCUSSED AS AN INTRODUCTION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-428 209
ENTELEK INC NEWBURYPORT MASS
THE LOGICAL BASIS OF TEACHING. I. THE EFFECT OF
SUBCONCEPT SEQUENCE ON LEARNING. (U)
DESCRIPTIVE NOTE: FINAL REPT.,
JAN 64 75P HICKEY,ALBERT E. ;NEWTON,
JOHN M. ;
CONTRACT: NONR4215(00

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TRAINING, LEARNING), TRANSFER OF
TRAINING, ANALYSIS, MODELS (SIMULATION), THEORY,
DECISION MAKING, TRANSFORMATIONS (MATHEMATICS), LINEAR
PROGRAMMING, PROGRAMMING LANGUAGE, LINEAR SYSTEMS (U)
IDENTIFIERS: SEQUENCE VARIABLES, TEACHING, LOGIC
SPACE, 1964, BLOCK DIAGRAMS (U)

THIS STUDY (1) EXPLORES THE STRUCTURE OF
KNOWLEDGE AND THE RELATIONSHIP BETWEEN A
MULTIDIMENSIONAL KNOWLEDGE SPACE AND THE ONE-
DIMENSIONAL TEACHING SPACE, (2) OFFERS SEVERAL
HYPOTHESES FOR TRANSFORMATIONS FROM THE FIRST SPACE
TO THE SECOND, (3) DEMONSTRATES THE RESULTS OF
DIFFERENT HYPOTHESES USING ECONOMICS AS
SUBJECTMATTER, AND (4) DESCRIBES AN EXPERIMENT
DESIGNED TO SEE WHETHER ALTERNATIVE SUBCONCEPT
SEQUENCES HAVE A SIGNIFICANT DIFFERENTIAL EFFECT ON
LEARNING. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-429 508
BUREAU OF NAVAL PERSONNEL WASHINGTON D C
PROGRAMMED INSTRUCTION IN BASIC ELECTRICITY. (U)
AUG 63 15P STANDLEE,LLOYD S. ;HOOPRICH,
EUGENE A. ;LAGAIPA,JOHN ;
MONITOR: NAVPERS TB63 10

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*LEARNING, INSTRUCTION MANUALS), (*TRAINING DEVICES, LEARNING), ELECTRICITY, INSTRUCTORS, TEST METHODS, STUDENTS, TEXTBOOKS (U)
IDENTIFIERS: 1963, PROGRAMMED INSTRUCTION (U)

STUDENTS IN EIGHT CLASSES OF THE BASIC SONARMAN (SURFACE) COURSE WERE TAUGHT BASIC ELECTRICITY UNDER THE EXPERIMENTAL CONDITIONS OF PROGRAMED VS. CONVENTIONAL METHOD OF INSTRUCTION, HIGH VS. LOWER QUALIFIED INSTRUCTORS, AND EASY (DC) VS. DIFFICULT (AC) SUBJECT MATTER. NO ONE METHOD OF INSTRUCTION, ABILITY LEVEL OF INSTRUCTORS, OR DIFFICULTY LEVEL OF SUBJECT MATTER WAS FOUND CONSISTENTLY TO YIELD SUPERIOR STUDENT ACHIEVEMENT, NOR WERE THERE CONSISTENT INTERACTION EFFECTS. OVER-ALL THERE WAS A TENDENCY FOR STUDENTS TO ACHIEVE SLIGHTLY MORE UNDER THE PROGRAMED METHOD OF INSTRUCTION. STUDENTS' ATTITUDES WERE MORE FAVORABLE TOWARD THE PROGRAMED METHOD OF INSTRUCTION WHEN THE SUBJECT MATTER WAS RELATIVELY EASY (DC) THAN WHEN THE SUBJECT MATTER WAS DIFFICULT (AC). INSTRUCTORS' ATTITUDES TOWARD PROGRAMED INSTRUCTION TENDED TO BE NEGATIVE. STUDENTS AND INSTRUCTORS AGREED, HOWEVER, THAT THE PROGRAMED MATERIALS WERE RELATIVELY EASY TO READ. THOUGH THE PROGRAMED METHOD OF INSTRUCTION TENDED TO BE SLIGHTLY SUPERIOR IN TERMS OF OBJECTIVE TESTS OF STUDENT ACHIEVEMENT, BOTH STUDENTS AND INSTRUCTORS THOUGHT THAT THE PROGRAMED MATERIALS SHOULD BE USED TO SUPPLEMENT RATHER THAN TO REPLACE CONVENTIONAL METHODS OF INSTRUCTION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-430 899
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
THE COMPUTER AS AN INSTRUCTIONAL TOOL: A SUMMARY. (U)

FEB 64 25P BUSHNELL,DON D. ;
REPT. NO. SP 1554

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TEACHING MACHINES, EDUCATION), (*LEARNING, TEACHING MACHINES), (*EDUCATION, AUTOMATION), (*DATA PROCESSING SYSTEMS, EDUCATION), STUDENTS, COMPUTER, TRAINING, DECISION MAKING, TRAINING DEVICES (U)
IDENTIFIERS: COUNSELORS, TEACHERS, 1964, INSTRUCTIONAL TOOL (U)

THIS REPORT DISCUSSES THE DEVELOPMENTS IN COMPUTER-BASED TEACHING MACHINES, RAPID INFORMATION RETRIEVAL SYSTEMS, AND THE ADVANCES IN COMPUTER TECHNOLOGY FOR AIDING TEACHERS AND COUNSELORS IN THE DIAGNOSIS OF STUDENT LEARNING NEEDS AND IN SELECTING APPROPRIATE TEACHING STRATEGIES SEEM TO BE THE PRIMARY FACTORS HOLDING THE ATTENTION OF THE RESEARCHERS RESPONSIBLE FOR INNOVATIONS IN EDUCATIONAL DATA PROCESSING. IT ALSO REPORTS THAT BY APPROACHING EDUCATIONAL DATA PROCESSING WITH EMPHASIS ON INSTRUCTIONAL SYSTEMS, WE GAIN A BROADER PERSPECTIVE ON THE POTENTIAL OF COMPUTER TECHNOLOGY IN EDUCATION. PROGRESS MUST BE MADE NOT ONLY IN DATA PROCESSING TECHNOLOGY, BUT IN OUR KNOWLEDGE OF EDUCATIONAL REQUIREMENTS. CONCLUDES THAT MORE MUST BE LEARNED ABOUT THE KINDS OF INFORMATION NEEDED BY STUDENTS, TEACHERS, COUNSELORS, AND ADMINISTRATORS AND STANDARDIZED METHODS MUST BE DEVELOPED FOR CODING AND RECORDING THIS INFORMATION, SO THAT HIGH-SPEED PROCESSING TECHNIQUES CAN BE USED EFFICIENTLY. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-432 334
RAND CORP SANTA MONICA CALIF
THE SIMULATION OF VERBAL LEARNING BEHAVIOR, (U)
MAR 61 32P FEIGENBAUM,E. A. ;
REPT. NO. P2235

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*VERBAL BEHAVIOR, LEARNING), (*LEARNING, SIMULATION), (*DATA PROCESSING SYSTEMS, MODELS (SIMULATIONS)), COMPUTERS, BEHAVIOR (U)
IDENTIFIERS: ASSOCIATIVE MEMORY, DISCRIMINATION LEARNING, EPAM, ROTE LEARNING, ELEMENTARY PERCEIVER AND MEMORIZER, 1961 (U)

AN INFORMATION PROCESSING MODEL OF ELEMENTARY HUMAN SYMBOLIC LEARNING IS GIVEN A PRECISE STATEMENT AS A COMPUTER PROGRAM, CALLED ELEMENTARY PERCEIVER AND MEMORIZER (EPAM). THE PROGRAM SIMULATES THE BEHAVIOR OF SUBJECTS IN EXPERIMENTS INVOLVING THE ROTE LEARNING OF NONSENSE SYLLABLES. A DISCRIMINATION NET WHICH GROWS IS THE BASIS OF EPAM'S ASSOCIATIVE MEMORY. FUNDAMENTAL INFORMATION PROCESSES INCLUDE PROCESSES FOR DISCRIMINATION, DISCRIMINATION LEARNING, MEMORIZATION, ASSOCIATION USING CUES, AND RESPONSE RETRIEVAL WITH CUES. MANY WELL-KNOWN PHENOMENA OF ROTE LEARNING ARE TO BE FOUND IN EPAM'S EXPERIMENTAL BEHAVIOR, INCLUDING SOME RATHER COMPLEX FORGETTING PHENOMENA. EPAM IS PROGRAMMED IN INFORMATION PROCESSING LANGUAGE V. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-433 144
STANFORD RESEARCH INST MENLO PARK CALIF
THE PERCEPTRON CORRECTION PROCEDURE IN NON-SEPARABLE SITUATIONS. (U)
FEB 64 19P EFRON,BRADLEY ;
CONTRACT: AF30 602 2943
PROJ: 5581
TASK: 558104
MONITOR: RADC TDR63 533

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TEACHING MACHINES, LEARNING), (*PATTERN RECOGNITION, ACUITY), (*BRAIN, BIONICS), ARTIFICIAL INTELLIGENCE, MATHEMATICAL INTELLIGENCE, MATHEMATICAL ANALYSIS, OPERATION (U)
IDENTIFIERS: 1964, PERCEPTRON CONVERGENCE, ADAPTIVE MECHANISM, PERCEPTRONS, CONVERGENCE THEOREM, PERCEPTRON CORRECTION, THEOREM (U)

THE BEHAVIOR OF THE STANDARD PERCEPTRON CORRECTION PROCEDURE WHEN THE UNDERLYING PATTERNS ARE NON-SEPARABLE IS DISCUSSED. IT IS SHOWN THAT IN THIS CASE THE MAGNITUDE OF THE SUCCEEDING WEIGHT VECTORS REMAINS BOUNDED. MOREOVER, IF THE MAGNITUDES APPROACH A LIMIT THIS LIMIT IS ACTUALLY ATTAINED, AND THE ENSUING BEHAVIOR IS PARTICULARLY SIMPLE. A CONVERSE TO THE USUAL PERCEPTRON CONVERGENCE THEOREM IS PRESENTED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-435 032
ILLINOIS UNIV URBANA TRAINING RESEARCH LAB
SOME EDUCATIONAL PROBLEMS AND PROSPECTS OF A SYSTEMS APPROACH TO INSTRUCTION. (U)
MAR 64 33P STOLUROW,LAWRENCE M. ;
REPT. NO. NO. 2
CONTRACT: NONR3985 04

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*EDUCATION, MODELS (SIMULATIONS)), (*EDUCATION, DESIGN), (*EDUCATION, TEACHING MACHINES), (*TEACHING MACHINES, LEARNING), AUTOMATION, LEARNIG (U)
IDENTIFIERS: INSTRUCTION MODELS, COMPUTER BASED INSTRUCTION, INSTRUCTIONAL PROCESS, CLASSROOM SIMULATION, TUTORIAL MODELS, PROGRAMMED INSTRUCTION, IDIOMORPHIC PROGRAMMING (U)

A STSTEMS APPROACH TO INSTRUCTION CAN HAVE MANY IMPLICATIONS. THE TWO BASIC ONES CONSIDERED HERE WERE ITS CONTRIBUTIONS (A) TO RESEARCH ON INSTRUCTION AND (B) TO INSTRUCTION AS AN IMPORTANT SCHOOL PROCESS. THE PRIMARY IMPACT OF THE SYSTEMS APPROACH IS TOWARD THE RESEARCH, ALSO UNDERGOING INCREASINGLY ACTIVE DEVELOPMENT. HOWEVER, IS THE WORK ON SCHOOL APPLICATIONS OF THE SYSTEMS APPROACCH. PROBABLY THE MOST ACTIVE AND IMPORTANT DEVELOPMENTS RELATE TO THE MODELS OF INSTRUCTION. EARLY EFFORTS AT MODELS HAVE RESULTED IN SEVERAL DIFFERENT KINDS THAT ARE BEING USED. THE PROSPECTS FOR THE FUTURE SEEM PARTICULARLY CHALLANGING AND INTERESTING. AMONG THESE NEW DEVELOPMENTS THE COMPUTER SEEMS PARTICULARLY PROMISING. SEVERAL WAYS IN WHICH IT COULD PROMOTE UNDERSTANDING OF INSTRUCTION AND IMPLIMENT INSTRUCTION WERE DESCRIBED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-436 347
STANFORD RESEARCH INST MENLO PARK CALIF
CLASSIFICATION AND GENERALIZATION CAPABILITIES OF
LINEAR THRESHOLD UNITS. (U)
FEB 64 23P COVER,THOMAS M. ;
CONTRACT: AF30 602 2943
PROJ: 5581
TASK: 558104
MONITOR: RADC,TDRA4 32
UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*LEARNING MACHINES, NETWORKS), ARTIFICIAL INTELLIGENCE, COMPUTER LOGIC, PATTERN RECOGNITION, LINEAR SYSTEMS, SET THEORY, ALGEBRAIC TOPOLOGY, PROBABILITY, SEQUENCES (U)
IDENTIFIERS: 1964, POINT-SET TOPOLOGY (U)

THIS REPORT REPRESENTS WORK IN PROGRESS ON PROPERTIES OF LINEAR THRESHOLD FUNCTIONS. IN D DIMENSIONAL BINARY SPACE THERE EXISTS N SEPARATE POINTS. FURTHERMORE THERE EXISTS TO THE N POWER POSSIBLE COMBINATIONS (DICHOTOMY) OF THESE POINTS. NOT ALL OF THESE COMBINATIONS CAN BE SEPARATED BY LINEAR THRESHOLD FUNCTIONS. THIS PAPER CONCERNS ITSELF WITH DETERMINING WHICH COMBINATION CAN OR CANNOT BE SEPARATED. SURFACES OTHER THAN HYPERPLANES ARE ALSO STUDIED. THESE INCLUDE SURFACES OBTAINED BY MULTIPLE LINEAR THRESHOLD DEVICES AND QUADRATIC SURFACES. CONSIDERATION IS ALSO GIVEN TO TRAINING PROCEDURES IN THE SEPARATION OF RANDOM PATTERNS BY LINEAR THRESHOLD DEVICES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OMKOB

AD-437 375
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
THE SORCERER'S APPRENTICE, (U)
APR 63 3P MERRIFIELD,PHILIP R. ;
REPT. NO. SP1195

UNCLASSIFIED REPORT
REPRINT FROM EDUCATIONAL AND
PSYCHOLOGICALMEASUREMENT, 24:1, PP. 115-117, 1964,
(COPIESNOT SUPPLIED BY DDC)
SUPPLEMENTARY NOTE.

DESCRIPTORS: (*EDUCATION, MEASUREMENT),
(*PSYCHOMETRICS, ANALYSIS), (*COMPUTERS, LABOR), DATA,
DIGITAL COMPUTERS, DATA PROCESSING SYSTEMS, REDUCTION,
TRANSFORMATIONS (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-438 255
NAVAL PERSONNEL RESEARCH ACTIVITY SAN DIEGO CALIF
USE OF AUTOMATED INSTRUCTION IN REVIEW MATHEMATICS
FOR THE BASIC SONARMAN COURSE (C-560). (U)
JAN 64 14P KEMP,EUGENIA N. ;
MONITOR: NAVPERS TB64 1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TEACHING MACHINES, MATHEMATICS), (*EDUCATION, SONAR PERSONNEL), SONAR, NAVAL , PERSONNEL, TRAINING, ELECTRICITY, ELECTRONICS, ALGEBRA, ERRORS, TABLES (U)
IDENTIFIERS: C-560 (BASIC SONARMAN COURSE), BASIC SONARMAN COURSE, SCORES (U)

ABILITY TO USE CERTAIN FUNDAMENTAL MATHEMATICAL PROCESSES IS CONSIDERED NECESSARY FOR ACQUIRING THE KNOWLEDGE OF ELECTRICITY AND ELECTRONICS TAUGHT IN THE BASIC SONARMAN COURSE, C-560, GIVEN AT THE FLEET ANTI-SUBMARINE WARFARE SCHOOL, SAN DIEGO. REFRESHER TRAINING IN MATHEMATICS IS GIVEN TO ALL NEW STUDENTS AFTER NORMAL SCHOOL HOURS DURING THE FIRST FOUR WEEKS OF COURSE C-560. IF THIS REFRESHER TRAINING COULD BE PROGRAMED FOR INDEPENDENT SELF-STUDY, DISTINCT ADVANTAGES WOULD ACCRUE SUCH AS REDUCING THE INSTRUCTOR LOAD, MAKING POSSIBLE INDIVIDUAL STUDY IMMEDIATELY AFTER THE STUDENT ARRIVES AT THE SCHOOL, AND PERMITTING DIFFERENTIAL TRAINING FOR DIFFERING INDIVIDUAL NEEDS. THIS STUDY WAS CONDUCTED TO DETERMINE WHETHER THE DEVELOPMENT OF PROGRAMED MATERIALS FOR THE REFRESHER TRAINING WOULD BE FEASIBLE AND WHETHER THESE MATERIALS WOULD BE AS EFFECTIVE AS THE CONVENTIONAL INSTRUCTION. THREE OF THE AREAS COVERED IN THE MATHEMATICS REVIEW WERE PROGRAMED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-443 109
STANFORD UNIV CALIF STANFORD ELECTRONICS LABS
THE SYNTHESIS OF MACHINES WHICH LEARN WITHOUT A TEACHER. (U)
APR 64 19P FRALICK,S. C. ;
REPT. NO. TR6103 8,64 028
CONTRACT: NONR22524
PROJ: NR373 360

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TEACHING MACHINES, DECISION THEORY), PATTERN RECOGNITION, FEEDBACK, SYNTHESIS, BINARY ARITHMETIC, DIGITAL COMPUTERS, LEARNING (U)
IDENTIFIERS: LEARNING MACHINES (U)

TECHNIQUES OF DECISION THEORY ARE APPLIED TO THE PROBLEM OF LEARNING TO RECOGNIZE PATTERNS WITHOUT A TEACHER. AS A RESULT A GENERALIZED A POSTERIORI PROBABILITY COMPUTER IS OBTAINED WHICH INCLUDES THE SOLUTION OF THE PROBLEM OF LEARNING WITHOUT A TEACHER, LEARNING WITH A TEACHER, AND NO LEARNING. THE RESULTING EQUATIONS ARE SHOWN TO DESCRIBE A SYSTEM WHICH MAY BE SYNTHESIZED IN DELAY FEEDBACK FORM, OF FIXED SIZE, WHICH IS STABLE AND CONVERGES TO THAT SYSTEM WHICH WOULD BE OPTIMUM IF A PRIORI KNOWLEDGE WAS AVAILABLE SO THAT NO LEARNING WAS REQUIRED. THE SOLUTION IS USED TO SYNTHESIZE THREE SYSTEMS IN BLACK BOX FORM: (1) A GENERAL SYSTEM WHICH LEARNS TO MAKE BINARY DECISIONS, A SPECIFIC EXAMPLE OF THIS SYSTEM, AND (3) A GENERAL SYSTEM WHICH LEARNS TO MAKE MULTIPLE-CATEGORY CLASSIFICATIONS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-447 146
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
USE OF EXPLORATORY RESEARCH AND INDIVIDUAL TUTORING TECHNIQUES FOR THE DEVELOPMENT OF PROGRAMMING METHODS AND THEORY. (U)
DESCRIPTIVE NOTE: FINAL REPT.,
JUN 64 8P SILBERMAN,H. ;COULSON,J. ;
MELARAGNO,R. ;NEWMARK,G. ;
REPT. NO. TM895 200 00

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*EDUCATION, PROGRAMMING (COMPUTERS)), TRAINING DEVICES, LEARNING, THEORY, TEACHING MACHINES, READING, GEOMETRY (U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, ARITHMETIC, SPANISH LANGUAGE (U)

THIS RESEARCH HAS DEMONSTRATED THAT THE EXPLORATORY TUTORIAL APPROACH TO PROGRAM EVALUATION AND REVISION PROVIDES A POWERFUL TECHNIQUE FOR DEVELOPING EFFECTIVE PROGRAMMED MATERIALS AND FOR GENERATING HYPOTHESES ABOUT IMPORTANT PROGRAM VARIABLES. THREE GENERALIZATIONS, OR PRINCIPLES, WERE INDUCED FROM THE OBSERVATIONS MADE DURING THE TUTORIAL SESSIONS IN THE FOUR SUBJECT AREAS. THE PRINCIPLES ARE: (1) EVERY SKILL INCLUDED IN THE PROGRAM OBJECTIVES, AND EVERY SUBSKILL THAT LOGICALLY CONTRIBUTES TO THOSE OBJECTIVES, SHOULD BE EXPLICITLY COVERED BY THE PROGRAM UNLESS IT EXISTS IN THE STUDENT'S ENTRY REPERTOIRE; (2) ANY MATERIALS THAT DO NOT CONTRIBUTE TO THE PROGRAM OBJECTIVES, AS INDICATED BY LOGICAL ANALYSIS, SHOULD BE ELIMINATED; AND (3) THE STUDENT SHOULD BE REQUIRED TO DEMONSTRATE MASTERY OF EACH COMPONENT SUBSKILL BEFORE HE IS ALLOWED TO ADVANCE TO NEW TOPICS THAT ARE BASED ON THE EARLIER MATERIALS. THE THREE PRINCIPLES OF PROGRAM IMPROVEMENT, FILLING GAPS, ELIMINATING IRRELEVANCIES, AND REQUIRING MASTERY, ALTHOUGH INTUITIVELY OBVIOUS, BEAR THE ADDED STRENGTH OF HAVING BEEN INDUCED EMPIRICALLY FROM INDEPENDENT OBSERVATIONS. TWO OF THESE PRINCIPLES RECEIVED EXPERIMENTAL VERIFICATION WITH ANOTHER PROGRAM AND A NEW SAMPLE OF STUDENTS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-450 896
MASSACHUSETTS INST OF TECH CAMBRIDGE
A MULTIUSER COMPUTATION FACILITY FOR EDUCATION AND RESEARCH, (U)
NOV 63 9P DENNIS,JACK B. ;
CONTRACT: NONR-4102(01), NSF-G16526

UNCLASSIFIED REPORT
REPRINT FROM COMMUNICA/IONS OF THE ACM, 7:9,PP. 521-529, SEP 64. (COPIES NOT SUPPLIEDBY DDC)

DESCRIPTORS: (*COMPUTERS, SCIETIFIC RESEARCH), REVIEWS, TYPEWRITERS, EDUCATION, AUTOMATION, PROGRAMMING (COMPUTERS), COMMUNICATION SYSTEMS, DATA PROCESSING SYSTEMS (U)

IMPLEMENTATION IS DESCRIBED FOR A SMALL-SCALE MULTIUSER COMPUTER SYSTEM THAT PERMITS SEVERAL USERS TO WORK INDEPENDENTLY WITH THE MACHINE, AND TO OBTAIN SATISFACTORY RESPONSE USING TYPEWRITER COMMUNICATION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK03

AD-451 359
NEW YORK UNIV N Y SCHOOL OF ENGINEERING AND SCIENCE
SHORT-TERM STORAGE AND RETRIEVAL OF PAIREDASSOCIATE MATERIAL. (U)
AUG 64 11P MAYZNER,M. S. ;SCHOENBERG,K. M. ;
CONTRACT: NONR2855(6

UNCLASSIFIED REPORT
AVAILABILITY: REPRINT FROM THE JNL. OF PSYCHOLOGY 59 PP 113-123, 1965.
SUPPLEMENTARY NOTE:

DESCRIPTORS: (*RECALL, PERFORMANCE TESTS), MEMORY, ATTENTION, LEARNING, ANALYSIS OF VARIANCE, REACTION (PSYCHOLOGY), VERBAL BEHAVIOR, DISPLAY SYSTEMS, INFORMATION RETRIEVAL, COMMAND + CONTROL SYSTEMS, OPERATORS (PERSONNEL), TIME, STORAGE, PERFORMANCE (HUMAN), RETENTION (U)
IDENTIFIERS: 1964 (U)

THE PRESENT STUDY, CONSISTING OF TWO EXPERIMENTS, WAS DESIGNED TO EXAMINE THE EFFECTS OF LIST LENGTH AND DISPLAY TIME ON THE SHORT-TERM RETENTION OF PAIRED-ASSOCIATE MATERIAL. IN EXPERIMENT I, WITH 90 SS, A THREE-BY-THREE-BY-FIVE MIXED ANALYSIS-OF-VARIANCE DESIGN WAS USED WITH THREE LEVELS OF LIST LENGTH (FIVE, SEVEN, AND NINE CITY-TEMPERATURE PAIRS), THREE LEVELS OF DISPLAY TIME (15, 30, AND 60 SECONDS), AND FIVE TRIALS PER S. IN EXPERIMENT II, WITH 20 SS, FOUR OF THE NINE CONDITIONS INVOLVED IN EXPERIMENT I WERE TESTED EACH WEEK FOR 10 WEEKS, WITH 20 TRIALS PER WEEK. THE OVERALL RESULTS INDICATE SIGNIFICANT EFFECTS ON STORAGE-AND-RETRIEVAL CAPACITY AS A FUNCTION OF LIST LENGTH, DISPLAY TIME, AND EXTENDED PERIODS OF PRACTICE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-464 177
NAVAL PERSONNEL RESEARCH ACTIVITY SAN DIEGO CALIF
EXPERIMENTAL EVALUATION OF PROGRAMMED MATERIALS ON
THE MULTIMETER AN/PSM-4. (U)
DESCRIPTIVE NOTE: FINAL REPT.,
MAR 65 37P ABRAMS,ALVIN J. ;
REPT. NO. TECHNICALBULLETIN-65-9
PROJ: TA3 1703 01 03 252

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*MULTIMETERS, TRAINING), (*LEARNING, PROGRAMMING(COMPUTERS)), (*TRAINING, PROGRAMMING(COMPUTERS)), ANTISUBMARINE WARFARE, TEST EQUIPMENT(ELECTRONICS), TRAINING DEVICES (U)
IDENTIFIERS: AN/PSM-4, PROGRAMMED LEARNING, PROGRAMMED INSTRUCTION, EVALUATION (U)

THIS REPORT DESCRIBES THE DEVELOPMENT AND EVALUATION OF A PROGRAMED TEXT AND A PROGRAMED INSTRUCTOR PRESENTATION ON THE MULTIMETER AN/PSM4, A COMMONLY USED PIECE OF ELECTRONIC TEST EQUIPMENT. THE PROGRAMED MATERIALS WERE DEVELOPED AT THE NAVY TRAINING RESEARCH LABORATORY. EIGHT-ONE STUDENTS AT THE FLEET ASW SCHOOL, SAN DIEGO WERE USED IN THE EVALUATION OF THE TWO PROGRAMED METHODS. THE STUDENTS WERE DIVIDED INTO THREE GROUPS: 31 WERE TRAINED WITH THE PROGRAMED TEXT, 16 WERE TRAINED WITH THE PROGRAMED INSTRUCTOR PRESENTATION AND 35 WERE TRAINED BY THE CONVENTIONAL METHOD. PERFORMANCE OF THE GROUPS WAS OBSERVED ON A PRACTICAL TEST ONE WEEK AFTER TRAINING. THE RESULTS REVEALED THAT: (1) STUDENTS WHO WERE TRAINED WITH EITHER OF THE PROGRAMED METHODS PERFORMED BETTER THAN THOSE STUDENTS WHO WERE TRAINED BY THE CONVENTIONAL METHOD, (2) STUDENTS LEARNED TO USE THE MULTIMETER AN/PSM-4 IN ITS ELEMENTARY APPLICATIONS WITH THE PROGRAMED TEXT AS THE BASIC SOURCE OF INFORMATION, (3) IT WAS FEASIBLE TO USE THE PROGRAMED TEXT TO INTRODUCE BEGINNING TECHNICIANS TO THE MULTIMETER, (4) IT WAS NOT FEASIBLE TO USE THE PROGRAMED INSTRUCTOR PRESENTATION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-465 088
MASSACHUSETTS INST OF TECH CAMBRIDGE COMPUTATION CENTER
PROJECT MAC. (U)
DESCRIPTIVE NOTE: ANNUAL PROGRESS REPT. NO. 1 FOR PERIOD ENDING JUL 64.
JUL 64 171P
REPT. NO. MAC-PR-1
CONTRACT: NONR410201
PROJ: NR048 189

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*ENGINEERING PERSONNEL, COMPUTERS), (*SCIENTIFIC PERSONNEL, COMPUTERS), (*DIGITAL COMPUTERS, DATA PROCESSING SYSTEMS), EDUCATION, SCIENTIFIC RESEARCH, ENGINEERING, CIVIL ENGINEERING, ELECTRONICS LABORATORIES, SOCIAL SCIENCES, MANAGEMENT ENGINEERING, PROGRAMMING(COMPUTERS), DOCUMENTATION, ARTIFICIAL INTELLIGENCE, CYBERNETICS, OPTIMIZATION, TIME (U)
IDENTIFIERS: MAC PROJECT (MULTIPLE-ACCESS-COMPUTER SYSTEMS) (U)

THE BROAD GOAL OF PROJECT MAC IS EXPERIMENTAL INVESTIGATION OF NEW WAYS IN WHICH DIRECT LINKS TO ON-LINE COMPUTERS CAN AID PEOPLE IN THEIR INDIVIDUAL WORK; WHETHER RESEARCH, ENGINEERING DESIGN, MANAGEMENT, OR EDUCATION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-482 173 9/2 5/9 15/7
AMERICAN INST FOR RESEARCH PITTSBURGH PA
OPERATIONAL SPECIFICATION FOR COMPUTER DIRECTED
TRAINING IN INTERMEDIATE QUERY LANGUAGE, MODEL II,
FOR SYSTEM 473L, U. S. AIR FORCE HEADQUARTERS. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
FEB 66 224P CLAPP ,DORIS J. ;SHETTEL ,
HARRIS H. ;MAYER,SYLVIA R. ;
CONTRACT: AF 19(628)-2935
PROJ: AF-7682
TASK: 768204
MONITOR: ESD TR-66-252

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMED INSTRUCTION,
PROGRAMMING(COMPUTERS)), (*DATA PROCESSING
SYSTEMS, DISPLAY SYSTEMS), MANAGEMENT CONTROL
SYSTEMS, AIR FORCE TRAINING, FLOW CHARTING, MAN-
MACHINE SYSTEMS, PROGRAMMING LANGUAGES,
SPECIFICATIONS, AIR FORCE PERSONNEL, ERRORS,
ANALYSIS, COMPUTER LOGIC, AUTOMATIC, CONTROL
SEQUENCES (U)
IDENTIFIERS: INTERMEDIATE QUERY LANGUAGE, WEAPON
SYSTEM 473L (U)

THIS OPERATIONAL SPECIFICATION DESCRIBES THE
PROJECT COMPUTER-DIRECTED TRAINING PROGRAM
WHICH PERMITS ACTIVE ON-CONSOLE TRAINING OF PERSONNEL
IN THE WRITING AND PROCESSING THE INTERMEDIATE
QUERY LANGUAGE, MODEL II, STATEMENTS IN
SYSTEM 473L. THIS CAPABILITY CAN BE USED TO
PROVIDE INITIAL TRAINING AND PROFICIENCY MAINTENANCE.
THE FILES, PROGRAMS, AND PROCESSES OF THE PROGRAM
AND A SAMPLE COMPUTER-TRAINEE INTERACTION ARE
DETAILED. GENERAL FLOW CHARTS FOR A POSSIBLE
COMPUTER PROGRAM IMPLEMENTING THE SPECIFICATIONS ARE
PROVIDED, DESIGNED FOR THE LIBRASCOPE L-3055.
THE CAPABILITY CAN BE ADAPTED TO PROVIDE TRAINING
IN THE USE OF OTHER SYSTEM 473L CAPABILITIES.
(AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-483 974 5/9
UNIVERSITY OF SOUTHERN CALIFORNIA LOS ANGELES ELECTRONICS PERSONNEL RESEARCH GROUP
POTENTIAL USES OF COMPUTERS AS TEACHING MACHINES. (U)

OCT 61 26P RIGNEY, JOSEPH W. ;

UNCLASSIFIED REPORT

DESCRIPTORS: (*DIGITAL COMPUTERS, TEACHING MACHINES), FEASIBILITY STUDIES, HUMAN ENGINEERING, PERFORMANCE(HUMAN), MAN-MACHINE SYSTEMS, ACHIEVEMENT TESTS, APPLIED PSYCHOLOGY, EDUCATION (U)

THE USE OF INTERACTIVE CAPACITY TO DEAL WITH INDIVIDUAL DIFFERENCES IN LEARNING HAS POTENTIALITIES IN AT LEAST THREE TYPES OF LEARNING ENVIRONMENTS. HOWEVER, ITS APPLICATION TO THIS PROBLEM IN ANY OF THESE ENVIRONMENTS IS IN RELATIVELY CRUDE STAGES. ALTHOUGH NOT TECHNOLOGICALLY IMPOSSIBLE TO IMPLEMENT, DEVELOPING MAN-COMPUTER INTERACTIONS WHICH WILL ADJUST THE PRESENTATION OF THE MATERIAL TO BE LEARNED TO INDIVIDUAL CAPABILITIES AND REQUIREMENTS DEPENDS UPON A SUITABLE BACKGROUND OF PSYCHOLOGICAL INFORMATION FOR GUIDANCE. AT THE PRESENT TIME, THERE APPEARS TO BE A GREAT DEAL OF THIS INFORMATION THAT IS SUGGESTIVE OF DIRECTIONS TO TAKE, AND OF PROBLEMS THAT WILL ARISE. HOWEVER, IT IS LIKELY THAT INVESTIGATORS TRYING TO USE THIS NEW TOOL FOR THIS PURPOSE WILL HAVE TO DEVELOP THEIR OWN SPECIFIC METHODOLOGY AND THEIR OWN FUND OF RESEARCH EXPERIENCE WITHIN THE BROADER CONTEXT OF TRADITIONAL STUDIES OF INDIVIDUAL DIFFERENCES IN LEARNING. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-600 047
IBM WATSON RESEARCH CENTER YORKTOWN HEIGHTS N Y
SOME PROBLEMS IN INFORMATION SCIENCE WITH EMPHASIS ON ADAPTATION TO USE THROUGH MAN-MACHINE INTERACTION. (U)
DESCRIPTIVE NOTE: FINAL REPT. VOL. II, 1 JAN-31 DEC 63.
APR 64 184P KOCHEN,MANFRED ;
CONTRACT: AF19 628 2752
PROJ: 5632
TASK: 563205
MONITOR: AFCRL 64 87

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*DATA PROCESSING SYSTEMS, COMMUNICATION THEORY), (*COMMUNICATION THEORY, DATA PROCESSING SYSTEMS), (*INFORMATION RETRIEVAL, LEARNING), PROGRAMMING (COMPUTERS), DATA STORAGE SYSTEMS, DOCUMENTATION, MEMORY, LANGUAGE (U)

THE PROBLEM OF REPRESENTING, STORING, RECALLING AND PROCESSING OF RELEVANT INFORMATION IN THE INCREASINGLY COMPLEX ENVIRONMENT OF AN ORGANISM WERE STUDIED BY SIMULATION BASED ON LIST PROCESSING AND BY THEORETICAL INVESTIGATION DRAWING ON SOCIOLOGY AND PSYCHOLOGY OF COGNITION, ENGINEERING STUDIES OF SEMI-AUTOMATED LIBRARY SYSTEMS, AND MATHEMATICAL THEORY OF GRAPH AND AUTOMATION. THE FOLLOWING ACCOMPLISHMENTS WERE MADE: PROGRESS TOWARD A LOGICAL STRUCTURING OF INFORMATION SCIENCE; CLASSIFICATION OF TYPES OF DISCOURSE, MODELLING OF AN INFORMATION SYSTEM IN TERMS OF MEMORY, PROCESSOR AND COMPREHENDER SUBSYSTEMS GOVERNED BY SELF-REGULATORY PRINCIPLES; OPERATIONAL ANALYSIS OF SPECIAL INFORMATION SYSTEMS; SPECIFICATION AND CONSTRUCTION OF COMPUTER PROGRAMS FOR CONCEPT AND LANGUAGE LEARNING; CRITICAL SURVEY OF ASSOCIATIVE MEMORIES; KEY-ADDRESS TRANSFORMATIONS FOR FILE ORGANIZATION; AND CLUSTERING ALGORITHMS BASED ON MEASURES OF RELEVANCE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-600 079
STANFORD RESEARCH INST MENLO PARK CALIF
A SIMPLE MODEL OF A PATTERN RECOGNITION SYSTEM. (U)
DESCRIPTIVE NOTE: TECHNICAL NOTE 1,
APR 64 28P HALL,D. J. ;
CONTRACT: DA36 039AMC03247E
PROJ: 4565

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*PATTERN RECOGNITION, MODELS (SIMULATIONS)), (*BIONICS, SIMULATORS), DESIGN, OPERATION (U)
IDENTIFIERS: LEARNING MACHINES (U)

THIS MODEL IS TO BE USED TO DEMONSTRATE THE FUNCTIONAL STRUCTURE OF A LEARNING MACHINE OR PATTERN RECOGNITION SYSTEM THAT IS SIMILAR IN BASIC PRINCIPLE TO THE LEARNING MACHINE RECENTLY DESIGNED AND CONSTRUCTED AT SRI. IN ADDITION, THE MODEL SHOWS THE IMPORTANT ROLE THAT MASK DESIGN PLAYS. A SPECIFIC METHOD FOR SELECTING ''EFFICIENT'' MASKS FOR THIS MODEL, BY COMPUTER SIMULATION, IS ALSO PRESENTED. THE MODEL IS A HIGHLY SIMPLIFIED AND THEREFORE NOT VERY CLOSE APPROXIMATION TO THE LEARNING MACHINE, MINOS II. IT CAN BE EXPECTED TO DISCRIMINATE ONLY AMONG THE THREE LETTERS OF THE ALPHABET WITH WHICH IT HAS BEEN TRAINED. THE PAPER MODEL DISPLAYS MANY OF THE FUNDAMENTAL FEATURES AND LOGICAL-SYSTEM DESIGN PRINCIPLES ENCOUNTERED IN THE FULL-SCALE MACHINE, WHICH IS CAPABLE OF PERFORMING TASKS MORE INTERESTING THAN RECOGNIZING THREE FREE-HAND LETTERS OF THE ALPHABET. THE MODEL EXHIBITS THE ABILITY TO DISTINGUISH BETWEEN DIFFERENT CLASSES (DISCRIMINATION), AND TO IGNORE VARIATIONS WITHIN A CLASS (GENERALIZATION), WHICH ARE THE BASIC PROPERTIES OF A PATTERN RECOGNITION SYSTEM. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-600 113
IBM WATSON RESEARCH CENTER YORKTOWN HEIGHTS N Y
SOME PROBLEMS IN INFORMATION SCIENCE WITH EMPHASIS
ON ADAPTATION TO USE THROUGH MAN-MACHINE
INTERACTION. (U)
DESCRIPTIVE NOTE: FINAL REPT., VOL. 1, 1 JAN-31 DEC
63.
APR 64 213P KOCHEN,MANFRED ;
CONTRACT: AF19 628 2752
PROJ: 5632
TASK: 563205
MONITOR: AFCRL 64 87

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*INFORMATION RETRIEVAL, PROGRAMMING LANGUAGES), (*DATA STORAGE SYSTEMS, COMMUNICATION THEORY), (*DATA PROCESSING SYSTEMS, COMMUNICATION THEORY), (*PROGRAMMING LANGUAGES, PROGRAMMING (COMPUTERS)), MEMORY, ARTIFICIAL INTELLIGENCE, BIONICS, INDEXES, DICTIONARIES, SUBJECT INDEXING, LEARNING (U)

CONTENTS: AN ADAPTIVE SYSTEM FOR DIRECTLY RECORDING AND RETRIEVING INFORMATION IN SIMPLE, FORMAL, ENGLISH-LIKE SENTENCES; A DESCRIPTION OF AN EXPERIMENTAL INFORMATION CENTER AND THE LANGUAGE QUERY; TOTAL INFORMATION SYSTEMS IN PLANNING AND ALERTING; WORKING SYSTEM FOR RESEARCH IN SIMULATION OF CONCEPT LEARNING; TOWARD INFORMATION SYSTEMS SCIENCE; INFORMATION FLOW PATTERNS AND SELF-REGULATING MECHANISMS IN THE NATURAL SETTINGS OF LIBRARIES; PRELIMINARY OPERATIONAL ANALYSIS OF A COMPUTER-BASED, ON-DEMAND DOCUMENT RETRIEVAL SYSTEM USING COORDINATE INDEXING; SYSTEMS OF ORIENTATION: A PRELIMINARY CONCEPTUALIZATION; A MODEL FOR THE PROCESS OF LEARNING TO COMPREHEND; METHODOLOGY FOR RESEARCH IN CONCEPT-LEARNING; CONSTRUCTION OF A GROWING THESAURUS BY CONVERSATIONAL INTERACTION IN A MANMACHINE SYSTEM; AND EVALUATION OF BIAS IN THE REMOVAL OF EDGES FROM A COMPLETELY CONNECTED GRAPH WITH AN APPLICATION TO COMPARISON OF THESAURI. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-600 616
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
ONE METHOD OF INFORMATION EXTRACTION FROM COMPUTER MACHINES. (U)
APR 64 10P ELISEEV,V. K. ;
MONITOR: FTD ,TT TT64 236; ,64 11706

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. OF AVTOMATIZATSIYA I PRIBOROSTROENIE (USSR) 1963, NO. 3, PP. 29-32.

DESCRIPTORS: (*INFORMATION RETRIEVAL, GRAPHICS), (*PROGRAMMING COMPUTERS, CONTROL SEQUENCES), DIGITAL COMPUTERS, COMPILERS, BINARY ARITHMETIC, CATHODE RAY TUBE SCREENS, DISPLAY SYSTEMS, USSR (U)

THE FOLLOWING METHOD IS USED TO OBTAIN SYMBOL REPRESENTATIONS. THE SYMBOL IMAGE WHICH MUST BE CODED IS WRITTEN IN A SPECIAL STANDARD FRAME WHICH IS BROKEN DOWN INTO SQUARES (M SQUARES ALONG THE HORIZONTAL AND N ALONG THE VERTICAL). IF THE WHITE SQUARES BY ZERO AND THE BLACK SQUARES ARE DESIGNATED BY ONE, THE SYMBOL MAY BE WRITTEN IN THE FORM OF A BINARY CODE HAVING A LENGTH OF M X N DIGITS. FOR DEFINITENESS IT IS AGREED TO WRITE ROWS FROM LEFT TO RIGHT AND COLUMNS BOTTOM TO TOP. THE FOLLOWING FRAME DIMENSIONS ARE USED IN THE PROGRAM: FIVE ELEMENTS PER ROW AND SEVEN ELEMENTS PER COLUMN. THUS EACH SYMBOL MAY BE CODED IN THE FORM OF A 40-DIGIT BINARY CODE WHICH IS PLACED IN ONE CELL OF THE 'KIEV' MEMORY. TO DISPLAY THE SYMBOL AN OPERATION SIMILAR TO THAT OF CODING BUT IN REVERSE ORDER IS CARRIED OUT. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-600 697
AMERICAN INSTITUTES FOR RESEARCH IN THE BEHAVIORAL SCIENCES
PALO ALTO CALIF
DELAY OF SELF-TESTING IN THREE TYPES OF PROGRAMED
TEXT. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT. NO. 8,
MAY 64 21P HERSHBERGER,WAYNE A. ;TERRY,
DONALD F. ;
CONTRACT: NONR307700

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*LEARNING, TEST METHODS), (*READING, STUDENTS), (*PROGRAMMING (COMPUTERS), TEACHING MACHINES), CYBERNETICS, EDUCATION, REACTION (PSYCHOLOGY), CONDITIONED REFLEX, EFFECTIVENESS (U)

THIS STUDY COMPARED THREE INTERVALS OF DELAY (CORRESPONDING TO THE TIMES REQUIRED TO REA SEVERAL WORDS, PARAGRAPHS, OR PAGES) BETWEEN INITIAL READING AND SUBSEQUENT SELF-TESTING FOR RECALL, IN THREE TYPES OF PROGRAMED TEXTS, ONE TYPE OF TEXT PERMITTED THE SUBJECT TO REREAD BEFORE ANSWERING (PREVIEW), ANOTHER AFTER ANSWERING (REVIEW), AND A THIRD TYPE EXPOSED THE CORRECT ANSWER AFTER THE SUBJECT RESPONDED (CONFIRMATION). THREE MATCHED GROUPS OF PRETESTED SIXTH GRADERS, 55 IN ALL, READ THE THREE TYPES OF PROGRAMS AND TOOK A POSTTEST. BOTH VARIABLES, PROGRAM TYPE AND DELAY INTERVAL, AFFECTED PROGRAM ERRORS BUT NEITHER AFFECTED GAIN SCORES. HOWEVER, ALL DELAY INTERVALS OF SELF-TESTING WERE SUPERIOR TO NO SELF-TESTING. RELATED RESEARCH WAS REVIEWED FROM A CYBERNETIC VIEWPOINT. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-601 075
RAND CORP SANTA MONICA CALIF
COMPUTER SIMULATION OF HUMAN BEHAVIOR (U)
MAY 64 15P FEIGENBAUM,E. A. ;
REPT. NO. 2905

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*BEHAVIOR, SIMULATION), *DIGITAL COMPUTERS, HUMANS, LEARNING, COMPUTER LOGIC, PROGRAMMING LANGUAGES, PROGRAMMING (COMPUTERS), MODELS (SIMULATIONS), VERBAL BEHAVIOR (U)

BASED ON A SURVEY OF THE LITERATURE, THE DIGITAL COMPUTER AS A SIMULATOR OF HUMAN BEHAVIOR IS DISCUSSED UNDER THE FOLLOWING TOPICS: (1) COMPUTERS AS INFORMATION PROCESSORS, (2) HUMAN INFORMATION PROCESSING, (3) INFORMATION PROCESSING THEORY AND COMPUTER SIMULATION, (4) COMPUTER SIMULATION WITHIN EXISTING FRAMEWORKS, (5) NEW INFORMATION PROCESSING MODELS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-601 210
PRINCETON UNIV N J
THE IMPORTANCE OF PROBLEM HETEROGENEITY TO PROGRAMMED LEARNING. (U)
MAY 64 91P TRAUB,ROSS E. ;
CONTRACT: NONR-1858(15), NONR-2214(00)
PROJ: NR150 088AND ,NR151 174

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TEACHING MACHINES, PSYCHOMETRICS), (*PROGRAMMING (COMPUTERS), LEARNING), (*LEARNING, PSYCHOMETRICS), ACHIEVEMENT TESTS, REACTION (PSYCHOLOGY), PERFORMANCE (HUMAN), DECISION MAKING, HUMAN ENGINEERING (U)

THE STUDY CONCERNS THE DETERMINATION OF THE KINDS OF VARIABLES WHICH ARE IMPORTANT IN PROGRAMMING THE TASK HIERARCHY FOR EFFICIENT LEARNING. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-601 681
GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES RESEARCH OFFICE
EVALUATION OF AN AUTO-INSTRUCTIONAL PROGRAM ON THE FIRST WEEK OF A BASIC ELECTRONICS COURSE. (U)
DESCRIPTIVE NOTE: RESEARCH MEMO.
MAR 64 84P MELCHING,WILLIAM H. ;
CHRISTENSEN,HAROLD E. ;KUBALA,ALBERT L. ;
CONTRACT: DA44 188ARO2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TRAINING, PERFORMANCE TESTS), (*EDUCATION, ELECTRONICS), PERFORMANCE (HUMAN), STUDENTS, AIR FORCE TRAINING (U)
IDENTIFIERS: PROGRAMMED TEACHING, TEXTRUCT PROJECT (U)

AN AUTO-INSTRUCTIONAL PROGRAM COVERING THE CONTENT OF THE FIRST WEEK (27.5 HOURS) OF BASIC ELECTRONICS AS TAUGHT AT THE AIR DEFENSE SCHOOL WAS PREPARED UNDER SUBTASK TEXTRUCT II. TWO SEPARATE EVALUATIONS OF THE PROGRAM WERE UNDERTAKEN BY ADMINISTERING IT TO 39 STUDENTS REGULARLY SCHEDULED TO TAKE BASIC ELECTRONICS TRAINING. IT WAS CONCLUDED THAT COMPLETE SELF-PACING YIELDED HIGHER PERFORMANCE THAN LIMITED SELF-PACING, BUT ADMINISTRATIVE AND PROCEDURAL DIFFERENCES IN THE TWO STUDIES TENDED TO CONFOUND THE RESULTS. FINALLY, IT WAS NOTED THAT LOW APTITUDE STUDENTS DID NOT ACHIEVE HIGH LEVELS OF PERFORMANCE. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-601 849
STANFORD RESEARCH INST MENLO PARK CALIF
LINEAR SEPARABILITY OF SIGNAL SPACE AS A BASIS FOR
ADAPTIVE MECHANISMS. (U)
DESCRIPTIVE NOTE: FINAL REPT.,
MAY 64 78p NILSSON,N. J. ;
CONTRACT: AF30 602 2943
PROJ: 5581
TASK: 558104
MONITOR: RADC TDR64 145

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE;

DESCRIPTORS: (*PATTERN RECOGNITION, MACHINES); INPUTOUTPUT DEVICES, ARTIFICIAL INTELLIGENCE, COMPUTER LOGIC, BIONICS, TRAINING, THEORY (U)
IDENTIFIERS: LEARNING MACHINES, PERCEPTION (U)

THE REPORT REVIEWS THE RESEARCH RESULTS OF THE PROGRAM ENTITLED LINEAR SEPARABILITY OF SIGNAL SPACE AS A BASIS FOR ADAPTIVE MECHANISMS. THE MAJOR CONTRIBUTIONS OF THIS PROGRAM WERE TWO FOLD: (1) THE NOTION OF DISCRIMINANT FUNCTIONS WAS EMPLOYED IN CONSTRUCTING A FRAMEWORK FOR ORGANIZING PAST AND PRESENT KNOWLEDGE INTO A BASIS FOR FURTHER THEORETICAL RESEARCH ON TRAINABLE PATTERN CLASSIFYING MACHINES, AND (2) SOME SIGNIFICANT NEW RESULTS WERE OBTAINED ON TRAINABLE PATTERN CLASSIFYING MACHINES. THE SPECIFIC RESEARCH EFFORTS REPORTED FALL INTO THE FOLLOWING CATEGORIES: (1) INVESTIGATION OF THE PROPERTIES OF VARIOUS FAMILIES OF DISCRIMINANT FUNCTIONS TO BE USED BY A PATTERN DICHOTOMIZER; (2) INVESTIGATION OF VARIOUS NETWORK STRUCTURES FOR THE IMPLEMENTATION OF USEFUL FAMILIES OF DISCRIMINANT FUNCTIONS; AND (3) INVESTIGATION OF VARIOUS TRAINING RULES TO BE USED IN SELECTING THE APPROPRIATE DISCRIMINANT FUNCTION FOR A PATTERN DICHOTOMIZER. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-602 042
BIO-DYNAMICS INC CAMBRIDGE MASS
DESIGN AND USE OF INFORMATION SYSTEMS FOR AUTOMATED ON-THE-JOB TRAINING. II. DESIGN OF SELF-INSTRUCTIONAL FEATURES. (U)
JAN 64 34P SHERIDAN,THOMAS B. ;DUGGAR, BENJAMIN C. ;MAYER,SYLVIA R. ;
CONTRACT: AF19 628 455
PROJ: 7682
TASK: 768204
MONITOR: ESD TDR64 234

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*COMMAND AND CONTROL SYSTEMS, TRAINING DEVICES); (*TRAINING DEVICES, TEACHING MACHINES), BEHAVIOR, HUMAN ENGINEERING, CODING, PROGRAMMING (COMPUTERS), DECISION MAKING, TRAINING, LEARNING, EDUCATION, COMPUTERS, LANGUAGE, AUTOMATION, MODELS (SIMULATIONS), DESIGN (U)
IDENTIFIERS: SAGE (U)

THE REPORT IS CONCERNED WITH HUMAN ENGINEERING FACTORS IN THE DESIGN OF INFORMATION SYSTEMS. IN PARTICULAR IT IS ADDRESSED TO THE DESIGN OF SELF-INSTRUCTIONAL FEATURES FOR THESE SYSTEMS. IT DESCRIBES THEORIES, METHODOLOGY, AND DESIGN PRINCIPLES FOR IMPLEMENTATION OF SELF-INSTRUCTIONAL FEATURES. THE DESIGN PRINCIPLES WERE INDUCED FROM THE EXPLORATORY RESEARCH ON LABORATORY MODELS OF INFORMATION SYSTEMS WHICH IS REPORTED IN VOLUME I OF THIS SERIES (AD-602 041), FROM STUDIES ON CURRENT INFORMATION SYSTEMS, AND FROM A LITERATURE REVIEW. THE OPERATIONAL CONCEPTS UNDERLYING THE STUDY ARE STATED, AND AN EQUIPMENT DESIGN PHILOSOPHY IS PROPOSED TO COMPLEMENT THIS OPERATIONAL CONCEPT. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-602 056
AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB OHIO
THEORY AND RESEARCH IN PROGRAMMED INSTRUCTION. (U)
JUN 64 15P ABMA,JOHN S. ;
PROJ: 1710
TASK: 171007
MONITOR: AMRL P74

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED TO THE ANNUAL CONFERENCE (15TH) OF THE AMERICAN INSTITUTE OF INDUSTRIAL ENGINEERS AT PHILADELPHIA, PA., 15 MAY 1965.

DESCRIPTORS: (*TEACHING MACHINES, EFFECTIVENESS), (*TRAINING, THEORY), (*PROGRAMMING (COMPUTERS), EDUCATION), LEARNING, LINEAR PROGRAMMING, REACTION (PSYCHOLOGY), AUTOMATION (U)

PROGRAMMED INSTRUCTION MAY BE IMPLEMENTED WITHIN A SYSTEMS APPROACH TO EDUCATION. THE SYSTEM PROVIDES FOR FEEDBACK LOOPS WHICH PERMIT MODIFICATION OF TRAINING MATERIALS ON THE BASIS OF KNOWN EFFECTIVENESS. MEASUREMENT IS A CRUCIAL CONSIDERATION IN ASSURING THAT A GIVEN COURSE OR METHOD IS EFFECTIVE. THEORIES OF LEARNING AND PROGRAMMING SUGGEST MANY WAYS TO PROCEED. ONLY APPLIED EVALUATIVE EXPERIMENTATION CAN DETERMINE THE USEFULNESS OF A GIVEN APPROACH. ADJUNCTIVE, INTRINSIC AND LINEAR PROGRAMMING ARE DISCUSSED. EXPERIMENTS CALL INTO QUESTION SOME CURRENT APPLICATIONS OF FEATURES BASED UPON THEORY. SUCH AS OVERT RESPONDING AND REINFORCEMENT. IT IS POSSIBLE TO AUTOMATE THE VARIOUS APPROACHES TO PROGRAMMED INSTRUCTION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-602 079
BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS
FURTHER EXPERIMENTS ON COMPUTER-AIDED LEARNING OF SOUND IDENTIFICATION. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.
APR 64 53P SWETS,JOHN A. ;HARRIS, JUDITH R. ;MCELROY,LINDA S. ;RUDLOE,HARRY ;

CONTRACT: N61339 789
MONITOR: NAVTRADEVCEN 789 2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TEACHING MACHINES, DIGITAL COMPUTERS), (*LEARNING, PERCEPTION (PSYCHOLOGY)), SOUND, PROGRAMMING (COMPUTERS), PERFORMANCE (HUMAN), EDUCATION, EXPERIMENTAL DATA, LABORATORY EQUIPMENT, COMMUNICATION THEORY (U)

IN EXPERIMENTS REPORTED HERE THE SUBJECT WAS ABLE TO CHOOSE FREELY, AT ANY TIME, AMONG THE VARIOUS INSTRUCTIONAL PROCEDURES, AND TO REGULATE THE INTRODUCTION OF NEW MATERIALS. ONE OF THESE EXPERIMENTS EMPLOYED AN ELECTRIC TYPEWRITER AS THE MEANS OF COMMUNICATION BETWEEN SUBJECT AND COMPUTER; THE OTHER EMPLOYED AN OSCILLOSCOPE DISPLAY AND LIGHT PEN IN AN ATTEMPT TO PROVIDE A MORE EFFECTIVE MECHANISM FOR RESPONSE AND FEEDBACK OF RESULTS. GRANTING TO THE SUBJECT CONTROL OF THE TRAINING PROCEDURE LED TO NO BETTER FINAL PERFORMANCE THAN THAT OBSERVED WHEN THE EXPERIMENTER DETERMINED THE COURSE OF THE LESSON, AND THE SCOPE-AND-LIGHT-PEN DEVICE LED TO NO BETTER PERFORMANCE THAN THE TYPEWRITER. FURTHER ANALYSIS OF THE RESULTS PROVIDED DETAILED SUPPORT OF THE EARLIER CONCLUSIONS: FOR EXAMPLE, SUCCESS WAS POSITIVELY CORRELATED WITH THE PROPORTION OF TIME SPENT ON SIMPLE EXPOSURE TO THE SOUND-LABEL PAIRS, AND NEGATIVELY CORRELATED WITH THE PROPORTION OF TIME SPENT IN ACTIVE RESPONDING, RECEIVING FEEDBACK, AND MAKING SECOND TRIES. THREE VARIABLES RELATED TO STREAMLINING OF THE TASK AND TEMPORAL CONTIGUITY OF SOUND AND LABEL ACCOUNT FOR NEARLY 100% OF THE VARIANCE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-602 318
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
THE QUESTION OF SELF-TEACHING IN THE PERCEPTION. (U)
MAY 64 20P GLUSHKOV,V. M. I
MONITOR: FTD -TT TT64 299. -64 11853

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. OF ZHURNAL VYCHISLITEL'NOI MATEMATIKI I MATEMATICHESKOI FIZIKI (USSR) 1962. V. 2. NO. 6. P. 1102-1110.

DESCRIPTORS: (*PATTERN RECOGNITION. MACHINES); BIONICS. ARTIFICIAL INTELLIGENCE; INPUT-OUTPUT DEVICES; USSR. FEEDBACK. MATHEMATICAL ANALYSIS. PROBABILITY. CIRCUIT(U)
IDENTIFIERS: PERCEPTRON; LEARNING MACHINES (U)

THE ARTICLE DEALS WITH CERTAIN PROBLEMS ASSOCIATED WITH THE BEHAVIOR OF DISCRETE ALPHA-PERCEPTRONS IN THE SELF-TEACHING REGIME. IN THIS CASE THE TEACHER IS ABSENT AND THE PROCESSES OF SELF-ORGANIZATION WHICH LEAD TO AN ALTERATION IN IMAGE CLASSIFICATION CARRIED OUT BY THE PERCEPTRON ARE DETERMINED BY THE INTRODUCTION OF POSITIVE FEED-BACK IN THE PERCEPTRON CIRCUIT. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-602 660
MASSACHUSETTS INST OF TECH CAMBRIDGE OPERATIONS RESEARCH CENTER
A GENERALIZED TE)SHI MACHIN DECISION STRUCTURE WITH APPLICATION TO SPEED READING. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT. NO. 7.
MAY 64 72P STROLLO,THEODORE R. ;
CONTRACT: AF19 628 2407

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TEACHING MACHINES, COMPUTERS), OPERATIONS RESEARCH, PROGRAMMING (COMPUTERS), EQUATIONS, STATISTICS, EDUCATION, LEARNING, TACHISTOSCOPES, READING, DECISION MAKING (U)
IDENTIFIERS: SPEED READING (U)

A RELATIVELY NEW TYPE OF AUTOMATED INSTRUCTION CALLED THE 'COMPUTER-DIRECTED' TEACHING MACHINE IS DISCUSSED IN THIS THESIS. TYPICAL PRESENT-DAY TEACHING MACHINES EITHER GIVE EVERY STUDENT THE SAME INSTRUCTION MATERIAL OR CHOOSE WHAT MATERIAL THE STUDENT RECEIVES ON THE BASIS OF HIS ANSWER TO THE LAST QUESTION. THE COMPUTERDIRECTED MACHINE CHOOSES INSTRUCTION MATERIAL BY MAKING A STATISTICAL EVALUATION OF THE STUDENT'S TOTAL BEHAVIOR IN COMPARISON WITH OTHER STUDENTS' TOTAL BEHAVIORS. THIS MACHINE'S STATISTICS ARE ACTUALLY CHANGED AS NEW STUDENTS TAKE THE COURSE. SUCH A TEACHING MACHINE CAN PERFORM VERY MUCH LIKE A HUMAN TUTOR WHO ADJUSTS HIS PRESENTATION TO FIT THE INDIVIDUAL STUDENT'S CAPABILITIES AND WHO IMPROVES HIS TEACHING TECHNIQUE WITH EACH STUDENT. IN THIS PAPER A TECHNIQUE IS SUGGESTED FOR COMPARING TEACHING MACHINES. THE MACHINE'S TUTORIAL FUNCTIONS WOULD BE FITTED TO A VERY GENERAL MODEL OF THE TUTORIAL TEACHING CYCLE. THIS ALLOWS THE VARIOUS AUTOMATED INSTRUCTION DEVICES TO BE DISCUSSED IN TERMS OF A COMMON MODEL. AN APPLICATION OF THE COMPUTER-DIRECTED MACHINE WAS MADE TO A SPEED READING COURSE. PRELIMINARY EXPERIMENTS WITH THIS COURSE INDICATE THAT THE COMPUTER-DIRECTED MACHINE CAN PERFORM LIKE A HUMAN TUTOR. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-602 690
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
HERALD OF THE SCHOOLS OF HIGHER EDUCATION, 1964, VOL. 22, NO. 1, (U)
MAY 64 218P
MONITOR: FTD ,TT TT64, 1361 ,64 71122

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. OF VESTNIK VYSSHEI SHKOLY (USSR) 1964 V. 22 NO. 1, P. 1-96.

DESCRIPTORS: (*EDUCATION, USSR), UNIVERSITIES, COMMUNISTS, AGRICULTURE, FORESTRY, SOCIAL SCIENCES, CHEMISTRY, ENGINEERING, CONSTRUCTION, ECONOMICS, ELECTRONICS, LANGUAGE, COMMUNISM, BIONICS, CYBERNETICS, TEACHING MACHINES, SCIENTIFIC PERSONNEL, HISTORY, REPORTS (U)

REPORTS BY SOVIET UNIVERSITY PROFESSORS ARE COMPILED. THE CURRICULA AND INSTRUCTION METHODS OF HIGHER EDUCATION IN THE USSR ARE DISCUSSED IN RELATION TO COMMUNIST PHILOSOPHY. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-604 451
RAND CORP SANTA MONICA CALIF
SECONDARY SCHOOLS AND COMPUTING, (U)
NOV 61 SP GRUENBERGER,FRED ;

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*EDUCATION, COMPUTERS), (*COMPUTERS, EDUCATION), (*PROGRAMMING (COMPUTERS), EDUCATION), CODING, LEARNING, COMPUTER OPERATORS, COMPUTER PERSONNEL, TRAINING (U)

THE INTRODUCTION OF COMPUTING TECHNOLOGY AND THE COMPUTERS THEMSELVES INTO OUR SECONDARY SCHOOLS STANDS A GOOD CHANCE OF BEING ORDERLY. (1) COURSES WILL BE GIVEN UNDER THE SPONSORSHIP OF THE MATHEMATICS OR SCIENCE DEPARTMENTS. (2) SUITABLE TEXTBOOKS WILL BE AVAILABLE. (3) THE INSTRUCTORS WILL BE TRAINED. (4) THE MACHINES USED, THOUGH PROBABLY OLD, WILL BE MASSPRODUCED, WITH A WEALTH OF SOFTWARE BEHIND THEM. IN ADDITION, EACH TEACHER CAN SEEK EXPERT HELP, IF NEEDED, FROM LOCAL INDUSTRY. THE REAL WAVE OF SUCH COURSES WILL PROBABLY NOT COME UNTIL 1963 OR LATER. FOR ONE THING, AN INTRODUCTION TO COMPUTING MIGHT PROPERLY BELONG AT THE SECONDARY SCHOOL LEVEL-THERE SEEMS TO BE A STRONG ANALOGY TO THE LEARNING OF A FOREIGN LANGUAGE AND IT HAS BECOME OBVIOUS THAT THE LATTER SUBJECT IS BEST TAUGHT TO THE YOUNG. FOR ANOTHER THING, SINCE COMPUTING SKILLS CUT ACROSS EVERY DISCIPLINE, WE CAN REASON THAT WE OWE IT TO THE COLLEGE-BOUND STUDENT TO PREPARE HIM FOR INTELLIGENT USE OF THIS TOOL PRIOR TO HIS COLLEGE FRESHMAN YEAR. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-604 529
AMERICAN INSTITUTES FOR RESEARCH IN THE BEHAVIORAL SCIENCES
PALO ALTO CALIF
DISTINGUISHING ERRORS OF MEMORY FROM ERRORS OF
UNDERSTANDING BY MEANS OF SELFINSTRUCTIONAL
TESTS. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT. NO. 9,
AUG 64 47P HERSHBERGER,WAYNE A. ;
REPT. NO. C28-8/64-TR
CONTRACT: NONR3077 00

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TEACHING MACHINES, LEARNING), (*MEMORY, TEACHING MACHINES), PSYCHOMETRICS, RECALL, RETENTION, FEEDBACK, TEST METHODS, EDUCATION, STUDENTS, TRAINING DEVICES, ANALYSIS OF VARIANCE (U)

THIS STUDY COMPARED TWO TYPES OF SELF-INSTRUCTIONAL TESTS USED AS ADJUNCTS TO AN EXPOSITORY TEXT. ONE TYPE OF TEST (PURE SELF-TEST) INCORPORATED TWO TYPES OF ITEMS, ONE ASSESSING AND REMEDYING ERRORS OF MEMORY AND THE OTHER ASSESSING AND REMEDYING ERRORS OF UNDERSTANDING. THE OTHER TYPE OF SELF-INSTRUCTIONAL TEST (MIXED SELF-TEST) WAS COMPOSED OF A SINGLE TYPE OF COMPLEX QUESTION REQUIRING ANSWERS INVOLVING MEMORY PLUS UNDERSTANDING; REMEDIAL FEEDBACK WAS LIKEWISE MIXED. FORTY-EIGHT HIGH SCHOOL SOPHOMORES WERE DIVIDED INTO THREE GROUPS: ONE GROUP STUDIED THE EXPOSITORY TEXT ALONE (BASIC TEXT GROUP), ONE STUDIED THE TEXT PLUS THE PURE SELF-TEST, AND ONE STUDIED THE TEXT PLUS THE MIXED SELF-TEST. FIVE DAYS LATER, EACH GROUP WAS GIVEN A CRITERION TEST COMPOSED OF THE TWO SELF TESTS SANS ANSWERS. THERE WERE NO SIGNIFICANT DIFFERENCES AMONG GROUPS ON TOTAL CRITERION TEST SCORES, BUT THE PURE SELF-TEST GROUP DID BEST ON THE PURE ITEMS AND THE MIXED SELF-TEST GROUP DID BEST ON THE MIXED ITEMS. THE BASIC TEXT GROUP DID WELL ON THE PURE RECALL ITEMS, FAIR ON THE MIXED, RECALL-AND-MEMORY ITEMS BUT POORLY ON THE PURE UNDERSTANDING ITEMS. THE GENERALITY OF THESE FINDINGS IS LIMITED BY THE FACT THAT NONE OF THE THREE LESSON FORMATS WERE HIGHLY EFFECTIVE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-604 605
ILLINOIS UNIV URBANA TRAINING RESEARCH LAB
TEACHING MACHINES AND COMPUTER-BASED SYSTEMS, (U)
DESCRIPTIVE NOTE: TECHNICAL REPT. NO. 1 (REVISED DRAFT),
MAY 64 66P STOLUROW,LAWRENCE M. ;DAVIS, DANIEL ;
CONTRACT: NONR3985 04

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TEACHING MACHINES, COMPUTERS), (*TRAINING DEVICES, TEACHING MACHINES), FEEDBACK, BEHAVIOR, REACTION (PSYCHOLOGY), PROGRAMMING (COMPUTERS), DYNAMIC PROGRAMMING, LEARNING, EFFECTIVENESS, DESIGN, ANALYSIS, EDUCATION (U)

THE PURPOSE OF THIS PAPER IS TO DEVELOP A GENERAL MODEL OF THE TEACHING PROCESS AS ACCOMPLISHED BY AN ADAPTIVE TEACHING MACHINE SYSTEM. NO ATTEMPT IS MADE TO COMPLETELY INVENTORY EXISTING EQUIPMENT OR TO DESCRIBE PARTICULAR MACHINES IN GREAT DETAIL. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-605 167
ADAPTRONICS INC MCLEAN VA
RESEARCH ON SYSTEMS DESIGN METHODOLOGY, VOLUME 1:
LEARNING AUTOMATA DESIGN METHODOLOGY, (U)
DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. FOR APR 63-APR 64,
JUN 64 10P GILSTRAP,LEWEY O. ,JR.;
BARRON,ROGER L. ;
CONTRACT: NONR 4110 00 ,AF33 657 10734
PROJ: NR276 008

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPT. IS IN THREE VOLUMES.

DESCRIPTORS: (*ARTIFICIAL INTELLIGENCE, SYSTEMS ENGINEERING), (*SYSTEMS ENGINEERING, ARTIFICIAL INTELLIGENCE), (*CYBERNETICS, SYSTEMS ENGINEERING), ADAPTIVE CONTROL SYSTEMS, LEARNING, AUTOMATA, BIONICS, COMPUTERS, MATHEMATICAL MODELS, OPERATIONS RESEARCH (U)
IDENTIFIERS: LEARNING MACHINES (U)

THIS REPORT VOLUME INTRODUCES A THREE-VOLUME SERIES SUMMARIZING RESEARCH ON SYSTEMS DESIGN METHODOLOGY: THE APPROACH IN THIS WORK HAS BEEN TO EMPHASIZE DETAILED INVESTIGATIONS IN THREE AREAS WITHIN THE GENERAL FRAMEWORK OF ADAPTIVE SYSTEMS. THIS VOOLUME THEN PROCEEDS TO DISCUSS KEY CONCEPTS IN THE DESIGN METHODOLOGY OF LEARNING AUTOMATA, WITH CONSIDERATION GIVEN TO THE DEVELOPMENT OF ADAPTIVE SYSTEMS AND THE USE OF SUCH SYSTEMS AS MACHINE AIDS TO DESIGN. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-605 267
IBM WATSON RESEARCH CENTER YORKTOWN HEIGHTS N Y
COMPUTER PROGRAMMING TECHNIQUES FOR (U)
DESCRIPTIVE NOTE: QUARTERLY REPT. NO. 1.
AUG 64 1V
CONTRACT: AF30 602 3303
PROJ: 4594
MONITOR: RADC . TDR64 233

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*PROGRAMMING (COMPUTERS), INFORMATION RETRIEVAL), (*INFORMATION RETRIEVAL, DATA PROCESSING SYSTEMS), DIGITAL COMPUTERS, PROGRAMMING LANGUAGES, DISPLAY SYSTEMS, STATISTICAL DATA, STATISTICAL ANALYSIS, AUTOMATION (U)

CONTENTS: STATISTICAL PREDICTION, DISCRIMINATION, AND CLASSIFICATION TECHNIQUE; INTEGRATED COMPUTER-ORIENTED INFORMATION RETRIEVAL TECHNIQUES; MULTI-PROGRAMMING TECHNIQUES FOR INTELLIGENCE INFORMATION PROCESSING; COMPUTER CONSOLE INPUT AND DISPLAY (TEXTUAL AND GRAPHIC); AUTOMATED PROGRAM DEBUGGING TECHNIQUES. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-605 335
AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE, VOLUME XXIII, INSTRUCTOR'S MANUAL. (U)
DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE.
JUN 64 9P
CONTRACT: AF19 628 2935
PROJ: 7682
TASK: 768204
MONITOR: ESD , TDR64 443 V23

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 353

DESCRIPTORS: (*TRAINING DEVICES, INSTRUCTION MANUALS), (*PROGRAMMING LANGUAGES, TRAINING DEVICES), (*INFORMATION RETRIEVAL, AIR FORCE OPERATIONS), TEACHING MACHINES, EDUCATION, PROGRAMMING (COMPUTERS), LANGUAG(U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY LANGUAGE (U)

OTC QUERY LANGUAGE, VOLUME XXIII, INSTRUCTOR'S MANUAL.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-605 336
AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE. VOLUME XI. WRITING QUERY
LANGUAGE STATEMENTS. (U)
DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE.
JUN 64 73P
CONTRACT: AF19 628 2935
PROJ: 7682
TASK: 768204
MONITOR: ESD TDR64 443 V11

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 339.

DESCRIPTORS: (*TRAINING DEVICES, INSTRUCTION MANUALS),
(*PROGRAMMING LANGUAGES, TRAINING DEVICES),
(*INFORMATION RETRIEVAL, AIR FORCE OPERATIONS), TEACHING
MACHINES, EDUCATION, PROGRAMMING (COMPUTERS), LANGUAG(U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY
LANGUAGE (U)

OTC QUERY LANGUAGE. VOLUME XI. WRITING QUERY
LANGUAGE STATEMENTS.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-605 337
AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE, VOLUME XII, SIMPLE SUMS WITH
THE AIR UNIT TABLES, (U)
DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE,
JUN 64 72P
CONTRACT: AF19 628 2935
PROJ: 7682
TASK: 768204
MONITOR: ESD , TDR64 443 V12

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 336.

DESCRIPTORS: (*TRAINING DEVICES, INSTRUCTION MANUALS),
(*PROGRAMMING LANGUAGES, TRAINING DEVICES),
(*INFORMATION RETRIEVAL, AIR FORCE OPERATIONS), TEACHING
MACHINES, EDUCATION, PROGRAMMING (COMPUTERS), LANGUAG(U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY
LANGUAGE (U)

OTC QUERY LANGUAGE, VOLUME XII, SIMPLE SUMS WITH
THE AIR UNIT TABLES,

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-605 338
AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE. VOLUME VII. THE OPERATION AND CAPABILITY OF THE COMPUTER RETRIEVAL PROGRAMS. (U)
DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE.
JUN 64 1V
CONTRACT: AF19 628 2935
PROJ: 7682
TASK: 768204
MONITOR: ESD TDR64 443 V7

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 354.

DESCRIPTORS: (*TRAINING DEVICES, INSTRUCTIONS MANUALS), (*PROGRAMMING LANGUAGES, TRAINING DEVICES), (*INFORMATION RETRIEVAL, AIR FORCE OPERATIONS), TEACHING MACHINES, EDUCATION, PROGRAMMING (COMPUTERS), LANGUAGES (U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY LANGUAGE (U)

OTC QUERY LANGUAGE. VOLUME VII. THE OPERATION AND CAPABILITY OF THE COMPUTER RETRIEVAL PROGRAMS.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-605 339
AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE, VOLUME X, WRITING QUERY
LANGUAGE STATEMENTS. (U)
DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE.
JUN 64 IV
CONTRACT: AF19 628 2935
PROJ: 7682
TASK: 768204
MONITOR: ESD TDR64 443 V10

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 342.

DESCRIPTORS: (*TRAINING DEVICES, INSTRUCTION MANUALS),
(*PROGRAMMING LANGUAGES, TRAINING DEVICES),
(*INFORMATION RETRIEVAL, AIR FORCE OPERATIONS), TEACHING
MACHINES, EDUCATION, PROGRAMMING (COMPUTERS), LANGUAG(U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY
LANGUAGE (U)

OTC QUERY LANGUAGE, VOLUME X, WRITING QUERY
LANGUAGE STATEMENTS.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-605 340
AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE. VOLUME IV. THE OPERATION AND CAPABILITY OF THE COMPUTER RETRIEVAL PROGRAMS. (U)
DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE.
JUN 64 65P
CONTRACT: AF19 62R 2935
PROJ: 7682
TASK: 768204
MONITOR: ESD . TDR64 443 V4

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-685 355.

DESCRIPTORS: (*TRAINING DEVICES, INSTRUCTION MANUALS), (*PROGRAMMING LANGUAGES, TRAINING DEVICES), (*TEACHING MACHINES, INSTRUCTION MANUALS), (*INFORMATION RETRIEVAL, AIR FORCE OPERATIONS), EDUCATION, PROGRAMMING (COMPUTERS), LANGUAGES (U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY LANGUAGE (U)

OTC QUERY LANGUAGE. VOLUME IV. THE OPERATION AND CAPABILITY OF THE COMPUTER RETRIEVAL PROGRAMS.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-605 341
AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE, VOLUME VIII, WRITING QUERY
LANGUAGE STATEMENTS, (U)
DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE,
JUN 64 8P
CONTRACT: AF19 628 2935
PROJ: 7682
TASK: 768204
MONITOR: ESD , TDR64 443 V8

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 336,

DESCRIPTORS: (*TRAINING DEVICES, INSTRUCTION MANUALS),
(*PROGRAMMING LANGUAGES, TRAINING DEVICES),
(*INFORMATION RETRIEVAL, AIR FORCE OPERATIONS), TEACHING
MACHINES, EDUCATION, PROGRAMMING (COMPUTERS), LANGUAG(U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY
LANGUAGE (U)

OTC QUERY LANGUAGE, VOLUME VIII, WRITING QUERY
LANGUAGE STATEMENTS,

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-605 342
AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE. VOLUME IX. WRITING QUERY
LANGUAGE STATEMENTS. (U)
DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE.
JUN 64 79P
CONTRACT: AF19 628 2935
TASK: 768204
MONITOR: ESD . TDR644 443 344 4 443 V9

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 341.

DESCRIPTORS: (*TRAINING DEVICES, INSTRUCTION MANUALS),
(*PROGRAMMING LANGUAGES, TRAINING DEVICES),
(*INFORMATION RETRIEVAL, AIR FORCE OPERATIONS), TEACHING
MACHINES, EDUCATION, PROGRAMMING (COMPUTERS), LANGUAG(U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY
LANGUAGE (U)

OTC QUERY LANGUAGE. VOLUME IX. WRITING QUERY
LANGUAGE STATEMENTS.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-605 343
AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE. VOLUME XX. TEST ANSWER KEY. (U)
DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE.
JUN 64 10P
PROJ: 7682
TASK: 767768204
MONITOR: ESD . TDRRR64 443 V20

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 352.

DESCRIPTORS: (*TRAINING DEVICES, INSTRUCTION MANUALS), (*PROGRAMMING LANGUAGES, TRAINING DEVICES), (*INFORMATION RETRIEVAL, AIR FORCE OPERATIONS), TEACHING MACHINES, EDUCATION, PROGRAMMING (COMPUTERS), LANGUAG(U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY LANGUAGE (U)

OTC QUERY LANGUAGE. VOLUME XX. TEST ANSWER KEY.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-605 344
AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE. VOLUME I. PREPROGRAMHOW TO USE
THE QUERY LANGUAGE SELFINSTRUCTIONAL COURSE. (U)
DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE.
JUN 64 1V
CONTRACT: AF19 628 2935
PROJ: 7682
TASK: 768204
MONITOR: ESD . TDR64 443 V1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TRAINING DEVICES, INSTRUCTION MANUALS), (*PROGRAMMING LANGUAGES, TRAINING DEVICES), (*TEACHING MACHINES, INSTRUCTION MANUALS), (*INFORMATION RETRIEVAL, AIR FORCE OPERATIONS), EDUCATION, PROGRAMMING (COMPUTERS), TEXTBOOKS, LANGUAGES (U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY LANGUAGE (U)

THIS SELF-INSTRUCTIONAL COURSE TEACHES THE QUERY LANGUAGE OF SYSTEM 473L FOR THE OPERATIONAL TEST CAPABILITY PHASE (OTC). THE COURSE CONSISTS OF TWENTY-THREE VOLMES. IT INCLUDES: VOLUME I: PREPROGRAM - INSTRUCTIONS ON HOW TO USE THE QUERY LANGUAGE SELF-INSTRUCTIONAL COURSE: VOLMES II - XVI: PROGRAMED INSTRUCTION ON THE OTC QUERY LANGUAGE: VOLUME XVIII: EXERCISE WORKBOOK: VOLUME XIX: PROFICIENCY TESTS: VOLUME XX: TEST ANSWER KEY: VOLUME XXI: TIME RECORD: VOLUME XXII: REFERENCE MANUAL: VOLUME XXIII: INSTRUCTOR'S MANUAL. THE PROGRAMMED-INSTRUCTION FORMAT OF THIS COURSE PERMITS THE STUDENT TO LEARN AT HIS OWN PACE WITHOUT THE AID OF AN INSTRUCTOR. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-605 345
AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE, VOLUME XXI, TIME RECORD. (U)
DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE.
JUN 64 IP
CONTRACT: AF19 628 2935
PROJ: 7682
TASK: 768204
MONITOR: ESD . TDR64 443 V21

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 343.

DESCRIPTORS: (*TRAINING DEVICES, INSTRUCTION MANUALS), (*PROGRAMMING LANGUAGES, TRAINING DEVICES), (*INFORMATION RETRIEVAL, AIR FORCE OPERATIONS), TEACHING MACHINES, EDUCATION, PROGRAMMING (COMPUTERS), LANGUAG(U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY LANGUAGE (U)

OTC QUERY LANGUAGE, VOLUME XXI, TIME RECORD.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-605 346
AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE. VOLUME XVI. ADDITIONAL PROCESS
DIRECTORS AND A REVIEW OF RULES. (U)
DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE.
JUN 64 65P
CONTRACT: AF19 628 2935
PROJ: 7682
TASK: 768204
MONITOR: ESD . TDR64 443 V16

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 349.

DESCRIPTORS: (*TRAINING DEVICES. INSTRUCTION MANUALS).
(*PROGRAMMING LANGUAGES. TRAINING DEVICES).
(*INFORMATION RETRIEVAL. AIR FORCE OPERATIONS). TEACHING
MACHINES. EDUCATION. PROGRAMMING (COMPUTERS). LANGUAG(U)
IDENTIFIERS: PROGRAMMED INSTRUCTION. QUERY
LANGUAGE (U)

OTC QUERY LANGUAGE. VOLUME XVI. ADDITIONAL PROCESS
DIRECTORS AND A REVIEW OF RULES.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-605 347
AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE, VOLUME II, AN INTRODUCTION TO THE 473L SYSTEM. (U)
DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE.
JUN 64 65P
CONTRACT: AF19 628 2935
PROJ: 7682
TASK: 768204
MONITOR: ESD TDR64 443 V2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 344.

DESCRIPTORS: (*TRAINING DEVICES, INSTRUCTION MANUALS), (*PROGRAMMING LANGUAGES, TRAINING DEVICES), (*TEACHING MACHINES, INSTRUCTION MANUALS), (*INFORMATION RETRIEVAL, AIR FORCE OPERATIONS), PROGRAMMING (COMPUTERS), DECISION MAKING, EDUCATION, LANGUAGES (U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY LANGUAGE (U)

OTC QUERY LANGUAGE. VOLUME II, AN INTRODUCTION TO THE 473L SYSTEM.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-605 348
AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE. VOLUME V. THE OPERATION AND
CAPABILITY OF THE COMPUTER RETRIEVAL PROGRAMS. (U)
DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE.
JUN 64 4P
CONTRACT: AF19 628 2935
PROJ: 7682
MONITOR: ESD. TDR64 443 V5

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 340.

DESCRIPTORS: (*TRAINING DEVICES. INSTRUCTION MANAM NOION
MANUALS). (*PROGRAMMING LANGUAGES. TRAINING DEVICES).
(*INFORMATION RETRIEVAL. AIR FORCE OPRERATION). TEACHING
MACHINES. EDUCATION. LANGUAGES. PROGRAMMING (COMPUTER(U)
IDENTIFIERS: PROGRAMMED INSTRUCTION. QUERY
LANGUAGE (U)

OTC QUERY LANGUAGE. VOLUME V. THE OPERATION AND
CAPABILITY OF THE COMPUTER RETRIEVAL PROGRAMS.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-605 349
AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE, VOLUME XV, SORTING AND
SPECIFYING TITLES. (U)
DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE.
JUN 64 72P
CONTRACT: AF19 628 2935
PROJ: 7682
TASK: 768204
MONITOR: ESD . TDR64 443 V25

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 356.

DESCRIPTORS: (*TRAINING DEVICES, INSTRUCTION MANUALS),
(*PROGRAMMING LANGUAGES, TRAINING DEVICES),
(*INFORMATION RETRIEVAL, AIR FORCE OPERATIONS), TEACHING
MACHINES, EDUCATION, PROGRAMMING (COMPUTERS), LANGUAG(U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY
LANGUAGE (U)

OTC QUERY LANGUAGE, VOLUME XV, SORTING AND
SPECIFYING TITLES.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-605 350
AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE. VOLUME XVII. EXHIBITS. (U)
DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE.
JUN 64 8P
CONTRACT: AF19 628 2935
PROJ: 7682
TASK: 768204
MONITOR: ESD . TDR64 443 V17

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 346.

DESCRIPTORS: (*TRAINING DEVICES, INSTRUCTION MANUALS), (*PROGRAMMING LANGUAGES, TRAINING DEVICES), (*INFORMATION RETRIEVAL, AIR FORCE OPERATIONS), TEACHING MACHINES, EDUCATION, PROGRAMMING (COMPUTERS), LANGUAG(U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY LANGUAGE (U)

OTC QUERY LANGUAGE. VOLUME XVII. EXHIBITS.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-605 351
AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE,.VOLUME XVIII. EXERCISE
WORKBOOK. (U)
DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE.
JUN 64 1V
CONTRACT: AF19 628 2935
PROJ: 7682
TASK: 768204
MONITOR: ESD . TDR64 443 V18

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 350.

DESCRIPTORS: (*TRAINING DEVICES, INSTRUCTION MANUALS),
(*PROGRAMMING LANGUAGES, TRAINING DEVICES),
(*INFORMATION RETRIEVAL, AIR FORCE OPERATIONS), TEACHING
MACHINES, EDUCATION, PROGRAMMING (COMPUTERS), LANGUAG(U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY
LANGUAGE (U)

OTC QUERY LANGUAGE, VOLUME XVIII, EXERCISE
WORKBOOK.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-605 352
AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE, VOLUME XIX, PROFICIENCY TESTS. (U)
DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE,
JUN 64 1V
CONTRACT: AF19 628 2935
PROJ: 7682
TASK: 768204
MONITOR: ESD , TDR64 443 V19

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 351.

DESCRIPTORS: (*TRAINING DEVICES, INSTRUCTION MANUALS), (*PROGRAMMING LANGUAGES, TRAINING DEVICES), (*INFORMATION RETRIEVAL, AIR FORCE OPERATIONS), TEACHING MACHINES, EDUCATION, PROGRAMMING (COMPUTERS), LANGUAG(U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY LANGUAGE (U)

OTC QUERY LANGUAGE, VOLUME XIX, PROFICIENCY TESTS,

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-605 353
AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE. VOLUME XXII. REFERENCE
MANUAL. (U)
DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE.
JUN 64 1V
CONTRACT: AF19 628 2935
PROJ: 7682
TASK: 768204
MONITOR: ESD . TDR64 443 V22

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 345.

DESCRIPTORS: (*TRAINING DEVICES, INSTRUCTION MANUALS),
(*PROGRAMMING LANGUAGES, TRAINING DEVICES),
(*INFORMATION RETRIEVAL, AIR FORCE OPERATIONS), TEACHING
MACHINES, EDUCATION, PROGRAMMING (COMPUTERS), LANGUAG(U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY
LANGUAGE (U)

OTC QUERY LANGUAGE. VOLUME XXII. REFERENCE MANUAL.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-605 354
AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE. VOLUME VI. THE OPERATION AND
CAPABILITY OF THE COMPUTER RETRIEVAL PROGRAMS. (U)
DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE.
JUN 64 1V
CONTRACT: AF19 628 2935
PROJ: 7682
TASK: 768204
MONITOR: ESD . TDR64 443 V6

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 348.

DESCRIPTORS: (*TRAINING DEVICES, INSTRUCTION MANUALS),
(*PROGRAMMING LANGUAGES, TRAINING DEVICES),
(*INFORMATION RETRIEVAL, AIR FORCE OPERATIONS), TEACHING
MACHINES, EDUCATION, PROGRAMMING (COMPUTERS), LANGUAG(U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY
LANGUAGE (U)

OTC QUERY LANGUAGE. VOLUME VI. THE OPERATION AND
CAPABILITY OF THE COMPUTER RETRIEVAL PROGRAMS.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-605 355
AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE. VOLUME III. THE OPERATION AND CAPABILITY OF THE COMPUTER RETRIEVAL PROGRAMS. (U)
DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE.
JUN 64 1V
CONTRACT: AF19 628 2935
PROJ: 7682
TASK: 768204
MONITOR: ESD . TDR64 443 V3

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 347.

DESCRIPTORS: (*TRAINING DEVICES, INSTRUCTION MANUALS), (*PROGRAMMING LANGUAGES, TRAINING DEVICES), (*TEACHING MACHINES, INSTRUCTION MANUALS), (*INFORMATION RETRIEVAL, AIR FORCE OPERATIONS), EDUCATION, PROGRAMMING (COMPUTERS), LANGUAGES (U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY LANGUAGE (U)

OTC QUERY LANGUAGE. VOLUME III. THE OPERATION AND CAPABILITY OF THE COMPUTER RETRIEVAL PROGRAMS.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-605 356
AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE, VOLUME XIV. SUMS WITH THE TMS
AND TM SUMMARY TABLES. (U)
DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE.
JUN 64 8p
CONTRACT: AF19 628 2935
PROJ: 7682
TASK: 768204
MONITOR: ESD . TDR64 443 V14

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 357.

DESCRIPTORS: (*TRAINING DEVICES, INSTRUCTION MANUALS),
(*PROGRAMMING LANGUAGES, TRAINING DEVICES),
(*INFORMATION RETRIEVAL, AIR FORCE OPERATIONS), TEACHING
MACHINES, EDUCATION, PROGRAMMING (COMPUTERS), LANGUAG(U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY
LANGUAGE (U)

OTC QUERY LANGUAGE, VOLUME XIV. SUMS WITH THE TMS
AND TM SUMMARY TABLES.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-605 357
AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE, VOLUME XIII, COMPLEX SUMS WITH THE AIR UNIT TABLES, (U)
DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE,
JUN 64 64P
CONTRACT: AF19 628 2935
PROJ: 7682
TASK: 768204
MONITOR: ESD TDR64 443 V13

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 337.

DESCRIPTORS: (*TRAINING DEVICES, INSTRUCTION MANUALS), (PROGRAMMING LANGUAGES, TRAINING DEVICES), (*INFORMATION RETRIEVAL, AIR FORCE OPERATIONS), TEACHING MACHINES, EDUCATION, PROGRAMMING (COMPUTERS), LANGUAGES (U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY LANGUAGE (U)

OTC QUERY LANGUAGE, VOLUME XIII, COMPLEX SUMS WITH THE AIR UNIT TABLES,

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-605 815
BELFOUR ENGINEERING CO SUTTONS BAY MICH
THE MECHANICAL PROPERTIES DATA CENTER OPERATION AND EXPANSION. (U)
DESCRIPTIVE NOTE: SUMMARY TECHNICAL REPT. FOR 1 APR 63-31 MAR 64.
AUG 64 73P BRADEN,R. C. ;WRIGHT,C. S. ;
CONTRACT: AF33 615 1061 ,AF33 657 9149
PROJ: 7381
TASK: 738103
MONITOR: ML , TDR64 235

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*SUBJECT INDEXING, MECHANICAL PROPERTIES), (*INFORMATION RETRIEVAL, LIBRARIES), DATA PROCESSING SYSTEMS, DATA STORAGE SYSTEMS, DISPLAY SYSTEMS, DATA METALS, ALLOYS, DOCUMENTATION (U)

THE REPORT DISCUSSES THE CONTENT, USE AND OPERATION OF THE MECHANICAL PROPERTIES DATA CENTER. SEARCH FREQUENCY, DATA INPUT, DOCUMENT ACQUISITION, AND LINK-ROLE INDEXING ARE TOPICS OF THE REPORT. A REVIEW OF PROJECT ACTIVITIES EXPRESSED AS PERCENTAGES OF EXPENDED EFFORT IS PRESENTED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-606 181
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
SDC DOCUMENTS APPLICABLE TO STATE AND LOCAL
GOVERNMENT PROBLEMS, (U)
DESCRIPTIVE NOTE: SCIENTIFIC REPT.,
AUG 64 10P ISAACS,HERBERT H. ;
REPT. NO. TM-2025

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*SYSTEMS ENGINEERING, BIBLIOGRAPHIES), (*INDEXES, OPERATIONS RESEARCH), (*BIBLIOGRAPHIES, SYSTEMS ENGINEERING), (*SOCIOLOGY, SYSTEMS ENGINEERING), DOCUMENTATION, UNITED STATES GOVERNMENT, MEDICAL RESEARCH, PROGRAMMING (COMPUTERS), EDUCATION, TRAINING, URBAN PLANNING, SIMULATION, INFORMATION RETRIEVAL, LAW, COMPUTERS, MANAGEMENT ENGINEERING (U)

THIS DOCUMENT CONTAINS A SELECTIVE LIST OF SDC PUBLICATIONS AVAILABLE TO EXTERNAL REQUESTERS. THE DOCUMENTS ON THIS LIST WERE SELECTED ON THE BASIS OF THEIR GENERAL OR SPECIFIC APPLICABILITY TO CURRENT PROBLEMS OF STATE AND LOCAL GOVERNMENT. WORK OF A MORE BASIC RESEARCH NATURE HAS BEEN OMITTED. THE LIST IS ORGANIZED BY SUBSTANTIVE CATEGORIES AND ALPHABETICALLY BY AUTHOR WITHIN EACH CATEGORY. THE CATEGORIES INCLUDE: THE ADMINISTRATION OF JUSTICE, BIO-MEDICAL SYSTEMS, COMPUTER PROGRAM SYSTEMS, THE DEVELOPMENT AND MANAGEMENT OF COMPUTER-BASED SYSTEMS, EDUCATION AND TRAINING, INFORMATION RETRIEVAL, SIMULATION IN EXPERIMENTATION, AND URBAN INFORMATION SYSTEMS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-606 825
ILLINOIS UNIV URBANA TRAINING RESEARCH LAB
TRANSFER EFFECTS WITHIN A HIERARCHICAL LEARNING TASK AS A FUNCTION OF REVIEW AND CORRECTION ON SUCCESSIVE PARTS. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT. NO. 5,
SEP 64 156P MERRILL,M. DAVID ;
CONTRACT: NONR3985 04

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPORT ON RESEARCH ON PRE-PROGRAMED SELFINSTRUCTION AND SELF-PROGRAMED INDIVIDUALIZED EDUCATION. DOCTORAL THESIS.

DESCRIPTORS: (*LEARNING, TEACHING MACHINES), (*TEACHING MACHINES, LEARNING), EDUCATION, RETENTION, TRAINING, TRANSFER OF TRAINING, STUDENTS, FEEDBACK, CORRELATION TECHNIQUES, ANALYSIS OF VARIANCE, CONTROL SEQUENCES (U)

A COMMON ASSUMPTION IS THAT LEARNING AND RETENTION OF A HIERARCHIAL TASK ARE BOTH FACILITATED BY MASTERING EACH SUCCESSIVE PART BEFORE PROCEEDING TO THE NEXT PART. HOWEVER, RESEARCH CONDUCTED ON THE TEACHING OF A COMPLEX IMAGINARY SCIENCE BY MEANS OF SOCRATES, A COMPUTER-BASED TEACHING MACHINE, CONTRADICTED THIS HYPOTHESIS. IT WAS CONCLUDED THAT CORRECTION ON LESSON FRAMES TEACHES CAUTIOUS, SLOW RESPONDING WITH NO GAIN IN ACCURACY OF RESPONSE AND THAT IN A HIERARCHIAL TASK IN WHICH SUBJECTS ARE ALLOWED TO REVIEW DURING THE TERMINAL TEST, AN ATTEMPT TO ENSURE MASTERY OF EACH SUCCESSIVE PART BEFORE PROCEEDING TO THE NEXT PART BY REQUIRING THE STUDENT TO RECEIVE A TWO-STAGE REVIEW AND CORRECTION PROCEDURE WHEN HE MAKES ERRORS DOES NOT FACILITATE LEARNING OR RETENTION. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-607 073
OFFICE OF AEROSPACE RESEARCH ARLINGTON VA
THE AIR FORCE-OAR CONTRIBUTION TO PROGRAMMED INSTRUCTION. (U)
DESCRIPTIVE NOTE: MONOGRAPH NO. 1,
AUG 64 4P MARTORANA,S. V. ;
PROJ: 9778
MONITOR: OAR , 64 10

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*EDUCATION, AIR FORCE RESEARCH), (*TRAINING, TRAINING DEVICES), TEACHING MACHINES, MILITARY PERSONNEL, CIVILIAN PERSONNEL (U)
IDENTIFIERS: PROGRAMMED TEACHING (U)

THE PAPER DESCRIBES THE RESULTS OF A BRIEF EXAMINATION OF DOCUMENTS AND REPORTS RELATED TO AIR FORCE ACTIVITIES IN PROGRAMMED INSTRUCTION AND THE INFLUENCE THIS NEW EDUCATIONAL METHOD IS HAVING ON INSTRUCTIONAL AND TRAINING PROGRAMS, BOTH IN MILITARY AND CIVILIAN FIELDS. THE DOCUMENTS ON WHICH IT DRAWS ARE THOSE AVAILABLE IN THE FILES OF THE DIVISION OF LIFE SCIENCES AND MATHEMATICAL SCIENCES, DCS/PLANS AND PROGRAMS, HQ OFFICE OF AEROSPACE RESEARCH (OAR), AND IN THE DIRECTORATE OF LIFE SCIENCES, AIR FORCE OFFICE OF SCIENTIFIC RESEARCH, OAR. THE PURPOSE OF THIS INQUIRY WAS TO IDENTIFY THE WAYS THAT AIR FORCE INTEREST IN, AND SUPPORT OF RESEARCH IN THE FIELD OF PROGRAMMED INSTRUCTION ASSISTED SIGNIFICANTLY IN ADVANCING KNOWLEDGE IN THE FIELD AND IN USING THIS KNOWLEDGE. AN ADDITIONAL PURPOSE WAS TO IDENTIFY THE WAY THAT ADVANCING KNOWLEDGE IN THIS FIELD IS CHANGING THE METHODOLOGY AND TECHNIQUES OF EDUCATION AND TRAINING GENERALLY. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-607 443
ELECTRONIC SYSTEMS DIV L G HANSCOM FIELD MASS
DECISION SCIENCES LABORATORY BIENNIAL PROGRESS
REPORT, JULY 1962-JUNE 1964, (U)
OCT 64 51P
MONITOR: ESD , TDR64 609

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*HUMAN ENGINEERING, INFORMATION RETRIEVAL), (*DECISION MAKING, AIR FORCE OPERATIONS), (*INFORMATION RETRIEVAL, HUMAN ENGINEERING), BEHAVIOR, LEARNING, PERCEPTION (PSYCHOLOGY), MEMORY, TEACHING MACHINES, CYBERNETICS, COMMUNICATION THEORY, SYSTEMS ENGINEERING, REVIEWS (U)

THE DECISION SCIENCES LABORATORY INITIATES EXPLORATORY DEVELOPMENT PROGRAMS; THAT IS, IT ESTIMATES AND EXAMINES FUTURE OPERATIONAL REQUIREMENTS OF THE AIR FORCE, PRIMARILY IN THE AREA OF INFORMATION PROCESSING SYSTEMS, AND DETERMINES FROM SUCH INVESTIGATION AND CONSIDERATION THE IMPLICATIONS FOR MAN-MACHINE INTERACTION. DSL IS ALSO RESPONSIBLE FOR DESIGNING, DEVELOPING, PROCURING, EVALUATING, MANAGING, AND UPDATING CERTAIN DISPLAY COMPONENTS OF AIR FORCE ELECTRONIC SYSTEMS. FURTHER, IT PROVIDES ENGINEERI . SERVICES TO ALL ELEMENTS OF THE ELECTRONIC SYSTEMS DIVISION WITHIN THE AREA ON DISPLAY CHARACTERISTICS, HUMAN PERFORMANCE, AND MAN-MACHINE RELATIONSHIP PROBLEMS FOR BOTH PRESENT AND FUTURE AIR FORCE MILITARY INFORMATION SYSTEMS, NEEDS. TOPICS DISCUSSED INCLUDES: DATA PRESENTATION AND DISPLAY; LEARNING, DECISION MAKING AND PROBLEM SOLVING; PROGRAMMED TEACHING AND AUTOMATED TRAINING; AND COMMUNICATION THEORY. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-607 782
AMERICAN INST FOR RESEARCH PITTSBURGH PA
THE INVESTIGATION OF STEP SIZE AND ERROR RATE IN PROGRAMMED INSTRUCTION. (U)
JUL 64 110P KLAUS,DAVID J. I
CONTRACT: N61339 1208
MONITOR: NAVTRADEVCEN , 1208 1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TEACHING MACHINES, MILITARY TRAINING), LINEAR PROGRAMMING, LEARNING, ERRORS, STUDENTS, TRAINING, TABLES, TRAINING DEVICES (U)

AN INVESTIGATION WAS UNDERTAKEN TO DETERMINE WHETHER STEP SIZE IN LINEAR PROGRAMS COULD BE DEFINED, MEASURED AND MANIPULATED, AND TO DETERMINE THE EFFECTS OF VARIOUS SIZES OF STEP ON ERROR RATE AND ACHIEVEMENT FOR LEARNERS AT THREE LEVELS OF ABILITY. RESPONSE, CUE, CONTEXT, AND ENRICHMENT COMPONENTS OF A FRAME WERE USED TO DEFINE BOTH INTRAFRAME AND INTERFRAME STEP SIZE. NUMERICAL SCALES THEN WERE DEVELOPED TO MEASURE STEP SIZE AND A SET OF MANIPULATIONS WAS DEVISED FOR USE IN MODIFYING THE STEP SIZE OF EXISTING PROGRAMS. NORMATIVE STEP-SIZE VALUES WERE DETERMINED FROM A SURVEY OF TEN PUBLISHED PROGRAMS. THE RESULTS OF THE STUDY SUGGEST THAT, WITHIN THE RANGE OF STEP SIZES INVESTIGATED AND WITHIN THE RANGE OF ERROR RATES PRODUCED, NEITHER IS AN IMPORTANT VARIABLE WITH RESPECT TO ACHIEVEMENT REGARDLESS OF THE ABILITY LEVEL OF THE LEARNER. IT IS RECOMMENDED THAT LESS CONSIDERATION BE GIVEN TO STEP SIZE WHEN WRITING A LINEAR PROGRAM AND THAT LESS EMPHASIS BE PLACED ON ERROR RATE WHEN REVISING A PROGRAM PROVIDING STEP SIZE AND ERROR RATE ARE NOT EXCESSIVELY LARGE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-607 787
RAND CORP SANTA MONICA CALIF
THE TEACHING OF COMPUTING. (U)
OCT 64 6P GRUENBERGER,FRED I
REPT. NO. P-2998

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*EDUCATION, COMPUTERS), (*COMPUTERS, EDUCATION), INSTRUCTORS, STUDENTS, COMPUTER PERSONNEL (U)

THE DIFFERENT REASONS WHY TEACHING THE FUNDAMENTALS OF COMPUTERS ARE MORE ENJOYABLE AND DIFFERENT FROM TEACHING OTHER SUBJECTS ARE OFFERED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-607 809
AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB OHIO
PROGRAMMED INSTRUCTION - PAST, PRESENT, FUTURE. (U)
DESCRIPTIVE NOTE: FINAL REPT.,
SEP 64 22P ABMA,JOHN S. ;
PROJ: 1710
TASK: 171007
MONITOR: AMRL , TR64 89

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PAPER PREPARED FOR PUBLICATION IN 'RESEARCH AND TECHNOLOGY DIVISION BRIEFS,' THIRD QUARTER, 1964.

DESCRIPTORS: (*TEACHING MACHINES, EDUCATION), (*EDUCATION, TEACHING MACHINES), TRAINING, LEARNING, AUTOMATION, LINEAR PROGRAMMING, PROGRAMMING (COMPUTERS) (U)

PROGRAMED INSTRUCTION HAS EXISTED IN ITS PRESENT FORMS FOR APPROXIMATELY TEN YEARS. THREE MAJOR APPROACHES ARE: THE 'ADJUNCT AUTOINSTRUCTION' OF SIDNEY L. PRESSEY, THE 'INTRINSIC PROGRAMING' OF NORMAN A. CROWDER, AND THE 'LINEAR PROGRAMING' OF B. F. SKINNER. MOST CURRENT RESEARCH IS CENTERING ON LINEAR PROGRAMING. RESULTS INDICATE THAT PROGRAMED INSTRUCTION IS SUCCESSFUL IN SOME APPLICATIONS, BUT NOT THE ANSWER TO ALL TRAINING PROBLEMS. THE FUTURE MAY SEE AN INTEGRATION OF PROGRAMED INSTRUCTION AND OTHER TRAINING TECHNIQUES WITHIN A SYSTEMS APPROACH TO TRAINING AND EDUCATION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-608 216
AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB OHIO
CURRENT STATUS OF THE TECHNOLOGY OF TRAINING. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.
SEP 64 40P ECKSTRAND,GORDON I
PROJ: 1710
MONITOR: AMRL , TR64 86

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: THE PAPER WAS READ BY GORDON A. ECKSTRAND AT THE ANNUAL CONVENTION OF THE AMERICAN PSYCHOLOGICAL ASSOCIATION (72TH), HELD AT LOS ANGELES, CALIF., 4-9 SEP 64.

DESCRIPTORS: (*TRAINING, STANDARDS), (*HUMAN ENGINEERING, TRAINING DEVICES), PERSONNEL, PERFORMANCE (HUMAN), LEARNING, SIMULATION, TEACHING MACHINES, MILITARY TRAINING, PSYCHOMETRICS (U)

A BRIEF OVERVIEW OF THE CURRENT STATUS OF THE TECHNOLOGY OF TRAINING IS PRESENTED. THE PROCESSES INVOLVED IN DESIGNING A TRAINING SYSTEM ARE ARBITRARILY ANALYZED INTO THE FOLLOWING THREE AREAS: (1) DETERMINING TRAINING REQUIREMENTS, (2) DEVELOPING THE TRAINING ENVIRONMENT, AND (3) MEASURING THE RESULTS OF TRAINING. IN EACH OF THESE AREAS, AN ATTEMPT IS MADE TO SUMMARIZE AND EVALUATE THE ADEQUACY OF OUR TECHNOLOGY. IN A FINAL SECTION OF THE REPORT, CERTAIN AREAS OF RESEARCH WHICH APPEAR TO BE ESPECIALLY PROMISING ARE DISCUSSED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKC8

AD-608 296
APPLIED SCIENCE ASSOCIATES INC VALENCIA PA
A FIELD EXPERIMENTAL STUDY OF PROGRAMMED INSTRUCTION ON A MANIPULATIVE TASK. (U)
DESCRIPTIVE NOTE: FINAL REPT. FOR AUG-DEC 63,
OCT 64 54P FOLLEY,JOHN D. ,JR.;BOUCK, AUBREY J. ;FOLEY,JOHN P. ,JR.;
CONTRACT: AF33 657 1135
PROJ: 1710
TASK: 171004
MONITOR: AMRL TR64 90

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*MILITARY TRAINING, TRAINING DEVICES), (*TRAINING DEVICES, MILITARY TRAINING), PERFORMANCE (HUMAN), MILITARY PERSONNEL, EDUCATION, ANALYSIS OF VARIANCE, SMALL ARMS, TEACHING MACHINES (U)

APPROXIMATELY 1300 BASIC MILITARY TRAINEES WERE USED IN A 3 X 7 FACTORIAL STUDY OF MODES AND CONTENT OF TRAINING ON A MANIPULATIVE PERFORMANCE TASK, THE ASSEMBLY AND DISASSEMBLY OF THE M1 CARBINE. THE MODES OF TRAINING INCLUDED LECTURE-DEMONSTRATION, A PRINTED LINEAR PROGRAM WITH OR WITHOUT AN ANSWER SHEET, AND AN AUDIO-VISUAL PROGRAM PRESENTED BY AN AUDIO-VISUAL DEVICE OR BY A PRINTED BOOKLET. ALSO EVALUATED WAS A CONDITION IN WHICH THE TRAINEES TRIED TO PERFORM THE FINAL TASK AND WERE ASSISTED AS REQUIRED. THE CONTENT OF THE TRAINING WAS VARIED BY PROVIDING TRAINING ON ASSEMBLY ONLY, OR DISASSEMBLY ONLY, OR BOTH. THE FINAL CRITERIA WERE THE TIME AND THE NUMBER OF ASSISTS REQUIRED TO DISASSEMBLE AND ASSEMBLE THE M1 CARBINE. ALTHOUGH THE MODES OF TRAINING DIFFERED SIGNIFICANTLY, THE RANKINGS WERE VERY DIFFERENT ON THE TWO CRITERIA. NO MODE OF TRAINING SEEMED CLEARLY SUPERIOR TO THE OTHER MODES. THE AUDIO-VISUAL PROGRAM PRESENTED IN THE PRINTED BOOKLET SEEMED SOMEWHAT INFERIOR. TRAINING ON ONLY THE ASSEMBLY OF THE CARBINE RESULTED IN AS GOOD PERFORMANCE AS TRAINING ON BOTH ASSEMBLY AND DISASSEMBLY. THE FINDINGS PROBABLY CAN BE GENERALIZED ONLY TO RELATIVELY SIMPLE PROCEDURAL TYPE TASKS. REPLICATION OF THE STUDY WITH MORE COMPLEX PERFORMANCE TASKS IS RECOMMENDED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-608 306
ADAPTRONICS INC MCLEAN VA
STUDY OF NEUROTRON NETWORKS IN LEARNING AUTOMATA.
VOLUME I: LEARNING AUTOMATA AND THE NEUROTRON. (U)
DESCRIPTIVE NOTE: FINAL ENGINEERING REPT., VOL. 1, 15
FEB 63-15 FEB 64.
JUN 64 66P GILSTRAP,L. O. ,JR.;
CHAULIAGON,A. C. ;KEMPA,H. J. ;MODDES,R. E. J.
;
CONTRACT: AF33 657 10734

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*AUTOMATA, LEARNING), (*ARTIFICIAL INTELLIGENCE, NERVE CELLS), (*NETWORKS, AUTOMATA), THEORY, DESIGN, CONSTRUCTION, OPERATION, INSTRUCTION MANUALS, PERFORMANCE (ENGINEERING) (U)
IDENTIFIERS: NEUROTRON NETWORKS, LEARNING MACHINES (U)

A THEORY OF LEARNING AUTOMATA, WITH MATHEMATICAL FORMULATION, IS PRESENTED AND APPLIED TO THE DEVELOPMENT OF THE EXPERIMENTAL NEUROTRON (A NEUROMINE WITH THE ABILITY TO LEARN BOTH ANALOG AND LOGICAL FUNCTIONS). CONSTRUCTION OF THIS NEUROMINE IS DETAILED AND LOGIC AND CIRCUIT DIAGRAMS ARE PRESENTED. THIS VOLUME ALSO INCLUDES A DETAILED MANUAL OF OPERATION FOR THE EXPERIMENTAL NEUROTRON. NO EXTENSIVE DISCUSSION OF APPLICATIONS IS STAGED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-608 307
ADAPTRONICS INC MCLEAN VA
STUDY OF NEUROTRON NETWORKS IN LEARNING AUTOMATA,
VOLUME II: COMPUTER SIMULATION. (U)
DESCRIPTIVE NOTE: FINAL ENGINEERING REPT., VOL. 2, 15
FEB 63-15 FEB 64,
JUN 64 66P SNYDER,R. F. ;BROWN,R. J. ;
MODDES,R. E. J. ;
CONTRACT: AF33 657 10734

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*AUTOMATA, LEARNING), (*ARTIFICIAL
INTELLIGENCE, NERVE CELLS), (*NETWORKS, PROGRAMMING
(COMPUTERS)), SIMULATION, COMPUTERS, CONTROL SEQUENCE(U)
IDENTIFIERS: NEUROTRON NETWORKS, LEARNING MACHINES,
IBM 7094 (U)

DESCRIPTIONS AND FLOW DIAGRAMS FOR THE SIMULATION
OF A NEUROTRON (A NEUROMIME WITH THE ABILITY TO
LEARN BOTH ANALOG AND DIGITAL FUNCTIONS) NETWORK
ARE PRESENTED. THE PROGRAM HAS BEEN PREPARED FOR
THE IBM 7094 COMPUTER AND IS ENCODED IN A
SUBROUTINE COMPLEX IN FORTRAN IV AND MACRO-
ASSEMBLY PROGRAM CODE (MAP) FOR USE WITH THE
IBM IBJOB MONITOR SYSTEM. ALTHOUGH EXACT
APPLICATIONS TO LEARNING AND GOAL SITUATIONS ARE NOT
INCLUDED, THESE ASPECTS ARE DISCUSSED TO A DEGREE
THAT ALLOWS COMPLETE USE OF THE SIMULATION VEHICLE IN
SPECIFIC PROBLEM AREAS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-608 663
ITEK CORP WALTHAM MASS
RUSSIAN STENOTYPE EQUIPMENT. (U)
DESCRIPTIVE NOTE: INTERIM TECHNICAL REPT.,
OCT 64 22P LOEB,DAVID ;MARKUS,RICHARD ;
NOVIC,PHIL ;
CONTRACT: AF30 602 3213
PROJ: 5591
MONITOR: RADC , TDR64 324

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*DATA PROCESSING SYSTEMS, USSR), (*INPUT-OUTPUT DEVICES, DATA PROCESSING SYSTEMS), PROGRAMMING (COMPUTERS), TYPEWRITERS, DESIGN, LANGUAGE, TEACHING MACHINES, DISPLAY SYSTEMS (U)
IDENTIFIERS: STENOTYPE EQUIPMENT, CRYLLIC ALPHABET (U)

THE RUSSIAN STENOTYPE PROGRAM IS CONCERNED WITH THE DEVELOPMENT OF A STENOTYPE INPUT SYSTEM FOR AUTOMATIC TRANSLATION OF SPOKEN AND WRITTEN RUSSIAN. UNDER THIS PROGRAM AN ENGINEERING MODEL OF THE RUSSIAN STENOTYPE EQUIPMENT IS BEING DEVELOPED TO DEMONSTRATE THE FEASIBILITY OF SUCH A HIGH-SPEED, MANUAL, ENCODING SYSTEM. THIS REPORT IS GIVEN IN THREE PARTS, EACH RELATED TO A MAIN SECTION OF THE PROGRAM: THE STENOCODE (AND KEYBOARD) DESIGN STUDY, THE DIGITAL HARDWARE AND THE STENO TEACHING MACHINE. THE STENOCODE DESCRIPTION INCLUDES THREE PARTS: (1) KEYBOARD DESIGN; (2) THE NUMBERED ENCODING CODE (NEC) (3) THE SPELLING-OUT CODE (SOC) ENCODING SYSTEM. SOME DETAILS OF THE NEC SYSTEM REMAIN TO BE WORKED OUT AND WILL BE COVERED IN THE FINAL REPORT. DIGITAL HARDWARE IS DEVOTED TO THE SERIALIZER-DECODER. THE STENO TEACHING MACHINE DISCUSSION INCLUDES A DESCRIPTION OF SOME OF THE HARDWARE AND ITS OPERATION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-608 686
ILLINOIS UNIV URBANA TRAINING RESEARCH LAB
COMPUTER-BASED SYSTEMS: THE NEW RESEARCH AID. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT. NO. 6.
NOV 64 16P DAVIS,DANIEL J. ;STOLUROW,
LAWRENCE M. ;
CONTRACT: NONR3985 05

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPT. ON RESEARCH ON PRE-PROGRAMMED SELF-INSTRUCTION AND SELF-PROGRAMMED INDIVIDUALIZED EDUCATION. LEGIBILITY OF THIS DOCUMENT IS IN PART UNSATISFACTORY. REPRODUCTION HAS BEEN MADE FROM BEST AVAILABLE COPY.

DESCRIPTORS: (*TEACHING MACHINES, PROGRAMMING (COMPUTERS)), (*LEARNING, TEACHING MACHINES), EDUCATION, ACHIEVEMENT TESTS, APTITUDE TESTS, PERSONALITY, PERFORMANCE (HUMAN), PSYCHOMETRICS, CONTROL SYSTEMS, STUDENTS, SYMPOSIA (U)
IDENTIFIERS: SOCRATES (U)

TWO ARGUMENTS ARE PRESENTED IN CONNECTION WITH PROGRAMED INSTRUCTION: ONE CONCERNS ITS PAST, THE OTHER ITS FUTURE. THE FIRST, AND HISTORICAL POINT, IS THAT PROGRAMED INSTRUCTION HAS ALREADY SERVED THE STUDY OF LEARNING BY FOCUSING ATTENTION ON THE PROBLEM OF INDIVIDUAL DIFFERENCES. ALTHOUGH TOLMAN (1936) AND HULL (1943), FOR EXAMPLE, ACKNOWLEDGED THE RELATIONSHIP BETWEEN INDIVIDUAL DIFFERENCES AND LEARNING, LITTLE REAL ATTENTION WENT INTO THE EXPLICATION OF THIS RELATIONSHIP UNTIL THE ADVENT OF PROGRAMED INSTRUCTION. THE SECOND, AND PROSPECTIVE ARGUMENT, IS THAT COMPUTER-BASED TEACHING MACHINE SYSTEMS WILL CONTRIBUTE TO EXPERIMENTS IN BASIC LEARNING, AND, IN FACT, WILL PERMIT THE STUDY OF VARIABLES RELATING TO RESPONSE CONTINGENCIES THAT CAN NOT BE STUDIED IN ANY OTHER WAY. PROGRAMED INSTRUCTION HAS HELPED IN UNITING TWO FIELDS OF PSYCHOLOGY THAT HAVE DEVELOPED SEPARATELY, BUT THAT NEED TO BE RELATED IN APPLICATION (STOLUROW, 1960; 1961); THESE ARE THE FIELD OF PSYCHOMETRICS, WHICH HAS CONCERNED ITSELF WITH INDIVIDUAL DIFFERENCES IN ABILITIES AND ACHIEVEMENT, AND THE FIELD OF LEARNING WHICH, TO A LARGE EXTENT, HAS IGNORED INDIVIDUAL DIFFERENCES. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-609 156
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
CYBERNETICS IN SCHOOL. (U)
NOV 64 18P LANDA,L. I
MONITOR: FTD .TT TT64 77. ,65 60456

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. OF ZNANIE-SILA (USSR) 1962, V. 37. NO. 10. P. 33-35. LEGIBILITY OF THIS DOCUMENT IS IN PART UNSATISFACTORY. REPRODUCTION HAS BEEN MADE FROM BEST AVAILABLE COPY.

DESCRIPTORS: (*CYBERNETICS, EDUCATION), (*EDUCATION, CYBERNETICS), LEARNING, INSTRUCTORS, STUDENTS, REASONING, PERCEPTION (PSYCHOLOGY), TRAINING DEVICES, TEACHING MACHINES, USSR (U)

TRANSLATION OF RUSSIAN ARTICLE: CYBERNETICS IN SCHOOL.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-609 251
HARVARD UNIV CAMBRIDGE MASS COMMITTEE ON PROGRAMMED INSTRUCTION
DECISION MAKING WITH FREE OPERANT RESPONSES. (U)
JUN 64 24P HOLZ,WILLIAM C. ;
CONTRACT: AF19 628 2404
PROJ: 7682
TASK: 768204
MONITOR: ESD TDR64 449

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*DECISION MAKING, PSYCHOMETRICS), (*LEARNING, DECISION MAKING), (*HUMAN ENGINEERING, DECISION MAKING), BEHAVIOR, REACTION (PSYCHOLOGY), CONDITIONED REFLEX, PERFORMANCE (HUMAN), STUDENTS, PERFORMANCE TESTS (U)
IDENTIFIERS: PROGRAMMED INSTRUCTION (U)

THESE EXPERIMENTS EXPLORED THE SUITABILITY OF FREE OPERANT TECHNIQUES IN THE INVESTIGATION OF CHOICE BEHAVIOR AND DECISION MAKING. YOUNG ADULTS WERE THE SUBJECTS. TWO RESPONSE MANIPULANDA WERE AVAILABLE, AND POINTS WERE INTERMITTENTLY SCHEDULED IN DIFFERENT PROPORTIONS FOR EACH. THE NUMBER OF POINTS AT THE END OF THE SESSION DETERMINED THE SUBJECTS' PAYMENT. THE SCHEDULE BY WHICH THE POINTS COULD RESULT WAS THE INDEPENDENT VARIABLE, AND THE RELATIVE FREQUENCY OF THE TWO RESPONSES, WHICH REPRESENTED THE SUBJECT'S CHOICE, WAS THE DEPENDENT VARIABLE. WHEN THE POINTS WERE SCHEDULED RANDOMLY IN TIME, THE ANTICIPATED RESULT ON THE BASIS OF PREVIOUS FINDINGS WAS THAT THE RELATIVE FREQUENCY OF RESPONSE WOULD MATCH THE RELATIVE FREQUENCY OF POINTS. THE OBSERVED RESULT DID NOT CLEARLY FOLLOW THIS PATTERN. OVER THE PERIOD STUDIED, THE PATTERN WAS ONE OF APPROXIMATELY EQUAL RESPONDING TO BOTH CHOICES REGARDLESS OF THE RELATIVE FREQUENCY OF POINTS OBTAINED. IN TWO SIMILAR EXPERIMENTS THE POINTS WERE SCHEDULED RANDOMLY IN TIME, BUT A REQUIREMENT WAS ADDED THAT RESPONSES MUST BE SPACED AT TWO SECOND INTERVALS TO PRODUCE A POINT. THE PURPOSE OF THIS EXPERIMENT WAS TO DETERMINE IF REDUCING THE HIGH RATE OF RESPONSE OBSERVED IN THE PREVIOUS EXPERIMENT WOULD LEAD THE RELATIVE FREQUENCY OF RESPONSE TO CONFORM WITH THE EXPECTED PATTERN, UNDER THESE CONDITIONS. THE RESULTS CLOSELY APPROXIMATED THE MATCHING MODEL. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-609 368
ELECTRONIC SYSTEMS DIV L G HANSCOM FIELD MASS
HUMAN ENGINEERING IN THE DESIGN OF INSTRUCTIONAL SYSTEMS. (U)
SEP 64 19P MAYER,SYLVIA R. I
PROJ: 7682
TASK: 768204
MONITOR: ESD TDR64 454

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*HUMAN ENGINEERING, TRAINING DEVICES), (*TEACHING MACHINES, HUMAN ENGINEERING), EDUCATION, INSTRUCTORS, STUDENTS, LEARNING, DECISION MAKING, PERFORMANCE (HUMAN), DISPLAY SYSTEMS, RELIABILITY, DESIGN (U)

A CONCEPTUAL MODEL IS PROPOSED FOR THE USE IN THE APPLICATION OF HUMAN ENGINEERING PRINCIPLES AND TECHNIQUES TO THE DESIGN OF INSTRUCTIONAL SYSTEMS. THE TRAINEE AND INSTRUCTOR ARE VIEWED AS OPERATORS WITHIN AN INFORMATION SYSTEM. TO ILLUSTRATE THIS MODEL AND ITS APPLICATION, EXAMPLES ARE DRAWN FROM THE LITERATURE AND FROM CURRENT RESEARCH ON INSTRUCTIONAL SYSTEMS. A PRELIMINARY HUMAN ENGINEERING GUIDE IS OUTLINED WHICH PRESENTS FACTORS CRITICAL TO DESIGN DECISIONS FOR INSTRUCTIONAL SYSTEMS. THE MODEL AND GUIDE ATTEMPT TO COUNTERACT CURRENT TENDENCIES TOWARD PREMATURE STANDARDIZATION OF INSTRUCTIONAL SYSTEM STRUCTURE, AND TO BRING INSTRUCTIONAL SYSTEM DEVELOPMENT INTO THE MAIN STREAM OF THE APPLIED SCIENCE OF HUMAN ENGINEERING. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-609 486
UTAH UNIV SALT LAKE CITY
INFORMATION AND SCIENTIFIC CREATIVITY, (U)
JUN 64 20P TAYLOR,CALVIN W. ;
CONTRACT: AF AFOSR144 63
MONITOR: AFOSR , 64 2502

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PAPER PRESENTED AT THE SECOND SYMPOSIUM OF THE FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY, 13 APR 64, ON THE TOPIC, 'TECHNICAL INFORMATION AND THE FEDERAL LABORATORY.'

DESCRIPTORS: (*SCIENTIFIC PERSONNEL, PERFORMANCE (HUMAN)), (*INFORMATION RETRIEVAL, SCIENTIFIC PERSONNEL), HUMAN ENGINEERING, SUPERVISORY PERSONNEL, SYMPOSIA, INTELLIGENCE TESTS, LEARNING, MEMORY, REASONING, INDUSTRIAL PSYCHOLOGY (U)
IDENTIFIERS: CREATIVE THINKING (U)

IN THIS PAPER THE PROBLEM OF STUDYING WHAT CONSTITUTES EFFECTIVENESS AND CREATIVITY IN A SCIENTIST IS DISCUSSED. THE WAY THE SCIENTIST RECEIVES AND HANDLES INFORMATION, THE INTELLECTUAL CLIMATE IN WHICH HE WORKS, AND THE NATURE OF THE INFORMATION RECEIVED BY HIM ARE ALL EXAMINED IN THEIR BEARING ON THE CREATIVE PROCESS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-609 540
ILLINOIS UNIV URBANA TRAINING RESEARCH LAB
A MODEL AND CYBERNETIC SYSTEM FOR RESEARCH ON THE TEACHING-LEARNING PROCESS. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT. NO. 4,
SEP 64 45P STOLUROW,LAWRENCE M. ;
CONTRACT: NONR398504
PROJ: NR154 239

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPT. ON RESEARCH ON PRE-PROGRAMED SELF-INSTRUCTION AND SELF-PROGRAMED INDIVIDUALIZED EDUCATION. PRESENTED AT A SYMPOSIUM ON PSYCHOLOGICAL PROBLEMS ON CYBERNETIC RESEARCH HELD AT HUMBOLDT UNIV., BERLIN, E. GERMANY, SEP 64. THIS PAPER, IN GERMAN, WILL BE PUBLISHED IN THE PROCEEDINGS OF THE SYMPOSIUM.

DESCRIPTORS: (*LEARNING, ANALYSIS), (*CYBERNETICS, EDUCATION), PERSONALITY, PSYCHOMETRICS, INSTRUCTORS, TEACHING MACHINES, DECISION THEORY, SCIENTIFIC RESEARCH (U)
IDENTIFIERS: MAN-MACHINE SYSTEMS, SOCRATES (U)

THE PAPER FIRST PRESENTS THE BASIS ELEMENTS OF A LEARNING THEORY THAT DISTINGUISHES AMONG THREE INTERRELATED PROCESSES, AND THEN DESCRIBES THE WAY IN WHICH THESE PROCESSES DETERMINE THE REQUIREMENTS OF AN ADAPTIVE TEACHER. THE LEARNING-TEACHING PROCESS IS CONSIDERED AS A CYBERNETIC MAN-MACHINE SYSTEM AND ONE WHICH IS DESIGNED TO TAKE INTO ACCOUNT INDIVIDUAL DIFFERENCES IN LEARNERS. THE SOCRATES DESIGN AND THE CHARACTERISTICS OF IDIOMORPHIC PROGRAMING ARE INDICATED. THIS PART OF THE PAPER ELUCIDATES THE CONCEPTION AND ILLUSTRATES, IN OPERATIONAL TERMS, THE WAY IN WHICH DIFFERENT CHARACTERISTICS OF LEARNERS ARE TAKEN INTO ACCOUNT IN IDIOMORPHIC PROGRAMING WHICH IS IMPLEMENTED AS A TWO-STAGE DECISION PROCESS. SOME RESEARCH IS CITED TO INDICATE THE BASIS FOR INCLUDING CERTAIN FEATURES IN THE SYSTEM DESIGN AND OTHER RESEARCH. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-609 749
MASSACHUSETTS INST OF TECH CAMBRIDGE ENGINEERING PROJECTS LAB
HUMAN USE OF SHORT TERM MEMORY IN PROCESSING INFORMATION ON A CONSOLE. (U)
SEP 64 49P ZEIGLER,BERNARD P. ;SHERIDAN, THOMAS B. ;
REPT. NO. DSR-9960-1
CONTRACT: AF19 628 3317
PROJ: 7682
TASK: 768204
MONITOR: ESD TDR64 620

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*COMPUTER PERSONNEL, MEMORY), (*COMPUTER STORAGE DEVICES, HUMAN ENGINEERING), DECISION MAKING, COMPUTERS, INFORMATION RETRIEVAL, DATA PROCESSING SYSTEMS, DATA STORAGE SYSTEMS, COMMUNICATION THEORY, LEARNING (U)
IDENTIFIERS: MAN-MACHINE SYSTEMS (U)

THE REPORT ASSUMES THAT AN OPERATOR'S CONSOLE CONSTITUTES A THIRD FORM OF MEMORY IN ADDITION TO THAT INTEGRAL TO THE HUMAN AND THAT INTEGRAL TO THE MACHINE WHICH IS NOT DIRECTLY ACCESSIBLE TO THE HUMAN. QUESTIONS ARE RAISED CONCERNING THE CHARACTERISTIC MODES OF HUMAN STORAGE AND RETRIEVAL OF INFORMATION FROM INTERNAL MEMORY WHEN SUCH EXTERNAL MEMORY IS ACCESSIBLE. THE REPORT ALSO INTRODUCES THE CONCEPT OF ASSOCIATIVE MEMORY NETS FORMED BY CUERELATED IMAGES OF EXTERNAL EVENTS. A LIST PROCESSING EXPERIMENT IS DESCRIBED. STORAGE STRUCTURES CHARACTERIZING INTERNAL HUMAN MEMORY AND EXTERNAL CONSOLE MEMORY IN THIS TASK ARE POSTULATED. A RETRIEVAL MODEL IMPLIED BY THESE STURCTURES IS CONSTRUCTED TO ACCOUNT FOR THE EFFECTS OF COMPUTATION AND LEARNING UPON THE FEATURES OF THE EXPERIMENTALLY OBTAINED CURVES. INSUFFICIENT RETRIEVAL OF REQUIRED INFORMATION FROM INTERNAL MEMORY IS ASSUMED TO NECESSITATE EXTERNAL MEMORY SEARCH. THE EFFECT OF COMPUTATION IS TO INCREASE THE PROBABILITY OF INSUFFICIENT RETRIEVAL AND HENCE THE FREQUENCY OF EXTERNAL SEARCH. LEARNING DECREASES THIS PROBABILITY. THE EFFECTS OF INDUCING ALTERNATE FORMS OF INTERNAL STORAGE ARE STUDIED AND FOUND GENERALLY TO RESULT IN INCREASED STORAGE AND RETRIEVAL TIMES. IMPLICATIONS FOR CONSOLE DESIGN ARE DISCUSSED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-609 801
PITTSBURGH UNIV PA
AN EVALUATION OF MULTIPLE TRACKS IN A LINEAR PROGRAM. (U)
DESCRIPTIVE NOTE: FINAL REPT. FOR OCT 61-OCT 62.
OCT 64 22P GLASER,ROBERT ;REYNOLDS, JAMES H. ;HARAKAS,THEODORE;HOLZMAN,A. G. ; ABMA,JOHN S. ;
CONTRACT: AF33 616 7175
PROJ: 1710
TASK: 171007
MONITOR: AMRL . TR64 108

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TRAINING DEVICES, TEACHING MACHINES), (*TEACHING MACHINES, PSYCHOMETRICS), (*PSYCHOMETRICS, TEACHING MACHINES), TRAINING, LINEAR SYSTEMS, LEARNING, PSYCHOLOGY, VERBAL BEHAVIOUR, PERFORMANCE (HUMAN), TESTS, EDUCATION (U)

TWO EXPERIMENTS WERE PERFORMED TO EVALUATE MULTITRACKING (BRANCHING) IN A LINEAR PROGRAM. IN EXPERIMENT ONE, THE MULTITRACKING CONSISTED OF PROVIDING ADDITIONAL CUES AT EACH FRAME FOR USE BY THOSE STUDENTS WHO FELT UNSURE OF THEIR RESPONSE. RESULTS INDICATED NO SIGNIFICANT DIFFERENCE IN EFFICIENCY BETWEEN THE REGULAR LINEAR PROGRAM AND THE MULTITRACK PROGRAM. IN EXPERIMENT TWO, THE MULTITRACKING CONSISTED OF LARGE FRAMES FOLLOWED BY MORE DETAILED FRAMES WHENEVER THE STUDENT MADE AN ERROR. LARGE FRAMES WERE DEVELOPED BY COMBINING AN AVERAGE OF THREE SMALL FRAMES. AGAIN, THE RESULTS INDICATED NO DIFFERENCE IN INSTRUCTIONAL EFFICIENCY BETWEEN THE REGULAR LINEAR PROGRAM AND THE MULTITRACK PROGRAM. ALTHOUGH MORE ERRORS WERE MADE ON THE LARGESTEP BRANCHING PROGRAM, PERFORMANCE ON CRITERION TESTS WAS AS GOOD AS FOR THE REGULAR SMALL-STEP LINEAR PROGRAM. ALTHOUGH BRANCHING SEEMS A REASONABLE WAY TO ACCOMMODATE INDIVIDUAL DIFFERENCES, THE TWO METHODS ATTEMPTED IN THIS RESEARCH DID NOT SHOW AN ADVANTAGE. MORE PROMISING METHODS OF BRANCHING MIGHT BE (A) LESS FREQUENT BRANCHES, AT CRITICAL POINTS IN THE PROGRAM, AND (B) LARGE-STEP FRAMES FOLLOWED BY SPECIAL REMEDIAL FRAMES, RATHER THAN BY MERE REPETITION OF PARTS OF THE ORIGINAL LARGE FRAME. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-609 802
PITTSBURGH UNIV PA
LEARNING SET FORMATION IN PROGRAMMED INSTRUCTION. (U)
DESCRIPTIVE NOTE: FINAL REPT. FOR OCT 61-OCT 62.
NOV 64 21P REYNOLDS,JAMES H. ;GLASER, ROBERT ;ABMA,JOHN S. ;
CONTRACT: AF33 616 7175 ,OE2 10 057
PROJ: 1710
TASK: 171007
MONITOR: AMRL . TR64 114

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-609 801.

DESCRIPTORS: (*TRAINING DEVICES, TEACHING MACHINES), (*TEACHING MACHINES, PSYCHOMETRICS), (*PSYCHOMETRICS, TEACHING MACHINES), TRAINING, LEARNING, PSYCHOLOGY, VERBAL BEHAVIOUR, PERFORMANCE (HUMAN), TESTS, EDUCATION (U)
IDENTIFIERS: PROGRAMMED INSTRUCTION (U)

TWO DIFFERENT ORDERS OF THREE UNITS OF PROGRAMED INSTRUCTION WERE ADMINISTERED TO GROUPS OF STUDENTS MATCHED ON (A) INTELLIGENCE OR (B) RELEVANT ACHIEVEMENT TESTS. COMPARISONS WERE MADE BETWEEN GROUPS THAT WERE (A) HIGH OR (B) AVERAGE ON EACH MATCHING VARIABLE. THE HYPOTHESES BEING TESTED WERE THAT AFTER VARIED AMOUNTS OF PRIOR PRACTICE IN PROGRAMED INSTRUCTION, (A) LEARNING SET FORMATION WOULD NOT BE DEMONSTRATED BY THE HIGH INTELLIGENCE AND HIGH ACHIEVEMENT GROUPS, AND (B) LEARNING SET FORMATION WOULD BE DEMONSTRATED BY THE AVERAGE INTELLIGENCE AND AVERAGE ACHIEVEMENT GROUPS. ONLY PARTIAL SUPPORT WAS OBTAINED FOR EACH HYPOTHESIS. THE DATA INDICATED THE FOLLOWING: (A) IN A PROGRAMED SEQUENCE, ERROR RATE IS A MORE APPROPRIATE MEASURE THAN ACHIEVEMENT FOR OBSERVING LEARNING SET FORMATION. (B) LEARNING SET FORMATION IS OBSERVABLE IN PROGRAMED INSTRUCTION FOR ALL LEARNERS REGARDLESS OF INDIVIDUAL DIFFERENCES. SINCE, REDUCED ERROR RATE WAS THE INDICATION OF LEARNING SET FORMATION, THE PHENOMENON CAN BE MEASURED ONLY IN PROGRAMS INVOLVING A MODERATELY HIGH ERROR RATE. (C) SINCE ERROR RATE DIFFERED FOR SOME OF THE EXPERIMENTAL GROUPS WHILE ACHIEVEMENT REMAINED THE SAME, THE RESULTS WERE INTERPRETED TO MEAN THAT A MODERATELY HIGH ERROR RATE PROGRAM WHICH OFFERS OPPORTUNITY FOR CORRECTION OF RESPONSE ERRORS MAY BE AS EFFECTIVE IN PRODUCING LEARNING AS A LOW ERROR RATE PROGRAM. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-610 093
ENTELEK INC NEWBURYPORT MASS
PROGRAMMED INSTRUCTION IN RETAIL SALES. (U)
DESCRIPTIVE NOTE: FINAL REPT. FOR SEP 61-SEP 62.
OCT 62 41P HICKEY,ALBERT E. ;LAIDLAW,
WILLIAM J. ;
CONTRACT: NONR3630(00

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*NAVAL PERSONNEL, LEARNING), (*LEARNING, PSYCHOMETRICS), EDUCATION, EFFECTIVENESS, INSTRUCTORS, MANAGEMENT ENGINEERING, COMMERCE, ACHIEVEMENT TESTS, RETENTION, ATTITUDES, TIME (U)
IDENTIFIERS: PROGRAMMED INSTRUCTION (U)

THE REPORT DESCRIBES THE FIRST FULL-COURSE EVALUATION OF PROGRAMMED INSTRUCTION IN THE NAVY. PROGRAMMED INDIVIDUAL INSTRUCTION WAS SUBSTITUTED FOR PART OF THE LECTURE AND DISCUSSION, AND FOR ALL OF THE HOMEWORK ASSIGNMENTS IN AN 11-WEEK COURSE IN RETAIL SALES AND SHIP'S STORE MANAGEMENT AT THE U. S. NAVY SUPPLY CORPS SCHOOL. SEVENTY-EIGHT OFFICER STUDENTS FOLLOWED THE NEW PROCEDURE, 52 FOLLOWED THE USUAL PROCEDURE. THE PROGRAM GROUP SAVED 56 PER CENT OF THE USUAL HOMEWORK TIME, OR 17 PER CENT OF THE USUAL OVER-ALL STUDY TIME, AND THE INSTRUCTORS OF THE PROGRAM GROUP SAVED 54 PER CENT OF THE USUAL LECTURE HOURS. ACHIEVEMENT AND RETENTION IN THE PROGRAM GROUP WERE EQUAL TO THAT IN THE CONTROL GROUP. THE PROGRAM GROUP SHOWED MORE HOMOGENEOUS PERFORMANCE WITH AUDITING AND PROBLEM-SOLVING PROCEDURES. A SURVEY OF STUDENT ATTITUDES DISCLOSED THAT A MAJORITY OF THE PROGRAM STUDENTS FELT THE PROGRAM WAS MOST EFFECTIVE IN TEACHING AUDITING AND OTHER PROBLEMSOLVING PROCEDURES AND WERE AGREEABLE TO RECEIVING PROGRAMMED INSTRUCTION IN THE FUTURE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKCB

AD-610 214
RAND CORP SANTA MONICA CALIF
THE ROLE OF THE COMPUTER IN SECONDARY SCHOOLS. (U)
JAN 65 5P GRUENBERGER,F. J. ;
REPT. NO. P-3044

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE ANNUAL CONVENTION OF THE NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS, DENVER, COLO., 28 - 30 JAN. 65.

DESCRIPTORS: (*COMPUTERS, EDUCATION), (*EDUCATION, COMPUTERS), TRAINING, COMPUTER PERSONNEL, STUDENTS, THEORY (U)

THE DESIRABILITY OF HIGH SCHOOL COMPUTING COURSES IS DISCUSSED. REASONS ARE ADVANCED TO JUSTIFY HAVING COMPUTERS IN HIGH SCHOOLS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-610 572
OTIS ELEVATOR CO BROOKLYN N Y DEFENSE AND INDUSTRIAL DIV
ADAPTIVE TRAINING AND NONVERBAL BEHAVIOR. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT..
JUL 64 36P HUDSON,EDWIN M. ;
CONTRACT: N61339 1395
MONITOR: NAVTRADEVCEN . 1395 1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TRANSFER OF TRAINING, LEARNING), (*TRAINING DEVICES, TRACKING), TEACHING MACHINES, PERFORMANCE (HUMAN), BEHAVIOR, PERFORMANCE TESTS, PSYCHOMOTOR TESTS, DISPLAY SYSTEMS, SIMULATORS, ERRORS, FEEDBACK, SELECTION (U)
IDENTIFIERS: PREDICTION, PROGRAMMED INSTRUCTION (U)

A STUDY OF TRANSFER OF TRAINING IN DYNAMIC TRACKING TASKS AS A FUNCTION OF THE DIFFICULTY LEVELS AND PLANT CHARACTERISTICS USED DURING PRACTICE WITH AN ADAPTIVE TRAINER. GROUPS TRAINED IN THE ADAPTIVE MODES SHOWED GREATER TRANSFER FROM PRACTICE TO THE TEST CONDITIONS THAN DID THE CONTROL GROUPS WHO PRACTICED ON THE CRITERION. NEITHER CHANGES IN PLANT CHARACTERISTICS NOR METHODS OF REGULATING THE ADAPTIVE PARAMETERS HAD ANY SIGNIFICANT EFFECT UPON THE AMOUNT OF LEARNING EXCEPT AS THEY AFFECTED THE LEVEL OF DIFFICULTY OF THE TASK DURING PRACTICE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-610 638
MASSACHUSETTS INST OF TECH CAMBRIDGE OPERATIONS RESEARCH CENTER
PRELIMINARY RESEARCH ON THE TAXONOMY OF SUBJECT MATTER. (U)
DESCRIPTIVE NOTE: TECHNICAL NOTE NO. 3.
NOV 64 36P RODERBURG,T. K. ;CLUCK,H. D. ;
MURRAY,G. R. ,JR.;
CONTRACT: AF19 628 2407
PROJ: 7682
TASK: 768204
MONITOR: ESD TDR64 618

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-602 660.

DESCRIPTORS: (*TEACHING MACHINES, COMPUTERS), (*PROGRAMMING (COMPUTERS, TEACHING MACHINES), TRAINING, EDUCATION, CLASSIFICATION, PROGRAMMING LANGUAGES, MACHINE TRANSLATION, DATA PROCESSING SYSTEMS, OPERATION RESEARCH (U)

PRELIMINARY RESEARCH IN THE TAXONOMY OF SUBJECT MATTER IS REPORTED. THIS WORK IS PART OF A PROGRAM OF STUDY AIMED AT DEVELOPING COMPUTATIONAL METHODS USEFUL IN THE PREPARATION OF EDUCATIONAL MATTER FOR PRESENTATION BY MACHINE. BASIC CONCEPTS OF SUBJECT STRUCTURE ARE DEFINED. A LANGUAGE PROCESSING PROGRAM THAT ASSISTS THE CLASSIFICATION OF SUBJECT MATTER IS DESCRIBED AND ITS USE ILLUSTRATED. AN EXPERIMENT ON THE VARIATIONS IN SUBJECT STRUCTURE AS SEEN BY DIFFERENT INDIVIDUALS IS REPORTED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-610 698
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
REMOTE COMPUTER USAGE; IMPLICATIONS FOR
EDUCATION. (U)
DESCRIPTIVE NOTE: PROFESSIONAL PAPER,
JAN 65 13P ROWAN,T. C. ;
REPT. NO. SP-1653

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE 1964 TIMS-ORSA
JOINT NATIONAL MEETING SEP 64.

DESCRIPTORS: (*EDUCATION, COMPUTERS), (*COMPUTERS,
EDUCATION), TEACHING MACHINES, SIMULATION, INFORMATION
RETRIEVAL, INSTRUCTORS, REMOTE CONTROL SYSTEMS,
CYBERNETICS (U)
IDENTIFIERS: TIME SHARING (COMPUTERS), PROGRAMMED
INSTRUCTION (U)

EXPERIMENTAL OPERATION OF COMPUTERS BY MULTIPLE
USERS LOCATED REMOTELY IS BEING EXTENDED WITH
INCREASING MOMENTUM INTO A VARIETY OF FIELDS.
PROBLEMS WITH EQUIPMENT, COMPUTER PROGRAMS, AND
OTHER SYSTEM ELEMENTS ARE BEING EXAMINED, AND
PRELIMINARY SOLUTIONS ARE BEING TESTED AND EVALUATED.
THE PAPER BRIEFLY REVIEWS THESE DEVELOPMENTS AND
DISCUSSES THE FOLLOWING AND SEVERAL OTHER IMPORTANT
IMPLICATIONS FOR EDUCATION: THE IMPACT ON CLASSROOM
PROCEDURES, CURRICULUM DESIGN, AND PROGRAMMED
INSTRUCTION; THE CONSEQUENT CENTRALIZATION OF
ADMINISTRATIVE SUPPORT AND EFFECTS ON LOCAL AUTONOMY;
THE RESULTING ACCELERATION IN THE INTRODUCTION OF
COMPUTERS IN TECHNICAL EDUCATION AT THE UNIVERSITY,
COLLEGE, AND SECONDARY-SCHOOL LEVEL. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-610 743
ARMY PERSONNEL RESEARCH OFFICE WASHINGTON D C
CODING UPDATED ALPHA-NUMERIC INFORMATION IN
INDIVIDUAL AND GROUP DISPLAYS. (U)
DEC 64 35P HAMMER,CHARLES H, IRINGEL,
SEYMOUR I
REPT. NO. TRN-151
PROJ: 2J024701A723

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-600 036, AD-601 973.

DESCRIPTORS: (*DISPLAY SYSTEMS, LEARNING), (*IDENTIFICATION, DISPLAY SYSTEMS), COMMAND AND CONTROL SYSTEMS, COMMUNICATION THEORY, INFORMATION RETRIEVAL, DECISION MAKING, REACTION (PSYCHOLOGY), PSYCHOMETRICS, VISUAL PERCEPTION, ARMY PERSONNEL (U)

THE PRINCIPAL OBJECTIVES WERE TO EVALUATE THE EFFECTS OF CONSPICUITY CODING OF UPDATED INFORMATION AND TO COMPARE THE RELATIVE EFFECTS OF INDIVIDUAL AND GROUP DISPLAYS. SUBJECTS WERE REQUIRED TO LOCATE CODED AND UNCODED UPDATED ALPHA-NUMERIC INFORMATION. AMOUNT OF INFORMATION PRESENTED AND AMOUNT OF INFORMATION UPDATED WERE VARIED. IT WAS FOUND THAT: (1) MEAN TIME REQUIRED TO LOCATE CODED UPDATES WAS ABOUT 45% SHORTER THAN THE TIME REQUIRED TO LOCATE UNCODED UPDATES. (2) LOCATION TIMES FOR CODED UPDATES WERE ESSENTIALLY EQUAL FOR INDIVIDUAL AND GROUP DISPLAYS, BUT MEAN TIME REQUIRED TO LOCATE UNCODED UPDATES WAS ABOUT 15% SHORTER WITH INDIVIDUAL THAN WITH GROUP DISPLAYS. (3) USE OF CODED UPDATES RESULTED IN A REDUCTION OF ERRORS BY ABOUT 50%. (4) ERRORS OF OMISSION EXCEEDED ERRORS OF COMMISSION BY MORE THAN 3 TO 1. FINDINGS LEND SUPPORT TO THE INCORPORATION AND USE OF CODING CAPABILITIES IN CURRENT AND PROPOSED COMMAND SYSTEMS, WHILE FINDINGS REGARDING INDIVIDUAL VS GROUP DISPLAYS ARE NOT CONCLUSIVE, THEY DO SUGGEST THAT IF UNCODED UPDATED INFORMATION IS PRESENTED, THERE MAY BE A WHOLE SERIES OF INFORMATION ASSIMILATION TASKS WHICH CAN BE MORE EFFICIENTLY ACCOMPLISHED WITH INDIVIDUAL THAN WITH GROUP DISPLAYS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-610 860
ELECTRONIC SYSTEMS DIV L G HANSCOM FIELD MASS
A TECHNIQUE FOR OBTAINING NON-DICHOTOMOUS MEASURES OF SHORT-TERM MEMORY. (U)
DEC 64 49P BAKER, JAMES D. ;
REPT. NO. TR-64-678
PROJ: 4690
TASK: 469003

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-437 917.

DESCRIPTORS: (*MEMORY, PSYCHOMETRICS), (*PSYCHOMETRICS, MEMORY), BEHAVIOR, RECALL, LEARNING, HUMAN ENGINEERING, PROBABILITY, DECISION THEORY, PERFORMANCE (HUMAN), EXPERIMENTAL DATA (U)
IDENTIFIERS: PROGRAMMED INSTRUCTION (U)

PERFORMANCE MEASURES IN SHORT-TERM MEMORY (STM) GENERALLY USE DICHOTOMOUS SCORES AS INDICANTS OF A PROCESS WHICH IS ASSUMED TO BE CONTINUOUSLY DISTRIBUTED. THE PURPOSE OF THIS PAPER IS TO DESCRIBE A TECHNIQUE FOR MEASURING STM WHICH IS NOT BASED UPON DICHOTOMOUS SCORING CRITERIA. THE CONCEPTUAL FRAMEWORK OF THIS TECHNIQUE IS DERIVED FROM CURRENT THEORETICAL DEVELOPMENTS IN THE MEASUREMENT OF SUBJECTIVE (PERSONAL OR INTUITIVE) PROBABILITIES. AN STM FEASIBILITY STUDY WAS CONDUCTED TO ASSESS THIS APPROACH. PERFORMANCE MEASURES WERE OBTAINED USING A DEVICE THAT PRODUCED RESPONSE VECTORS. THESE RESPONSE VECTORS WERE TRANSFORMED INTO EQUIVALENT DICHOTOMOUS SCORES AND UNCERTAINTY MEASURES. THE DERIVED DICHOTOMOUS DATA WERE COMPARED TO DATA OBTAINED FROM EQUIVALENT, DICHOTOMOUSLY SCORED STUDIES. THIS COMPARISON SHOWED NO DELETERIOUS EFFECTS ON RECALL WHEN THIS RESPONSE MODE WAS USED. THE UNCERTAINTY MEASURES SHOWED WELLDEFINED EVIDENCE OF THE EFFECTS OF PROACTIVE INHIBITION IN THIS TASK. CONFIDENCE JUDGMENTS WERE DERIVED FROM THE RESPONSE VECTORS. THESE DERIVED CONFIDENCE JUDGMENTS WERE FOUND TO BE AT LEAST AS GOOD, IN TERMS OF REALISM OF CONFIDENCE MEASURES, AS SEVERAL EXISTING TECHNIQUES FOR OBTAINING CONFIDENCE JUDGMENTS DIRECTLY. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OMK08

AD-611 057
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
COMPUTER TECHNOLOGY AND APPLICATIONS TO
EDUCATION. (U)
DESCRIPTIVE NOTE: PROFESSIONAL PAPER,
SEP 64 20P STERNLICHT,I. R. ;ROWAN,T. C. ;
REPT. NO. SP-1850

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE OPERATIONS RESEARCH SOCIETY OF AMERICA, HONOLULU, HAWAII, 17 SEP 64.

DESCRIPTORS: (*COMPUTERS, REVIEWS), (*EDUCATION, COMPUTERS), OPERATIONS RESEARCH, MANAGEMENT ENGINEERING, COMMUNICATION THEORY, DATA PROCESSING SYSTEMS, DOCUMENTATION, EFFECTIVENESS (U)

THE ELECTRONIC COMPUTER, MAINSTAY OF AN ADVANCED INFORMATION PROCESSING TECHNOLOGY, IS DESCRIBED AS BEING CENTRAL TO THE SOLUTION OF INFORMATION MANAGEMENT AND CONTROL PROBLEMS IN EDUCATION. CURRENT APPLICATIONS OF COMPUTER AND INFORMATION SYSTEM TECHNOLOGY IN SCHOOLS AND COLLEGES ARE DISCUSSED IN A STATE-OF-THE-ART SUMMARY WHICH INCLUDES A WIDE RANGE OF COMPUTER ACTIVITIES IN SCHOOL BUSINESS ACCOUNTING, STUDENT AND FACULTY PERSONNEL ACCOUNTING, ADMINISTRATION AND GUIDANCE, SIMULATION AND GAMING, INFORMATION RETRIEVAL, AND RESEARCH AND INSTRUCTION. PRESENT APPLICATIONS OF COMPUTER AND INFORMATION SYSTEM TECHNOLOGY TO EDUCATION ARE VIEWED AS BEING LIMITED IN SCOPE LARGELY BECAUSE OF THE LACK OF UNDERSTANDING BY EDUCATORS OF THE POTENTIAL USE OF COMPUTERS RATHER THAN TECHNICAL PROBLEMS. CONTRIBUTING TO THE LIMITATIONS IN PRESENT USAGE IS THE FRAGMENTED APPROACH TO SYSTEM DESIGN. A TOTAL SYSTEMS APPROACH IS DESCRIBED AS A MORE FRUITFUL MEANS OF SERVING THE INFORMATION NEEDS OF THE ADMINISTRATOR, TEACHER, COUNSELOR, STUDENT, AND SCHOOL BUSINESS OFFICIAL. THE PREDICTION IS MADE THAT CURRENT RESEARCH AND DEVELOPMENT PROGRAMS IN EDUCATIONAL INFORMATION SYSTEMS AND COMPUTER TECHNOLOGY COULD LEAD TO MAJOR CHANGES IN THE FORM AND SUBSTANCE OF AMERICAN EDUCATION AT BOTH THE SCHOOL AND COLLEGE LEVEL. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-611 097
ILLINOIS UNIV URBANA COORDINATED SCIENCE LAB
THE USE OF AN AUTOMATIC COMPUTER SYSTEM IN TEACHING. (U)
SEP 62 36P BRAUNFELD,P. G. ;FOSDICK,L. D. ;
REPT. NO. R-160
CONTRACT: DA36 039SC85122
TASK: 3 99 01 002
MONITOR: N63 . 13814

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*EDUCATION, COMPUTERS), (*TEACHING MACHINES, PROGRAMMING (COMPUTERS)), EFFECTIVENESS, STUDENTS, LEARNING, PERFORMANCE (HUMAN), CYBERNETICS, ANALYSIS (U)
IDENTIFIERS: PLATO (U)

PLATO II IS AN AUTOMATIC TEACHING DEVICE DESIGNED TO TEACH A NUMBER OF STUDENTS CONCURRENTLY, BUT INDEPENDENTLY, BY MEANS OF A SINGLE, CENTRAL, HIGH-SPEED COMPUTER. ONLY TWO STUDENT SITES HAVE BEEN CONSTRUCTED THUS FAR, BUT, IN PRINCIPAL, THE NUMBER OF STUDENTS THAT CAN BE TAUGHT BY PLATO II IS LIMITED ONLY BY THE CAPACITY AND SPEED OF THE CENTRAL COMPUTER. THE POWER OF SUCH A COMPUTERBASED TEACHING SYSTEM STEMS FROM ITS ABILITY TO ASK COMPLEX QUESTIONS, JUDGE THE STUDENTS' ANSWERS TO THESE QUESTIONS, AND TAKE AN APPROPRIATE COURSE OF ACTION ON THE BASIS OF STUDENT RESPONSES. THE COMPUTER ALSO KEEPS DETAILED AND ACCURATE RECORDS OF STUDENT PERFORMANCE, WHICH ARE EXTREMELY USEFUL GUIDES TO IMPROVING COURSE CONTENT. THE PAPER REPORTS IN SOME DETAIL A STUDY USING PLATO II TO TEACH NINE UNDERGRADUATE STUDENTS A PORTION OF A COURSE ON COMPUTER PROGRAMMING. SOME ANALYSIS AND INTERPRETATION OF DATA GATHERED BY THE COMPUTER DURING THE STUDY ARE REPRESENTED. THE APPARENT EFFECTIVENESS OF PLATO II AS A TEACHER, AS WELL AS THE KINDS OF PROBLEMS ENCOUNTERED IN PREPARING LESSON MATERIAL FOR AN AUTOMATIC SYSTEM, IS DISCUSSED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-611 334
GRAFIX INC ALBUQUERQUE N MEX
A GENERAL ADAPTIVE MOTOR LEARNING PROGRAM FOR A
DIGITAL COMPUTER, PART I, SECTIONS I AND II. (U)
DESCRIPTIVE NOTE: FINAL TECHNICAL REPT.,
DEC 64 99P BUSSEY,GENE R. ;
CONTRACT: AF49 638 1203
MONITOR: AFOSR , 65-0275 P1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-611 335.

DESCRIPTORS: (*LEARNING, HUMANS), (*PROGRAMMING (COMPUTERS), PERCEPTION (PSYCHOLOGY)), (*PERCEPTION (PSCHOLOGY), SIMULATION), (*ARTIFICIAL INTELLIGENCE, PROGRAMMING (COMPUTERS)), DIGITAL COMPUTERS, MEMORY, MOTOR REACTIONS, MACHINES, CYBERNETICS (U)
IDENTIFIERS: MOTOR LEARNING (U)

THE GOAL OF THIS RESEARCH EFFORT IS THE ULTIMATE REALIZATION OF A PRACTICAL ADAPTIVE SYSTEM WHICH WOULD BE AN ADEQUATE BASIS FOR A ROBOT WITH MANLIKE CAPABILITIES--SAY, ONE FILLING THE ROLE OF MAN IN AN UNHOSPITABLE SPACE ENVIRONMENT. CONSEQUENTLY, AND EFFORT HAS BEEN MADE FROM THE VERY BEGINNING TO INCORPORATE THE RUDIMENTS OF ALL THE MAJOR SUBSYSTEMS THOUGHT NECESSARY AND TO ATTAIN A REALISTIC DRIVE SUBSYSTEM OF THE COMPLEXITY BELIEVED ESSENTIAL TO AN AUTOMATION WHICH NOT ONLY HAS A VARIETY OF JOBS TO DO BUT MUST IN ADDITION IMPROVE ITSELF IN GENERAL AND TAKE CARE OF ITS PHYSICAL NEEDS. BECAUSE SOME SUCCESSFUL WORK HAD ALREADY BEEN DONE IN THE AREA OF PERCEPTION--PARTICULARLY VISUAL PATTERN AND SPEECH RECOGNITION--AND BECAUSE THE BULK OF RESEARCH IN THE FIELD IS BEING DONE IN THE PERCEPTUAL AREA, IT WAS DECIDED TO CONCENTRATE ON THE EFFECTOR OR MOTOR SIDE OF THE ADAPTIVE SYSTEM PROBLEM, WITH THE PERCEPTUAL PROCESSES BEING MERELY SIMULATED AT FIRST BY ANY PRACTICAL MEANS AT HAND. ULTIMATELY, IT IS PLANNED THAT ADAPTIVE PROCESSES WILL BE PROGRAMMED FOR SUCH PERCEPTUAL PROCESSES UNTIL FINALLY A COMPLETE SYSTEM INCORPORATING ADAPTIVE PROCESSES FOR ALL SENSORI-MOTOR AND CORTICAL PROCESSES WOULD BE REALIZED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-611 335
GRAFIX INC ALBUQUERQUE N MEX
A GENERAL ADAPTIVE MOTOR LEARNING PROGRAM FOR A DIGITAL COMPUTER. PART II. SECTIONS III AND IV. (U)
DESCRIPTIVE NOTE: FINAL TECHNICAL REPT.,
DEC 64 107P BUSSEY,GENE R. ;
CONTRACT: AF49 63R 1203
MONITOR: AFOSR . 65-0275 P2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: AVAILABLE COPY WILL NOT PERMIT FULLY LEGIBLE REPRODUCTION. REPRODUCTION WILL BE MADE IF REQUESTED BY USERS OF DDC. COPY IS AVAILABLE FOR PUBLIC SALE. SEE ALSO AD-611 334.

DESCRIPTORS: (*LEARNING, HUMANS), (*ARTIFICIAL INTELLIGENCE, PROGRAMMING (COMPUTERS)), (*PROGRAMMING (COMPUTERS), PERCEPTION (PSYCHOLOGY)), (*PERCEPTION (PSYCHOLOGY), SIMULATION), DIGITAL COMPUTERS, MEMORY, MOTOR REACTIONS, MACHINES, CYBERNETICS (U)
IDENTIFIERS: MOTOR LEARNING (U)

THE OBJECT OF THE RESEARCH HAS BEEN TO ACHIEVE A WORKING PROGRAM THAT EFFECTIVELY DEMONSTRATES A GENERAL ABILITY TO LEARN NON-SPECIFIC MOTOR TASKS. THUS, THE REPORT CONSISTS OF A WORKING COMPUTER PROGRAM. THE PROGRAM IS DESCRIBED IN DETAIL WITH EXPLANATORY TEXT KEYED TO FLOW CHARTS. THE PROGRAM IS GIVEN, ALONG WITH INSTRUCTIONS FOR RUNNING IT. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-611 434
STANFORD UNIV CALIF DEPT OF COMPUTER SCIENCE
AUTOMATIC GRADING PROGRAMS. (U)
FEB 65 21P FORSYTHE,GEORGE E. ;WIRTH,
NIKLAUS ;
REPT. NO. CS-17
CONTRACT: NONR22537 GRANT ,GP948
PROJ: NR044 211

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED TO THE NATIONAL MEETING OF THE ASSOCIATION FOR COMPUTING MACHINERY, PHILADELPHIA, PA., 27 AUG 64, UNDER THE TITLE 'AUTOMATIC MACHINE GRADING PROGRAMS'.

DESCRIPTORS: (*COMPUTERS, TEACHING MACHINES), (*TEACHING MACHINES, COMPUTERS), PROGRAMMING (COMPUTERS), NUMERICAL ANALYSIS, TRAINING DEVICES, PROGRAMMING LANGUAGES, EDUCATION (U)
IDENTIFIERS: ALGOL PROGRAMS (U)

THE ALGOL GRADER PROGRAMS ARE PRESENTED FOR THE COMPUTER EVALUATION OF STUDENT ALGOL PROGRAMS. ONE IS FOR A BEGINNER'S PROGRAM; IT FURNISHES RANDOM DATA AND CHECKS ANSWERS. THE OTHER PROVIDES A SEARCHING TEST OF THE RELIABILITY AND EFFICIENCY OF A ROOTFINDING PROCEDURE. THERE IS A STATEMENT OF THE ESSENTIAL PROPERTIES OF A COMPUTER SYSTEM, IN ORDER THAT GRADER PROGRAMS CAN BE EFFECTIVELY USED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-611 542
SYSTEM RESEARCH LTD RESEARCH LABS RICHMOND (ENGLAND)
A TYPICAL ADAPTIVELY CONTROLLED EXPERIMENT IN
PERCEPTUAL DISCRIMINATION. (U)
NOV 64 9P PASK,GORDON ;LEWIS,B. N. ;
WATTS,D. ;
CONTRACT: AF61 052 640
MONITOR: AFOSR , 65-0291

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*PERCEPTION (PSYCHOLOGY), PSYCHOMETRICS), CYBERNETICS, BIONICS, LEARNING, REACTION (PSYCHOLOGY), PERFORMANCE (HUMAN), PERFORMANCE TESTS, PSYCHOPHYSIOLOGY, TEACHING MACHINES, SIGNALS, LIGHT, CONTROL, TIME, GREAT BRITAIN (U)

THE REPORT CONCERNS A DEMONSTRATION OF AN ADAPTIVELY CONTROLLED PERCEPTUAL DISCRIMINATION EXPERIMENT. THE ADAPTATION RULE CHOSEN FOR DEMONSTRATION PURPOSES IS ALMOST ABSURDLY SIMPLE AND A RATHER MORE ELABORATE SYSTEM IS USED IN THE MAIN EXPERIMENTAL PROGRAMME. THE CHIEF AIM IS TO PROVIDE A READILY MANIPULABLE APPLICATION OF THIS EXPERIMENTAL METHOD AND TO SUGGEST FURTHER APPLICATIONS. THIS METHOD HAS BEEN USED CHIEFLY IN CONNECTION WITH EXPLICIT LEARNING EXPERIMENTS OR IN ADAPTIVELY CONTROLLED TEACHING. IN THE PRESENT ARRANGEMENT THE LEARNING THAT OCCURS IS IMPLICIT AND, IN A SENSE, IS AN UNWANTED EFFECT. THE ADAPTIVE SYSTEM CAN BE SAID TO COMPENSATE FOR THE EFFECTS OF LEARNING AND TO APPROXIMATE A STATIONARY MEASUREMENT CONDITION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-611 935
PURDUE UNIV LAFAYETTE IND SCHOOL OF ELECTRICAL ENGINEERING
LEARNING CONTROL SYSTEMS, (U)
63 26P FU,K. S. ;
CONTRACT: AF AFOSR62 351
MONITOR: AFOSR , 65-0326

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PUB. IN MONO. COMPUTER AND INFORMATION SCIENCES, N.P., N.D., P318-43 (COPIES NOT AVAILABLE TO DDC CLEARINGHOUSE CUSTOMERS).

DESCRIPTORS: (*CONTROL SYSTEMS, LEARNING), (*BICONICS, LEARNING), (*ARTIFICIAL INTELLIGENCE, CONTROL SYSTEMS), PATTERN RECOGNITION, COMPUTER STORAGE DEVICES, CYBERNETICS, PERFORMANCE (ENGINEERING), OPTIMIZATION, SIMULATION, TRAINING, DESIGN (U)
IDENTIFIERS: LEARNING MACHINES (U)

AN INFORMAL INTRODUCTION OF LEARNING CONTROL SYSTEMS WAS PRESENTED. A CLASS OF LEARNING CONTROL SYSTEMS WAS DESCRIBED IN DETAIL AND THE BASIC FUNCTIONS OF A LEARNING CONTROLLER WERE DISCUSSED. TWO EXAMPLE BASIC FUNCTIONS OF A LEARNING CONTROLLER WERE DISCUSSED. TWO EXAMPLE SYSTEMS WERE GIVEN TO ILLUSTRATE THE PREPARED APPROACH. A COMPLETE ANALYTIC DESIGN PROCEDURE OF LEARNING CONTROL SYSTEMS IS UNDER INVESTIGATION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-612 738
PITTSBURGH UNIV PA
REPETITION AND SPACED REVIEW IN PROGRAMED INSTRUCTION. (U)
DESCRIPTIVE NOTE: FINAL REPT. FOR OCT 61-OCT 62.
DEC 64 37P REYNOLDS,JAMES H. ;GLASER, ROBERT ;ABMA,JOHN S. ;MORGAN,ROSS L. ;
CONTRACT: AF33 616 7175
PROJ: 1710
TASK: 171007
MONITOR: AMRL , TR-64-128

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*EDUCATION, EFFECTIVENESS), (*RETENTION, ACHIEVEMENT TESTS), RECALL, LEARNING, TRAINING, INTELLIGENCE TESTS, STUDENTS, LINEAR PROGRAMMING, CORRELATION TECHNIQUES (U)
IDENTIFIERS: PROGRAMMED INSTRUCTION (U)

THE EFFECTS OF REPETITION AND SPACED REVIEW IN PROGRAMED INSTRUCTION WERE STUDIED. EXPERIMENTS 1 AND 2 COVERED A ONE-SEMESTER COURSE IN GENERAL SCIENCE AT THE JUNIOR HIGH SCHOOL LEVEL. IN EXPERIMENT 3, A 1280-FRAME PORTION OF THE TOTAL COURSE WAS USED. IN EXPERIMENTS 1 AND 2, COMPARISONS WERE MADE AMONG (A) A CONVENTIONAL COURSE, (B) A REGULAR LINEAR VERSION OF THE PROGRAM, AND (C) A SPIRAL VERSION OF THE PROGRAM. THE RESULTS INDICATE THAT THE PROGRAMED COURSE WAS AT LEAST AS EFFECTIVE AS THE CONVENTIONAL INSTRUCTION IN TERMS OF BOTH LEARNING AND RETENTION AFTER 15 WEEKS. THE LINEAR PROGRAM WAS SUPERIOR TO CONVENTIONAL INSTRUCTION ON SOME MEASURES. THE SPIRAL PROGRAM OFFERED FEW, IF ANY, ADVANTAGES OVER THE REGULAR LINEAR PROGRAM. EXPERIMENT 3 ALLOWED A MORE PRECISE EVALUATION OF THE SEPARATE EFFECTS OF REPETITION AND SPACED REVIEW. SPACED REVIEW PRODUCED SIGNIFICANT INCREASES IN LEARNING WHICH PERSISTED, AND EVEN INCREASED, THROUGH A 3-WEEK RETENTION INTERVAL. REPETITION DID NOT PRODUCE INCREASED LEARNING OR RETENTION. THE GENERAL CONCLUSIONS ARE: (A) REPETITION OF INSTRUCTIONAL MATERIALS ABOVE THE USUAL LEVEL IN A LINEAR PROGRAM IS NOT BENEFICIAL; (B) SPACED REVIEW IS POTENTIALLY BENEFICIAL; AND (C) SOME TECHNIQUES OF OBTAINING SPACED REVIEW, EG. SPIRAL PROGRAMING, MAY OFFER DISADVANTAGES THAT EQUAL OR OUTWEIGH THE POTENTIAL ADVANTAGES OF SPACED REVIEW. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-612 946
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
AUTOMATION, CYBERNETICS, AND EDUCATION. (U)
DESCRIPTIVE NOTE: PROFESSIONAL PAPER,
MAR 65 15P COULSON,JOHN E. ;
REPT. NO. SP-1964

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE CONFERENCE ON CYBERNETICS IN THE SCHOOL, HELD AT THE UNIVERSITY OF BRITISH COLUMBIA, VANCOUVER, 20 FEB 65.

DESCRIPTORS: (*CYBERNETICS, EDUCATION), (*EDUCATION, CYBERNETICS), DATA PROCESSING SYSTEMS, TEACHING MACHINES, COMPUTERS, STUDENTS, DECISION MAKING, MANAGEMENT PLANNING, INFORMATION RETRIEVAL, AUTOMATIO(U)
IDENTIFIERS: PROGRAMMED INSTRUCTION (U)

THIS PAPER PRESENTS AN OVERVIEW OF RECENT DEVELOPMENTS IN AUTOMATION, CYBERNETICS, AND DATA-PROCESSING TECHNOLOGY THAT HAVE DIRECT RELEVANCE FOR THE FUTURE OF EDUCATION. THE DISCUSSION FOCUSES ON THE USE OF COMPUTERS TO PROVIDE INDIVIDUALIZED INSTRUCTION, BUT CONSIDERATION IS ALSO GIVEN TO THE APPLICATION OF DATA-PROCESSING EQUIPMENT TO PROCESS FISCAL ACCOUNTS AND ADMINISTRATIVE RECORDS, TO PROVIDE AUTOMATED ANALYSIS AND ASSESSMENT OF STUDENT CUMULATIVE RECORDS, AND TO ASSIST IN ADMINISTRATIVE PLANNING. RESEARCH AT SDC IS USED TO ILLUSTRATE THESE DEVELOPMENTS AND THEIR RELEVANCE TO EDUCATION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-612 955
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
SDC RESEARCH AND TECHNOLOGY DIVISION EXTERNAL
PUBLICATIONS 1961-1964. (U)
JAN 65 21P BAUM,C. THEROLD,V. P. ;
REPT. NO. TM-698/064/00

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*OPERATIONS RESEARCH, SYSTEMS ENGINEERING), (*SYSTEMS ENGINEERING, BIBLIOGRAPHIES), (*DATA PROCESSING SYSTEMS, SYSTEMS ENGINEERING), (*ARTIFICIAL INTELLIGENCE, SYSTEMS ENGINEERING), REPORTS, PERIODICALS, CLASSIFICATION, INFORMATION RETRIEVAL, PROGRAMMING (COMPUTERS), EDUCATION, DECISION MAKING, PATTERN RECOGNITION, PROGRAMMING LANGUAGES, BIONICS (U)
IDENTIFIERS: MAN-MACHINE SYSTEMS (U)

A LIST IS PRESENTED OF SDC'S RESEARCH AND TECHNOLOGY DIVISION PUBLICATIONS IN JOURNALS, PROCEEDINGS AND BOOKS FROM JANUARY 1961 THROUGH DECEMBER 1964. THE BIBLIOGRAPHY DOES NOT INCLUDE MINOR EXTERNAL PUBLICATIONS-BOOK REVIEWS, ABSTRACTS, RESEARCH SUMMARIES, NOR THE SEVERAL HUNDRED PAPERS PUBLISHED IN SDC DOCUMENT SERIES DURING THIS PERIOD. (AUTHORS) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 70HK08

AD-612 999
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
EFFECTS OF INDIVIDUALIZED INSTRUCTION ON TESTING. (U)
DESCRIPTIVE NOTE: PROFESSIONAL PAPER,
FEB 65 12P COGSWELL,JOHN F. ;COULSON, JOHN E. ;
REPT. NO. SP-1829

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED ON FEBRUARY 11, 1965, TO THE NATIONAL COUNCIL ON MEASUREMENT IN EDUCATION, IN CHICAGO, ILL.

DESCRIPTORS: (*EDUCATION, PROGRAMMING (COMPUTERS)), (*TRAINING DEVICES, AUTOMATIC), PERFORMANCE (HUMAN), TESTS, ATTITUDES, LEARNING, STUDENTS, TEACHING MACHINES (U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, BRANCHING TESTS (U)

PROGRAMMED INSTRUCTION AND OTHER INDIVIDUAL STUDY METHODS ARE BRINGING MAJOR CHANGES IN MEASUREMENT PRACTICES. RECENT EXPERIMENTAL WORK WITH COMPUTER-BASED PROGRAMMED INSTRUCTIONAL SYSTEMS HAS DEMONSTRATED THE TECHNOLOGICAL FEASIBILITY OF AUTOMATED DIAGNOSTIC PROCEDURES THAT PROVIDE INCREASED SENSITIVITY AND RESPONSIVENESS TO STUDENT NEEDS, THROUGH CONTINUOUS ANALYSIS OF SEVERAL DIFFERENT MEASURES OF EACH STUDENT'S PROGRESS AND THROUGH INDIVIDUALIZED CONTROL OF THE INSTRUCTIONAL SEQUENCE. THE COMPUTER'S CONTROL DECISIONS CAN BE BASED ON RULES SYNTHESIZING (A) MEASURES OF THE STUDENT'S MOMENT-TOMOMENT SKILL PERFORMANCE LEVEL AND ATTITUDE TOWARD THE LEARNING SITUATION, AND (B) RECORDS REFLECTING MORE STABLE, PERVASIVE CHARACTERISTICS, SUCH AS TESTS OF INTELLIGENCE, APTITUDE, PERSONALITY AND INTERESTS. IF THE DIAGNOSTIC CAPABILITIES OFFERED BY THESE TECHNOLOGICAL DEVELOPMENTS ARE TO BE APPLIED IN EDUCATION, FURTHER RESEARCH MUST BE DIRECTED TOWARD THE TEACHING/TESTING PROCESS IN PROGRAMMED INSTRUCTION. CRITICAL RESEARCH QUESTIONS INCLUDE: (1) WHAT DIAGNOSTIC MEASURES MOST ACCURATELY REFLECT IMMEDIATE LEARNING NEEDS, (2) HOW OFTEN SHOULD EACH MEASURE BE SAMPLED DURING THE INSTRUCTION, (3) BY WHAT RULES SHOULD THESE MEASURES BE COMBINED TO DETERMINE BRANCHINGS, (4) HOW CAN THE SUCCESS OF BRANCHING PROCEDURES BEST BE EVALUATED. (AUTHORS) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-613 259
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
APPLICATIONS OF COMPUTERS AND INFORMATION PROCESSING SYSTEMS IN EDUCATION. (U)
DESCRIPTIVE NOTE: PROFESSIONAL PAPER.
MAR 65 34P O'TOOLE,JOHN F. , JR;
REPT. NO. SP-1980

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*DATA PROCESSING SYSTEMS, EDUCATION), (*COMPUTERS, EDUCATION), (*EDUCATION, DATA PROCESSING SYSTEMS), INFORMATION RETRIEVAL, TEACHING MACHINES, THEORY, REVIEWS (U)

THE PURPOSE OF THIS REPORT IS TO PROVIDE INFORMATION FOR THE UNINITIATED EDUCATOR AND INTERESTED LAYMAN; IN ESSENCE, TO PLACE ELECTRONIC DATA PROCESSING (EDP) IN EDUCATION IN BOTH FACTUAL AND SPECULATIVE PERSPECTIVE. THE REPORT IS INTENDED FOR THE EDP SPECIALIST ONLY TO THE EXTENT THAT SOME UNDERSTANDING OF CURRENT EDUCATIONAL PROBLEMS WILL HELP HIM TO ASSIST EDUCATORS WITH THE DATA PROCESSING ASPECTS OF THESE PROBLEMS. THE COMPLETE REPORT TO THE U. S. OFFICE OF EDUCATION ('APPLICATION OF ELECTRONIC DATA PROCESSING METHODS IN EDUCATION'), OF WHICH THIS PAPER IS ONLY A CHAPTER, REPRESENTS A STUDY OF USES, PROBLEMS, ISSUES AND PROMISING DIRECTIONS OF RESEARCH AND DEVELOPMENT IN ELECTRONIC DATA PROCESSING IN EDUCATION. THE SCOPE OF PRESENT COMPUTER AND EDP SCHOOL APPLICATIONS IS OUTLINED, INCLUDING EXPLANATIONS OF TECHNICAL TERMS, FACILITIES, AND EQUIPMENT CURRENTLY IN SCHOOL USE. SUCCEEDING PAGES PROVIDE BRIEF DESCRIPTIONS OF ILLUSTRATIVE APPLICATIONS ARRANGED IN THE FOLLOWING SUBSTANTIVE CATEGORIES: (1) EDUCATIONAL INFORMATION SYSTEMS, (2) RESEARCH APPLICATIONS, AND (3) COMPUTER EDUCATION PROGRAMS. THE INTENT HERE IS TO PROVIDE A SAMPLING OF RESOURCES CURRENTLY AVAILABLE IN EDUCATIONAL SETTINGS AND THEIR UTILIZATION AT THE TIME OF THIS REPORT. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-613 286
WESTINGHOUSE ELECTRIC CORP BALTIMORE MD SURFACE DIV
RESEARCH ON HEURISTIC PROBLEM SOLVING MACHINES. (U)
DESCRIPTIVE NOTE: FINAL REPT. FOR MAR 64-MAR 65.
MAR 65 54P
REPT. NO. WGD-38093 ,MDE-4941
CONTRACT: NONR448300
PROJ: NR348 008

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*DECISION MAKING, SIMULATION), (*LEARNING, ARTIFICIAL INTELLIGENCE), (*COMPUTERS, DECISION MAKING), REASONING, CYBERNETICS, BIONICS, DECISION THEORY, GAME THEORY, PROGRAMMING (COMPUTERS) (U)
IDENTIFIERS: LEARNING MACHINES, PROBLEM SOLVING (U)

TWO APPROACHES TO DEVELOP LEARNING MACHINES ARE DISCUSSED. ONE APPROACH IS THROUGH BIONICS, IN WHICH EMPHASIS IS PLACED UPON DEVELOPING NEURON MODELS AND NEURAL NETS WITH THE AID OF KNOWLEDGE ABOUT ANIMAL SENSORY MECHANISMS. THE OTHER APPROACH IS THROUGH THE DEVELOPMENT OF PROGRAMS WITH A SELF-ORGANIZING CAPABILITY. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-614 014
PITTSBURGH UNIV PA
PROGRAMMING METHOD AND RESPONSE MODE IN A VISUAL ORAL TASK. (U)
DESCRIPTIVE NOTE: FINAL REPT. FOR OCT 61-OCT 63.
DEC 64 21p CSANYI,ATTILA P. ;GLASER, ROBERT ;REYNOLDS,JAMES H.;
CONTRACT: AF33 616 7175 .0E2 10 057
PROJ: 1710
TASK: 171007
MONITOR: AMRL , TR-64-129

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TRAINING DEVICES, TEACHING MACHINES), (*LEARNING, TEACHING MACHINES), TRAINING, PERFORMANCE (HUMAN), CONDITIONED REFLEX, ACHIEVEMENT TESTS, LANGUAGE, VERBAL BEHAVIOR, PUNCHED CARDS, RETENTION (U)
IDENTIFIERS: PROGRAMMED INSTRUCTION (U)

PROGRAMMING METHODS AND RESPONSE MODES WERE INVESTIGATED TO DETERMINE EFFECTIVE TRAINING METHODS. THE IDENTIFICATION AND PRONUNCIATION OF PHONETIC SYMBOLS WERE TAUGHT BY TWO DIFFERENT PROGRAMING METHODS AND TWO DIFFERENT RESPONSE MODES. THE PROGRAMING METHOD FEATURED EITHER PROMPTING OR CONFIRMATION, AND THE RESPONSE MODE WAS EITHER OVERT OR COVERT. ACHIEVEMENT WAS MEASURED ON BOTH A MULTIPLE CHOICE TEST AND A TEST REQUIRING OVERT ORAL RESPONSES. CONSIDERABLE VARIATION OCCURRED AMONG THE TEST SCORES FOR EACH LEARNING CONDITION. DIFFERENCES AMONG THE CONDITIONS, TENDING TO INDICATE THE SUPERIORITY OF OVERT RESPONDING AND OF CONFIRMATION, WERE SIGNIFICANT ON ONLY ONE CASE. OVERT RESPONDING WAS SUPERIOR FOR RETENTION WHEN MEASURED BY TESTS REQUIRING OVERT ORAL RESPONSES. THE PROMPTING METHOD COUPLED WITH THE COVERT RESPONSE MODE TENDED TO PRODUCE POORER LEARNING AND RETENTION THAN THE OTHER CONDITIONS, BUT IT REQUIRED ONLY 30 TO 50 PERCENT AS MUCH LEARNING TIME AS THE OTHER CONDITIONS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-614 228
PENNSYLVANIA UNIV PHILADELPHIA MOORE SCHOOL OF ELECTRICAL ENGINEERING
THE EVALUATION OF TECHNIQUES AND DEVICES AS APPLIED TO PROBLEM SOLVING. (U)
DESCRIPTIVE NOTE: FINAL REPT.,
FEB 65 113P RUBINOFF,MORRIS ;WHITE,J. F. ,JR.;LOEV,DAVID ;BLUMBERG,DONALD F. ;
CONTRACT: AF30 602 3065
PROJ: 4594
TASK: 459404
MONITOR: RADC , TDR-64-402

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*ARTIFICIAL INTELLIGENCE, DECISION MAKING), (*DECISION MAKING, HUMANS), COMPUTERS, PERFORMANCE (HUMAN), GAME THEORY, INFORMATION RETRIEVAL, MATHEMATICAL MODELS, LEARNING, GROUP DYNAMICS, PERSONALITY, PROBABILITY (U)
IDENTIFIERS: PROBLEM SOLVING, PREDICTION, CREATIVE THINKING (U)

THE PROBLEM OF FORECASTING TECHNOLOGICAL CHANGE IS INVESTIGATED. MACHINES AND COMPUTER PROGRAMS HAVING 'PROBLEM SOLVING' CAPABILITIES ARE EXAMINED TO DETERMINE THEIR USEFULNESS IN AIDING OR REPLACING THE HUMAN FORECASTER. THE LITERATURE ON HUMAN PROBLEM SOLVING WAS ALSO REVIEWED. THE FOLLOWING CONCLUSIONS WERE REACHED: (1) THE NATURE OF THE FORECASTING PROBLEM PRECLUDES THE USE OF COMPUTER-TYPE PROBLEM SOLVERS DEVELOPED TO DATE, AND (2) THE APPLICATION OF INFORMATION SCIENCE TECHNIQUES, NAMELY: DESCRIPTORS REPRESENTING TECHNOLOGICAL CONCEPTS, THE FORCES ACTING TO CHANGE THE TECHNOLOGY AND THE LAWS GOVERNING THE CHANGE, APPEAR TO OFFER THE MOST PROMISE IN ASSISTING THE HUMAN FORECASTER. ACCORDINGLY, A QUASIMATHEMATICAL MODEL WAS DEVELOPED USING MATRIX NOTATION TO DESCRIBE A TECHNOLOGY. AN EXAMPLE OF A FORECAST OF COMPUTER TECHNOLOGY MADE SEVERAL YEARS AGO IS INCLUDED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-614 316
AMERICAN INSTITUTES FOR RESEARCH IN THE BEHAVIORAL SCIENCES
PALO ALTO CALIF
SELF-EVALUATIONAL RESPONDING AND TYPOGRAPHICAL
CUEING: TECHNIQUES FOR PROGRAMING SELF-INSTRUCTIONAL
READING MATERIALS. (U)
FEB 64 9P HERSHBERGER,WAYNE ;
CONTRACT: NONR307700

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PUB. IN JOURNAL OF EDUCATIONAL PSYCHOLOGY V55 N5 P288-96 1964 (COPIES NOT AVAILABLE TO DDC OR CLEARINGHOUSE CUSTOMERS).

DESCRIPTORS: (*LEARNING, READING), (*EDUCATION, APPLIED PSYCHOLOGY), RETENTION, REACTION (PSYCHOLOGY), STUDENTS, PSYCHOMETRICS, FACTOR ANALYSIS, EFFECTIVENESS (U)
IDENTIFIERS: TYPOGRAPHICAL CUEING, CUES (STIMULI), PROGRAMMED INSTRUCTION, EVALUATION (U)

THE STUDY ASSESSED THE EFFECTS OF COMPLEX TYPOGRAPHICAL CUEING (HIGH-LIGHTING ESSENTIAL LESSON CONTENT) AND SELFEVALUATIONAL RESPONSE ITEMS (QUIZZING THE READER ON THE ESSENTIAL CONTENT) UPON THE LEARNING AND RETENTION OF BOTH ENRICHMENT AND ESSENTIAL LESSON CONTENT FOR BOTH DISCURSIVELY AND TERSELY WRITTEN TEXTS. A TOTAL OF 160 PRETESTED FIFTH-GRADE STUDENTS READ LESSONS ON HISTORY AND SCIENCE AND TOOK IMMEDIATE AND DELAYED POSTTESTS ON EACH TOPIC. ANALYSIS OF GAIN SCORES REVEALED THAT: (A) SELF-EVALUATIONAL RESPONSE ITEMS RELIABLY ENHANCE LEARNING AND RETENTION OF ESSENTIAL CONTENT WITHOUT DETRACTING FROM ENRICHMENT CONTENT. (B) COMPLEX TYPOGRAPHICAL CUEING FAILS TO INCREASE LEARNING OF EITHER TYPE OF CONTENT, AND (C) OMITTING THE ENRICHMENT CONTENT (I.E., TERSE TEXT) REDUCES READING TIME BUT NOT AMOUNT LEARNED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-614 317
AMERICAN INSTITUTES FOR RESEARCH IN THE BEHAVIORAL SCIENCES
PALO ALTO CALIF
TYPOGRAPHICAL CUING IN CONVENTIONAL AND PROGRAMED
TEXTS. (U)
MAR 64 6P HERSHBERGER,WAYNE A. ;TERRY,
DONALD F. ;
CONTRACT: NONR307700

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PUB. IN JOURNAL OF APPLIED PSYCHOLOGY V49 N1 P55-60 FEB 1965 (COPIES NOT AVAILABLE TO DDC OR CLEARINGHOUSE CUSTOMERS).

DESCRIPTORS: (*LEARNING, READING), (*READING, TRAINING DEVICES), (*TRAINING DEVICES, READING), RETENTION, EDUCATION, STUDENTS, PERFORMANCE TESTS, ERRORS, ANALYSIS OF VARIANCE, APPLIED PSYCHOLOGY (U)
IDENTIFIERS: TYPOGRAPHICAL CUEING, PROGRAMMED INSTRUCTION (U)

THIS STUDY ASSESSED THE INSTRUCTIONAL EFFECTIVENESS OF SIMPLE AND COMPLEX FORMS OF TYPOGRAPHICAL CUING IN BOTH CONVENTIONAL AND PROGRAMED TEXTS. A TOTAL OF 118, PRETESTED, 8TH-GRADE STUDENTS READ AN 8TH-GRADE HISTORY LESSON AND WERE LATER RETESTED. ANALYSIS OF GAIN SCORES REVEALED THAT: (A) SIMPLE TYPOGRAPHICAL CUING DISTINGUISHING CORE FROM ENRICHMENT CONTENT ENHANCES THE RATIO OF IMPORTANT TO UNIMPORTANT CONTENT LEARNED WITHOUT AFFECTING THE TOTAL AMOUNT LEARNED; (B) COMPLEX TYPOGRAPHICAL CUING DISTINGUISHING 5 CATEGORIES OF LESSON CONTENT FAILS TO INCREASE LEARNING OF EITHER CORE OR ENRICHMENT CONTENT; (C) THE PROGRAMED OR QUIZZED TEXT IS MORE EFFECTIVE THAN THE CONVENTIONAL TEXT; AND (D) THE EFFECTS OF SIMPLE TYPOGRAPHICAL CUING AND PROGNAMED QUIZZING APPEAR INDEPENDENT AND ADDITIVE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-614 696
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
COMPUTERS AND DECISION-MAKING IN EDUCATION. (U)
DESCRIPTIVE NOTE: A PROFESSIONAL PAPER,
MAR 65 20P CAFFREY,JOHN G. ;
REPT. NO. SP-2002

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE SDC/UNIV. OF GEORGIA CONFERENCE, ATHENS, MAR 29-31, 1965.

DESCRIPTORS: (*COMPUTERS, DECISION MAKING), (*DECISION MAKING, COMPUTERS), PROGRAMMING (COMPUTERS), EDUCATION, MANAGEMENT ENGINEERING, DATA PROCESSING SYSTEMS, AUTOMATION, PROBABILITY (U)

COMPUTERS ARE TOOLS TO HELP MAN THINK. THEY DO NOT, STRICTLY SPEAKING, EVER MAKE DECISIONS. WE MAKE THE DECISIONS WHEN WE WRITE THE PROGRAMS WHICH SPECIFY WHAT IS TO BE DONE UNDER EACH FORESEEABLE CIRCUMSTANCE. IN SO DOING, OUR VALUES ARE EXPOSED--TO OUR OWN VIEW AND TO OTHERS. SOME OF THE RESISTANCE TO THE USE OF COMPUTERS IN THE MANAGEMENT OF HUMAN INSTITUTIONS MAY ARISE FROM ANXIETY ABOUT THE COMPUTER IMPERATIVE: THE NEED TO MAKE EXPLICIT THE BASES UPON WHICH WE INTEND TO TAKE ACTIONS AND TO SELECT AMONG ALTERNATIVES. HOWEVER, PROPERLY UNDERSTOOD, THIS IMPERATIVE MAY IN THE LONG RUN NOT ONLY REQUIRE BUT PERMIT MORE CREATIVE AND FLEXIBLE MANAGEMENT AND CONTROL SYSTEMS IN EDUCATION, WITH THE OBJECT OF IMPROVING OUR CAPACITY TO PREDICT CONSEQUENCES AND TO RESPOND TO RAPIDLY CHANGING CIRCUMSTANCES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-614 697
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
FIVE MAJOR OBSTACLES TO THE GROWTH OF PROGRAMMED INSTRUCTION IN EDUCATION, (U)
APR 65 10P COULSON,JOHN E. ;
REPT. NO. SP-1944

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE NATIONAL CONVENTION OF THE NATIONAL SOCIETY FOR PROGRAMMED INSTRUCTION, PHILADELPHIA, MAY 6, 1965.

DESCRIPTORS: (*EDUCATION, TRAINING), (*TRAINING DEVICES, EDUCATION), COMPUTERS, LEARNING (U)
IDENTIFIERS: PROGRAMMED INSTRUCTION (U)

THE OBSTACLES DISCUSSED ARE: (1) A LACK OF UNDERSTANDING IN THE EDUCATIONAL COMMUNITY OF WHAT IT MEANS TO DEFINE EDUCATIONAL OBJECTIVES IN OPERATIONAL TERMS, (2) THE TENDENCY OF PROGRAM PRODUCERS AND SCHOOL ADMINISTRATORS TO FORCE PROGRAMS ON THE TEACHERS WITHOUT ENLISTING THE TEACHERS' SUPPORT OR TELLING THEM HOW THE MATERIALS SHOULD BE USED IN THE ONGOING CLASSROOM, (3) TOO STEREOTYPED AND UNIMAGINATIVE A VIEW OF PROGRAMMED INSTRUCTION ON THE PART OF PROGRAM WRITERS, (4) LACK OF CONSIDERATION, BY PROGRAM PRODUCERS AND USERS ALIKE, OF THE IMPACT THAT PROGRAMMED INSTRUCTION MUST HAVE ON ALL PARTS OF A SCHOOL SYSTEM IF THE POTENTIAL ADVANTAGES OF INDIVIDUALIZED PROGRESS ARE TO BE REALIZED, AND (5) LACK OF PROPER LESSON SHAPING BY EMPIRICAL CUT-AND-FIT TECHNIQUES, OF THE PROGRAMMED MATERIALS BEING PRODUCED AND SOLD TODAY. GENERAL APPROACHES TO ELIMINATING THESE OBSTACLES ARE SUGGESTED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-614 698
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
THE SYSTEMS APPROACH, TECHNOLOGY AND THE SCHOOL, (U)
APR 65 33P CARTER,LAUNOR ;SILBERMAN,
HARRY ;
REPT. NO. SP-2025

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SPEECH AT CONFERENCE TO MARK THE DEDICATION OF BEN D. WOOD HALL, MAY 11, 1965, EDUCATIONAL TESTING SERVICE, PRINCETON, N. J.

DESCRIPTORS: (*EDUCATION, SYSTEMS ENGINEERING), (*SYSTEMS ENGINEERING, EDUCATION), TRAINING, COMPUTERS, TEST METHODS, TEACHING MACHINES, SIMULATION (U)
IDENTIFIERS: TECHNOLOGY, TIME SHARING (COMPUTERS) (U)

DISCUSSES THE IDEAL SCHOOL AND THE DEFICIENCIES IN THE PRESENT EDUCATIONAL SYSTEM. DESCRIBES SOME OF THE RECENT ADVANCES IN EDUCATIONAL TECHNOLOGY, USING AS A POINT OF REFERENCE THE EDUCATIONAL RESEARCH AND DEVELOPMENT AT THE SYSTEM DEVELOPMENT CORPORATION. INDICATES THE MEASURES TO BE TAKEN TO ACHIEVE THE IDEAL SCHOOL. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-614 793
BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS
DEVELOPMENT OF TECHNIQUES FOR THE AUTOMATIC CONTROL
OF EXPERIMENTS IN A PSYCHOLOGY LABORATORY. (U)
DESCRIPTIVE NOTE: FINAL REPT.
FEB 65 152P
REPT. NO. BBN-1221
CONTRACT: AF19 628 296
PROJ: 4690
TASK: 469002
MONITOR: ESD TDR-65-175

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*PSYCHOLOGY, INSTRUMENTATION), (*DIGITAL COMPUTERS, CONTROL SYSTEMS), PSYCHOACOUSTICS, DECISION MAKING, HUMAN ENGINEERING, PATTERN RECOGNITION, DISPLAY SYSTEMS, REACTION (PSYCHOLOGY), EXPERIMENTAL DATA, BEHAVIOR, AUTOMATIC, DESIGN (U)

THE REPORT DETAILS THE DEVELOPMENT OF METHODS FOR USING A DIGITAL COMPUTER (THE DIGITAL EQUIPMENT CORPORATION PDP-1) TO CONTROL APPARATUS AND EXPERIMENTAL PROCEDURES IN PSYCHOLOGICAL EXPERIMENTS. IT DESCRIBES THE DESIGN OF EQUIPMENT FOR A MULTI-SUBJECT DISPLAY SYSTEM AND A PSYCHOACOUSTIC LABORATORY SYSTEM. AN EXPERIMENT ILLUSTRATING THE USE OF THE SYSTEM IS INCLUDED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-615 129
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
EDUCATION AND COMPUTER TECHNOLOGY. (U)
MAY 65 30P O'TOOLE,JOHN F. , JR1
REPT. NO. SP-1989
PROJ: F026

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*EDUCATION, COMPUTERS), (*COMPUTERS, EDUCATION), DIGITAL COMPUTERS, DATA PROCESSING SYSTEMS, INSTRUCTORS, TEACHING MACHINES (U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, TECHNOLOGY (U)

ACCEPTANCE OF THE HIGH-SPEED DIGITAL COMPUTER HAS BEEN REMARKABLY FAVORABLE, ESPECIALLY IN NATIONAL DEFENSE, IN BUSINESS AND INDUSTRY, AND IN SCIENCE. APPLICATIONS IN THESE FIELDS ARE BRIEFLY DESCRIBED. EDUCATION IS DISCUSSED IN TERMS OF THE TYPES OF INFORMATION PROBLEMS THAT ARE WOVEN THROUGH THE FABRIC OF THE ENTIRE EDUCATIONAL PROCESS: FROM PROBLEMS OF COLLECTING, STORING, COMMUNICATING, RETRIEVING, AND DISPLAYING INFORMATION; TO PROBLEMS OF RECEIVING, LEARNING, AND USING INFORMATION. THESE PROBLEMS ARE CONSIDERED AMENABLE TO SOLUTION BY COMPUTER APPLICATIONS. SOME OF THE VALUES AND FORCES UNDERLYING AMERICAN EDUCATION ARE DESCRIBED, AS WELL AS SOME OF THE RESPONSES OF THE EDUCATIONAL SYSTEM TO CHANGING NEEDS, E.G., CURRICULUM REFORM, PROGRAMMED INSTRUCTION, SCHOOL ORGANIZATION, INSTRUCTIONAL MATERIALS, AND THE EDUCATION OF TEACHERS. THESE VALUES, FORCES, AND RESPONSES ARE DISCUSSED WITHIN THE FRAMEWORK OF REQUIREMENTS FOR MORE EFFICIENT INFORMATION PROCESSING SYSTEMS AS PROVIDED BY COMPUTERS. (AUTHOR) (REVISION OF A CHAPTER IN A STUDY REPORT SUBMITTED TO THE U. S. OFFICE OF EDUCATION, 'APPLICATION OF ELECTRONIC DATA PROCESSING METHODS IN EDUCATION', JAN 1965) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-615 716
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
COMPUTERS AND THE TEACHING OF ENGINEERING
MATHEMATICS. (U)
DESCRIPTIVE NOTE: PROFESSIONAL PAPER,
MAY 65 11P PELTON,WARREN J. ;STAUDHAMMER,
JOHN ;
REPT. NO. SP-2052/000/01

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*EDUCATION, ENGINEERING), (*ENGINEERING, EDUCATION), (*COMPUTERS, TRAINING DEVICES), MATHEMATICS, INSTRUCTORS, STUDENTS, PROGRAMMING (COMPUTERS) (U)

THE ENGINEERING COMMUNITY IS VERY MUCH AWARE OF THE RAPID INCREASE OF SCIENTIFIC KNOWLEDGE AND TECHNOLOGICAL APPLICATIONS. BECAUSE IT IS IMPOSSIBLE TO INCLUDE ALL THE NEW KNOWLEDGE AND TECHNOLOGY IN THE ENGINEERING CURRICULUM, A NEW LOOK OR RESTRUCTURING OF THE ENGINEERING CURRICULUM IS REQUIRED. A SUBSTANTIAL AID IN HELPING THE ENGINEERING EDUCATOR RESTRUCTURE THE CURRICULUM IS THE MODERN COMPUTER. EFFICIENT USE OF MODERN COMPUTERS BY INSTRUCTORS OF ENGINEERING MATHEMATICS CAN ELIMINATE MUCH OF THE UNNECESSARY ROTE OR MECHANICAL MANIPULATION IN MANY OF THE COURSES. MANY NEW AND UNIQUE COMPUTER PROGRAMS WILL HAVE TO BE WRITTEN FOR EACH SEGMENT OF THE ENGINEERING CURRICULUM. THE FACULTY AND STUDENTS MUST BE ABLE TO UNDERSTAND THE USE OF THE COMPUTER AND BE ABLE TO ACCESS THESE COMPUTER PROGRAMS DURING NORMAL CLASSROOM STUDY. COMPUTER APPLICABILITY IN INDIVIDUAL CLASSROOMS WILL ALLOW FOR THE EXPLORATION OF MANY MORE PROBLEMS OF A GREATER DEGREE OF SOPHISTICATION AND COMPLEXITY THAN CAN BE CURRENTLY EXPLORED. THIS BROADER BASE OF APPLIED PROBLEMS WILL AFFORD THE ENGINEERING STUDENT THE OPPORTUNITY TO GAIN A GREATER DEPTH OF UNDERSTANDING AND INSIGHT INTO THE APPLICATIONS OF MODERN ENGINEERING. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-616 296
ILLINOIS UNIV URBANA TRAINING RESEARCH LAB
ESSENTIAL PRINCIPLES OF PROGRAMED INSTRUCTION, (U)
JUN 65 13P STOLUROW,LAWRENCE M. ;
REPT. NO. TR-8
CONTRACT: NONR398504
PROJ: NR154 239

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPORT ON RESEARCH ON PRE-PROGRAMED SELFINSTRUCTION AND SELF-PROGRAMED INDIVIDUALIZED EDUCATION.

DESCRIPTORS: (*EDUCATION, TEACHING MACHINES), (*TEACHING MACHINES, EDUCATION), TRAINING DEVICES, INSTRUCTORS, STUDENTS, LEARNING, THEORY (U)
IDENTIFIERS: PROGRAMMED INSTRUCTION (U)

ESSENTIAL PRINCIPLES OF PROGRAMED INSTRUCTION.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-616 544
BIO-DYNAMICS INC CAMBRIDGE MASS
DESIGN AND USE OF INFORMATION SYSTEMS FOR AUTOMATED ON-THE-JOB TRAINING. VOLUME III. EXPERIMENTAL USE OF THREE INSTRUCTIONAL CONCEPTS. (U)
MAR 65 84P SHERIDAN,THOMAS B. ;
CONTRACT: AF19 628 455
PROJ: 7682
TASK: 768204
MONITOR: ESD TDR-64-234 V3

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-602 041, AD-602 042.

DESCRIPTORS: (*TRAINING DEVICES, COMMAND + CONTROL SYSTEMS), (*COMMAND + CONTROL SYSTEMS, TRAINING DEVICES), DESIGN, AUTOMATION, TEACHING MACHINES, COMPUTERS, BEHAVIOR, GAME THEORY, PERFORMANCE(HUMAN), PERFORMANCE TESTS, DISPLAY SYSTEMS, CONTROL PANELS, ERRORS, DECISION MAKING, HUMAN ENGINEERING, AIR FORCE PERSONNEL (U)
IDENTIFIERS: ON-THE-JOB TRAINING, MAN-MACHINE SYSTEMS (U)

THE REPORT DESCRIBES THREE EXPERIMENTS IN WHICH NOVEL TEACHING CONCEPTS WERE DEMONSTRATED. THESE CONCEPTS HAD BEEN PROPOSED IN PREVIOUS REPORTS BUT THEIR EFFECTIVENESS REMAINED TO BE VERIFIED EXPERIMENTALLY. THE RESULTS WERE: (1) A TEACHING PROGRAM ORDERED ACCORDING TO THE DISCOVERY PRINCIPLE SIGNIFICANTLY REDUCED ERRORS AND PERFORMANCE TIME OVER THAT OBSERVED AFTER TRAINING WITH A CONVENTIONAL TRAINING MANUAL. (2) SLIDES PROJECTED DIRECTLY ONTO A CONTROL CONSOLE, TOGETHER WITH A TAPED LECTURE, WERE FOUND TO BE AN EFFECTIVE METHOD OF PRESENTING AN AUTOMATED TRAINING PROGRAM. (3) GRAPHICAL LOGICAL FLOW DIAGRAMS WERE FOUND TO BE EFFICIENT INSTRUCTIONS FOR TEACHING PROCEDURES FOR PERFORMING A QUERYING-REASONING TASK. IT WAS CONCLUDED THAT THESE CONCEPTS SHOULD BE EXPLOITED IN TRAINING PROGRAMS FOR OPERATORS OF AIR FORCE INFORMATION SYSTEMS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-616 545
BIO-DYNAMICS INC CAMBRIDGE MASS
DESIGN AND USE OF INFORMATION SYSTEMS FOR AUTOMATED ON-THE-JOB TRAINING, VOLUME V. (U)
DESCRIPTIVE NOTE: FINAL REPT. FOR 1962-1964,
APR 65 22P SHERIDAN,THOMAS B. ;
CONTRACT: AF19 628 455
PROJ: 7682
TASK: 768204
MONITOR: ESD , TDR-64-234 V5

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-616 551.

DESCRIPTORS: (*COMMAND + CONTROL SYSTEMS, TRAINING DEVICES), (*TRAINING DEVICES, COMMAND + CONTROL SYSTEMS), DESIGN, MODELS(SIMULATIONS), COMPUTERS, AUTOMATION, PROGRAMMING(COMPUTERS), DECISION MAKING, DISPLAY SYSTEMS, TEACHING MACHINES (U)
IDENTIFIERS: FLOW CHARTS, MAN-MACHINE SYSTEMS, ON-THE-JOB TRAINING (U)

THE REPORT DESCRIBES THE RESULTS AND CONCLUSIONS OF A STUDY WHICH WAS DIRECTED AT THE DEVELOPMENT OF PRINCIPLES FOR THE DESIGN OF AUTOMATED INSTRUCTIONAL SUBSYSTEMS FOR INFORMATION SYSTEMS. A SERIES OF FOUR TECHNICAL DOCUMENTARY REPORTS HAVE BEEN ISSUED WHICH DESCRIBE IN DETAIL THE ACTIVITIES AND RESULTS OF EACH ASPECT OF THE STUDY. THIS REPORT BRINGS TOGETHER AND SUMMARIZES THE RESULTS REPORTED IN THE INDIVIDUAL DOCUMENTS, AND INCLUDES ADDITIONAL ITEMS WHICH DID NOT WARRANT SEPARATE DOCUMENTATION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-616 880
NAVAL PERSONNEL RESEARCH ACTIVITY SAN DIEGO CALIF
AN EXPERIMENTAL COMPARISON OF INSTRUCTIONAL
TECHNIQUES FOR USE IN TEACHING COMPUTER PROGRAM FLOW
CHART DESIGN, (U)
DESCRIPTIVE NOTE: FINAL REPT.,
MAR 65 22P MEYER,JOHN K. ;
REPT. NO. TB-65-10
PROJ: 3 1703 02 03 152

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TRAINING, PROGRAMMING(COMPUTERS)),
(*PROGRAMMING(COMPUTERS), TRAINING), (*COMPUTER
PERSONNEL, SELECTION), APTITUDE TESTS, DESIGN,
NAVAL PERSONNEL, EDUCATION, STUDENTS,
PSYCHOMETRICS (U)
IDENTIFIERS: FLOW DIAGRAMMING(COMPUTERS), FLOW
CHARTS (U)

FOUR SMALL GROUPS OF COLLEGE STUDENTS, SELECTED TO
APPROXIMATE A GROUP WHO HAD BEEN FOUND TO HAVE
DIFFICULTY IN SUCCEEDING IN THE NAVY BASIC COURSE
IN COMPUTER PROGRAMING, WERE TAUGHT FLOW CHARTING FOR
COMPUTER PROGRAMING PURPOSES BY TWO METHODS AND TWO
LENGTHS OF PRACTICE. THE ONLY SIGNIFICANT
DIFFERENCES FOUND CONCERNED THE INFLUENCES OF
APTITUDE AS MEASURED BY THE MATHEMATICS TESTS FROM
THE NAVY OFFICER CLASSIFICATION BATTERY AND
BY PROGRAMER APTITUDE TESTS. IT IS TENTATIVELY
CONCLUDED THAT SELECTION IS A MORE IMPORTANT PROBLEM
IN TRAINING PROGRAMERS THAN METHODS OF TRAINING.
OBJECTIVE METHODS WERE DEVELOPED FOR GRADING THE
FINAL EXAMINATION FLOW CHART EXERCISE. PLANS
INCLUDE DEVELOPING AND SIMPLIFYING THIS GRADING
PROCEDURE FOR USE WITH OTHER DESIGNS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-616 915
AMERICAN INSTITUTES FOR RESEARCH IN THE BEHAVIORAL SCIENCES
PALO ALTO CALIF
SHAPING FASTER QUESTION ANSWERING. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 65 74P BROOKS,LLOYD O. ;
REPT. NO. TR-10 ,AIR-C28-6/65-TR10
CONTRACT: NONR307700

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE;

DESCRIPTORS: (*EDUCATION, TEACHING MACHINES), (*TEACHING MACHINES, EDUCATION), LEARNING, TESTS, STUDENTS, PERFORMANCE(HUMAN), READING, DECISION MAKING, ERRORS, CORRELATION TECHNIQUES, TABLES (U)
IDENTIFIERS: PROGRAMMED INSTRUCTION (U)

IN LABORATORY EXPERIMENTS, CONDUCTED WITH 12 COLLEGE STUDENT SS WHO COMPLETED PROGRAMED LESSONS AT A TEACHING MACHINE DURING TWICE-PER-WEEK SESSIONS, SS WERE AUTOMATICALLY SCORED SEPARATELY FOR CORRECTNESS AND FOR SPEED OF CORRECT ANSWERING; THEIR POINTS WERE LATER OF MONETARY VALUE TO SS WHO CONTINUED FOR THE MONTH OF EXPERIMENTATION. SS OPERATED THE LETTERED KEY CORRESPONDING TO THE FIRST LETTER OF THE LAST WORD OF THEIR ANSWER. READAND-ANSWER TIMES, OBTAINED IN A PREVIOUS STUDY, WERE CONSIDERED IN ESTABLISHING CIRCUITS FOR SCORING THE SPEED OF EACH CORRECT ANSWER IN RELATION TO INDIVIDUAL FRAMES OF MATERIAL. ANSWERS SCORED AS FAST WERE FOLLOWED BY CIRCUIT CHANGES WHICH ALLOWED PROPORTIONATELY LESS TIME FOR A NEXT CORRECT RESPONSE TO BE SCORED AS FAST. TYPICALLY, FAILURES TO OBTAIN SCORES RELAXED SCORING STANDARDS. SCORING FOR SPEED OCCURRED DURING HALF OF EACH OF THE TWO (AT LEAST) LESSON PRESENTATIONS, ACCORDING TO A COUNTERBALANCED DESIGN. CUMULATIVE RECORDS INDICATED SS' GROSS PERFORMANCE, CORRECT ANSWERS, SPEED SCORES, AND EQUIPMENT FUNCTION. PRINTING-COUNTER RECORDS INDICATED EACH READ-AND ANSWER TIME IN SECONDS.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OMKOB

AD-617 607
GRAFLEX INC ROCHESTER N Y
FILMSTRIP TECHNIQUES FOR INDIVIDUALIZED INSTRUCTION. (U)
DESCRIPTIVE NOTE: FINAL REPT. FOR MAY 63-MAR 64, MAY 65 21P TROW,WILLIAM H. ;SMITH,EDGAR A. ;
CONTRACT: AF33 657 11339
PROJ: 1710
TASK: 171007
MONITOR: AMRL , TR-65-78

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TRAINING DEVICES, PHOTOGRAPHIC FILM), (*PHOTOGRAPHIC FILM, TRAINING DEVICES), EDUCATION, PHOTOGRAPHS, TRAINING FILMS, STILL PROJECTORS, CAMERA COMPONENTS + ACCESSORIES, COSTS, TEACHING MACHINES, COLOR FILM, SPECIFICATIONS (U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, FILMSTRIPS (U)

IN THE PREPARATION OF FILMED PROGRAMED INSTRUCTION, SEVERAL CONSIDERATIONS ARE INVOLVED IN THE CHOICE BETWEEN SLIDES AND FILMSTRIPS. IN THIS REPORT, THE CONSIDERATIONS OF REVISION, QUANTITY, LENGTH, STORAGE, RECYCLING, ASPECT RATIO, CHANGE TIME, RANDOM ACCESS AND CONTINUOUS REPETITION ARE BRIEFLY DISCUSSED. A COMPARISON OF COSTS OF PREPARING A MASTER OF THE FILMED PROGRAM AND DUPLICATE COPIES IS MADE. AS A GUIDE TO THE PREPARATION OF FILMSTRIPS BY STAFF PHOTOGRAPHERS, SOME OF THE PROBLEMS INVOLVED ARE DISCUSSED, NAMELY, SINGLE-FRAME CAMERAS, THE PREPARATION OF FLAT COPY, EXPOSURE AND SPLICING. OTHER FILM FORMATS WITH POSSIBLE APPLICATION IN AUDIO-VISUAL PROGRAMING ARE DESCRIBED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-617 608
GRAFLEX INC ROCHESTER N Y
AN EXAMINATION OF THE FEASIBILITY OF MODULAR DESIGN FOR AUDIOVISUAL AUTOINSTRUCTIONAL EQUIPMENT. (U)
DESCRIPTIVE NOTE: FINAL REPT. FOR MAY 63-MAR 64.
MAY 65 36P TROW,WILLIAM H. ;SMITH,EDGAR A. ;
CONTRACT: AF33 657 11339
PROJ: 1710
TASK: 171007
MONITOR: AMRL . TR-65-79

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TRAINING DEVICES, PHOTOGRAPHIC RECORDING SYSTEMS), (*PHOTOGRAPHIC RECORDING SYSTEMS, TRAINING DEVICES); EDUCATION, PHOTOGRAPHS, PHOTOGRAPHIC FILM; TRAINING FILMS, STILL PROJECTORS, DISK RECORDING SYSTEMS, MAGNETIC RECORDING SYSTEMS; TEACHING MACHINES, COSTS, FEASIBILITY STUDIES (U)
IDENTIFIERS: AUDIO-VISUAL EQUIPMENT, FILMSTRIPS, PROGRAMMED INSTRUCTION (U)

THE INCREASING NEED FOR AUDIOVISUAL AUTOINSTRUCTIONAL EQUIPMENT IN A WIDE RANGE OF APPLICATIONS HAS CREATED A MAJOR PROBLEM IN DEVELOPMENT OF SATISFACTORY EQUIPMENT TO MEET THE VARYING DEMANDS. EACH SPECIFIC SITUATION REQUIRES A CERTAIN COMBINATION OF OPTICAL, MECHANICAL AND ELECTRONIC FUNCTIONS WHICH CANNOT NECESSARILY BE ADAPTED TO SUBSEQUENT USAGES OF THE EQUIPMENT. THIS RESULTS EITHER IN THE COSTLY ACQUISITION OF MANY SIMILAR PIECES OF EQUIPMENT OR IN UNDESIRABLE RESTRICTIONS ON THE INSTRUCTIONAL TECHNIQUES THAT MIGHT BE USED. THIS STUDY EXAMINES EXISTING AND POTENTIAL AREAS OF APPLICATION FOR AUDIOVISUAL AUTOINSTRUCTIONAL EQUIPMENT AND PROPOSES A MODULAR APPROACH IN THE DEVELOPMENT OF NEW EQUIPMENT. EACH MODULE WOULD EMBODY A SEPARABLE MAJOR FUNCTION AND WOULD BE INTERCHANGEABLE IN THE SYSTEM. THE PROPOSED BASIC MODULES WOULD INCLUDE: (1) A SLIDE-CHANGER MODULE, (2) A FILMSTRIP MODULE; (3) A FAMILY OF SCREEN MODULES, (4) A FAMILY OF LIGHT SOURCE MODULES, (5) AN AUDIO RECORD AND PLAYBACK MODULE, (6) THREE SIGNAL PULSING MODULES, (7) A MULTIPLECHOICE RESPONSE MODULE; AND (8) A WRITE-IN RESPONSE MODULE.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-617 609
GRAFLEX INC ROCHESTER N Y
DESIGN CONSIDERATIONS INFLUENCING THE SIZE AND COST OF OPTICAL COMPONENTS IN AUTOINSTRUCTIONAL DEVICES. (U)
DESCRIPTIVE NOTE: FINAL REPT. FOR MAY 63-MAR 64, MAY 65 41P TROW,WILLIAM H. ;SMITH,EDGAR A. ;
CONTRACT: AF33 657 11339
PROJ: 1710
TASK: 171007
MONITOR: AMRL TR-65-60

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TRAINING DEVICES, PHOTOGRAPHIC EQUIPMENT), (*PHOTOGRAPHIC EQUIPMENT, TRAINING DEVICES), PHOTOGRAPHIC PROJECTORS, STILL PROJECTORS, DESIGN, COSTS, VIEWING SCREENS, BRIGHTNESS, LUMINESCENCE, PHOTOGRAPHIC RECORDING SYSTEMS, OPTICAL MATERIALS, TEACHING MACHINES, MATHEMATICAL ANALYSIS (U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, AUDIO-VISUAL EQUIPMENT (U)

THE INCREASING DEMAND FOR LOW-PRICED PROJECTORS FOR SELF-INSTRUCTIONAL PURPOSES HAS PROMPTED INVESTIGATION OF DESIGN FACTORS WHICH CONTRIBUTE TO THE MANUFACTURING COSTS IN THIS CLASS OF PRODUCT. BECAUSE COST AND INTENDED USE ARE PRIME FACTORS, DESIGN MUST BE CASED UPON THE OPTIMUM COMBINATION OF OPTICAL COMPONENTS WHICH SATISFIES THESE DESIGN OBJECTIVES. THE PROBLEMS OF THE PROJECTOR DESIGN ITSELF ARE CONSIDERED. PRIMARILY THE DESIGN CONSIDERATIONS FOR OPTICAL COMPONENTS THAT MIGHT BE USED. RECENT DEVELOPMENTS IN LENS AND REFLECTOR FABRICATION METHODS DO NOT YET PERMIT A REDUCTION OF COST BELOW THAT OF CONVENTIONAL METHODS AND DESIGNS. SOME PRINCIPLES AND PRACTICES FOR REAR PROJECTION ARE PRESENTED. AND THE INTERDEPENDENCE OF MAJOR FACTORS INVOLVED IN MAXIMIZING SCREEN PERFORMANCE IS EXPRESSED IN MATHEMATICAL TERMS. THE ENVIRONMENTAL FACTORS OF ROOM ILLUMINATION LEVEL, AUDIENCE SIZE AND THE CONTRAST OF THE FILMED MATERIAL ARE FOUND TO BE HIGHLY INFLUENTIAL IN THE DESIGN OF A REARPROJECTION DEVICE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-617 740
UNITED STATES INDUSTRIES INC SILVER SPRING MD EDUCATIONAL SCIENCE DIV
A GUIDE TO PREPARING INTRINSICALLY PROGRAMMED INSTRUCTIONAL MATERIALS. (U)
DESCRIPTIVE NOTE: FINAL REPT. FOR 15 DEC 59-31 OCT 63.

APR 65 106P WALTHER,R. E. ;CROWDER, NORMAN ;
CONTRACT: AF33 61A 6983
PROJ: 1710
TASK: 171007
MONITOR: AMRL . TR-65-43

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*EDUCATION, TRAINING DEVICES), (*TRAINING DEVICES, EDUCATION), LEARNING, PROGRAMMERS, TEACHING MACHINES, PREPARATION, STUDENTS, TESTS, COSTS (U)
IDENTIFIERS: INTRINSIC PROGRAMMING, PROGRAMMED INSTRUCTION (U)

TO AID THOSE RESPONSIBLE FOR THE PREPARATION OF INTRINSICALLY PROGRAMMED INSTRUCTIONAL MATERIALS, THE PROCEDURES AND TECHNIQUES DEVELOPED BY THE EDUCATIONAL SCIENCE DIVISION OF U.S. INDUSTRIES, INC., HAVE HERE BEEN ORGANIZED INTO A PRACTICAL WORKING GUIDE. THE ORGANIZATION OF THIS REPORT CLOSELY FOLLOWS THE SEQUENCE OF STEPS REQUIRED TO PRODUCE AN EFFECTIVE INTRINSIC PROGRAM, ALTHOUGH OTHER SYSTEMS OF PROGRAMMING ARE IDENTIFIED. THIS GUIDE IS SPECIFICALLY INTENDED FOR USE IN THE PREPARATION OF INTRINSIC PROGRAMS IN EITHER BOOK OR TUTORFILM FORMAT. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-617 771
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
INTEGRATING COMPUTERS INTO BEHAVIORAL SCIENCE
RESEARCH, (U)
JUN 65 29P BORKO,H. ;
REPT. NO. SP-2102

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED FOR PRESENTATION AT THE ANNUAL INSTITUTE IN TECHNICAL AND INDUSTRIAL COMMUNICATIONS (8TH) COLORADO STATE UNIV., 6-10 JUL 65.

DESCRIPTORS: (*BEHAVIOR, SIMULATION), (*COMPUTERS, PSYCHOLOGY), DATA PROCESSING SYSTEMS, STATISTICAL ANALYSIS, EDUCATION, LEARNING, LANGUAGE, SOCIAL COMMUNICATION, MACHINE TRANSLATION, INFORMATION RETRIEVAL, CLASSIFICATION (U)
IDENTIFIERS: BEHAVIORAL SCIENCES (U)

FOR THE BEHAVIORAL SCIENTIST, THE COMPUTER PROVIDES A MEANS OF PERFORMING COMPLEX STATISTICAL ANALYSES AND A METHOD OF SIMULATING SYSTEMS OF INTERACTING VARIABLES. DATA PROCESSING TECHNIQUES HAVE BEEN APPLIED TO EDUCATIONAL STUDIES, INFORMATION HANDLING AND COMMUNICATION PROBLEMS. THE COMPUTER HAS SERVED NOT ONLY AS A POWERFUL INVESTIGATORY TOOL BUT ALSO AS AN INSTIGATOR OF MORE SIGNIFICANT PROBLEMS. IN BOTH OF THESE ROLES COMPUTERS HAVE BEEN HAVING A PROFOUND EFFECT ON BEHAVIORAL SCIENCE RESEARCH. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-617 775
AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB OHIO
ADJUNCT TO SELF-STUDY FOR AIRCREW REFRESHER TRAINING UNDER OPERATIONAL CONDITIONS IN THE AIR DEFENSE COMMAND. (U)
DESCRIPTIVE NOTE: FINAL REPT. FOR MAR-OCT 64.
MAR 65 32P MEYER,DONALD E. I
REPT. NO. AMRL-TR-65-83
PROJ: 1710
TASK: 171007

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*EDUCATION, TRAINING DEVICES), (*TRAINING DEVICES, EDUCATION), (*AVIATION PERSONNEL, TRAINING DEVICES), TEACHING MACHINES, STUDENTS, LEARNING, TESTS, AIR DEFENSE COMMAND (U)

THE PAPER IS A REPORT OF THE DEVELOPMENT AND EXPERIMENTAL COMPARISON OF A SELF-STUDY TECHNIQUE WITH CONVENTIONAL CLASSROOM METHODS AS A MEANS OF REFRESHER TRAINING OF AIR CREWS UNDER OPERATIONAL CONDITIONS. THE SELF-STUDY TECHNIQUE CONSISTED OF (1) A COMPREHENSIVE SERIES OF MULTIPLE-CHOICE QUESTIONS COVERING THE SUBJECT MATTER WITH EACH QUESTION BEARING REFERENCE TO THE PAGE AND PARAGRAPH OF A MANUAL CONTAINING THE DETAILED INFORMATION ON WHICH THE QUESTION WAS BASED, (2) A PUNCHBOARD BY WHICH STUDENTS IMMEDIATELY DETERMINED WHETHER THEIR ANSWER TO EACH QUESTION WAS CORRECT OR INCORRECT, AND (3) THE MANUAL TO WHICH STUDENTS REFERRED FOR INFORMATION WHEN THEY CHOSE AN INCORRECT ANSWER TO A QUESTION. THE CONCLUSIONS ARE: (1) THE PREPARATION AND ADMINISTRATION OF THE SELF-STUDY TECHNIQUE IS ENTIRELY WITHIN THE CAPABILITY OF AN OPERATIONAL SQUADRON WITH ONLY A MINIMUM OF GUIDANCE; (2) IN THE OPERATIONAL SETTING, THE SELF-STUDY TECHNIQUE IS SUPERIOR TO CONVENTIONAL CLASSROOM METHODS IN ITS EFFECTIVENESS AS A MEANS OF REFRESHER TRAINING; AND (3) STUDENTS FAVOR THE SELF-STUDY METHOD FOR REFRESHER TRAINING. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-618 003
SYSTEM RESEARCH LTD RICHMOND (ENGLAND)
TEACHING AS A CONTROL-ENGINEERING PROCESS. (U)
64 6P PASK,GORDON ;
CONTRACT: AF61 052 640 ,AF61 052 402
MONITOR: AFOSR , 65-0583

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PUB. IN CONTROL AND AUTOMATION PROGRESS V9 N79 P6-11 JAN 1965 (COPIES AVAILABLE ONLY TO DDC USERS).

DESCRIPTORS: (*TEACHING MACHINES, CONTROL SYSTEMS), (*EDUCATION, TEACHING MACHINES), CYBERNETICS, LEARNING, TRAINING DEVICES, SPECIAL PURPOSE COMPUTERS, DISPLAY SYSTEMS, DESIGN, STUDENTS, GREAT BRITAIN (U)

THE FIELD OF TEACHING MACHINES IS REVIEWED WITH PARTICULAR EMPHASIS ON ADAPTIVE TEACHING SYSTEMS, OR SYSTEMS IN WHICH THE TEACHING MACHINE IS AN ADAPTIVE CONTROL MECHANISM. THE AIM OF THE REVIEW IS TO INDICATE THE KIND OF MACHINERY THAT EXISTS, THE KIND OF WORK THAT IS BEING DONE, AND THE RESULTS THAT ARE ACHIEVED. THE PROBLEM OF DESIGNING AN ADAPTIVE CONTROL MECHANISM FOR AN ADAPTIVE TEACHING SYSTEM IS DISCUSSED. THE ARGUMENT IS CONCENTRATED ON A SINGLE CASE FOR WHICH A CERTAIN DESIGN (OR TEACHING STRATEGY EMBODIED IN A DESIGN) CAN BE JUSTIFIED. THE DISCUSSION MAY BE OF INTEREST TO THE CONTROL ENGINEER BECAUSE: (1) THE PROCESS TO BE CONTROLLED, A LEARNING PROCESS IN MAN, HAS AN UNFAMILIAR LOGICAL CALIBRE (TO ILLUSTRATE THIS I SHALL EXHIBIT THE MINIMAL MODEL FOR MAN THAT IS NEEDED TO DESIGN SUCH A CONTROL MECHANISM); (2) THE SYSTEM IS RELATIVELY INTRACTABLE AND THE DESIGN PROCEDURE IS GENUINELY CYBERNETIC; (3) IT IS SHOWN THAT THE MAN IS DYNAMICALLY STABLE ONLY IF HIS ENVIRONMENT IS SO ADJUSTED, BY THE ADAPTIVE MACHINE, THAT HIS RATE OF LEARNING CAN BE ALWAYS POSITIVE; (4) THE TEACHING SYSTEM IS DESIGNED BY SPECIFYING A STABILIZING SYSTEM AND LATER ARGUING THAT, BECAUSE DYNAMIC STABILITY IMPLIES THE EXISTENCE OF A POSITIVE LEARNING RATE, ANY STABILIZING SYSTEM IS ALSO A TEACHING SYSTEM; AND (5) THERE ARE MANY OTHER INTRACTABLE SYSTEMS, NOTABLY IN THE SOCIAL SCIENCES AND IN CONNECTION WITH INDUSTRIAL ORGANIZATIONS, WHICH MIGHT BE CONTROLLED IN A VERY SIMILAR FASHION. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-619 046
STANFORD RESEARCH INST MENLO PARK CALIF
EXPLORATIONS IN THE AUTOMATION OF SENSORIMOTOR SKILL TRAINING. (U)
DESCRIPTIVE NOTE: FINAL REPT.,
MAY 65 81P ENGELBART,DOUGLAS C. ;
SORENSEN,PHILIP H. ;
CONTRACT: N61339 1517
PROJ: 7820
MONITOR: NAVTRADEVCEN ; 1517-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TEACHING MACHINES, PSYCHOPHYSIOLOGY), (*MOTOR REACTIONS, TRAINING), (*TRAINING, TEACHING MACHINES), (*CODING, TEACHING MACHINES), OFFICE EQUIPMENT + SUPPLIES, COMPUTERS, FEEDBACK, TOUCH, VISUAL PERCEPTION, FEASIBILITY STUDIES, PUNCHED CARDS, EFFECTIVENESS, AUTOMATIC, PERFORMANCE TESTS, LEARNING, DATA PROCESSING SYSTEMS, OPERATORS(PERSONNEL), COMPUTER PERSONNEL (U)

THE PURPOSE OF THE STUDY WAS TO EXPLORE THE FEASIBILITY OF USING A COMPUTER TO TEACH A PSYCHOMOTOR TASK, I.E., OPERATION OF A 5-KEY CHORD KEYSET FOR BINARY CODING. THE OTHER FUNCTIONS STUDIED WERE MODE OF PRESENTING PROMPTS (VISUAL, TACTUAL) AND EFFECTS OF FEEDBACK UPON PERFORMANCE. THE AUTOMATED VISUAL AND TACTUAL PROMPTING MODES WERE COMPARED WITH WHAT MIGHT BE CONSIDERED TO BE A 'TRADITIONAL' MODE, IN WHICH SUBJECTS (SS) LEARNED THE CODE BY REFERRING TO A CODE SHEET. THE RESULTS INDICATED THAT NONE OF THE METHODS OF PROMPTING WAS SUPERIOR TO THE OTHERS. HOWEVER, THE FACT THAT SS COULD BE TAUGHT TO PERFORM A PSYCHOMOTOR TASK BY MEANS OF A COMPUTER IS A SIGNIFICANT ADVANCE IN TRAINING PROCEDURES. THE RESULTS ALSO INDICATED THAT THE PROVISION OF FEEDBACK AIDED PERFORMANCE FOR EACH OF THE PROMPTING MODES. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-619 155
ILLINOIS UNIV URBANA TRAINING RESEARCH LAB
COMPUTER-BASED INSTRUCTION. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUL 65 52P STOLUROW,LAWRENCE M. ;
REPT. NO. TR-9
CONTRACT: NONR398504 ,NONR183436
PROJ: NR154 239

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: AVAILABLE COPY WILL NOT PERMIT FULLY LEGIBLE REPRODUCTION. REPRODUCTION WILL BE MADE IF REQUESTED BY USERS OF DDC. COPY IS AVAILABLE FOR PUBLIC SALE.

DESCRIPTOR (*EDUCATION, TEACHING MACHINES), (*TEACHING MACHINES, LEARNING), (*COMPUTERS, EDUCATION), PROGRAMMING(COMPUTERS), COMPUTER STORAGE DEVICES, CODING, PUNCHED CARDS, STUDENTS (U)
IDENTIFIERS: SOCRATES, CBIS SYSTEM, FLOW CHARTS, PROGRAMMED INSTRUCTION (U)

ONE PURPOSE OF THIS PAPER WAS TO PRESENT A CONCEPTUALIZATION OF THE TEACHING-LEARNING PROCESS IN A WAY THAT PERMITS THE DEVELOPMENT OF A CBIS (COMPUTER-BASED INSTRUCTIONAL SYSTEM). ONE FUNCTION OF THE CBIS IS THE DEVELOPMENT OF REAL-TIME MODELS IN THE FORM OF COMPUTER PROGRAMS THAT TEACH. WITH THESE PROGRAMS, WE CAN PERFORM A SECOND FUNCTION WHICH IS TO CONDUCT RESEARCH RELATING TO THE DECISION PROCESSES NECESSARY FOR TEACHING. A SECOND PURPOSE WAS TO INDICATE WAYS IN WHICH SOCRATES (SYSTEM FOR ORGANIZING CONTENT TO REVIEW AND TEACH EDUCATIONAL SUBJECTS) IS BEING USED: (A) TO CONDUCT RESEARCH RELATING TO AN IDIOGRAPHIC MODEL OF TUTORIAL INSTRUCTION; (B) TO STUDY BASIC VARIABLES RELATING TO LEARNING AND TRANSFER; AND (C) TO DEVELOP THE TECHNOLOGY OF USING A CBIS TO GENERATE LEARNING MATERIALS. RESULTS FROM SEVERAL DIFFERENT APPLICATIONS OF SOCRATES WERE SUMMARIZED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-619 184
ILLINOIS UNIV URBANA TRAINING RESEARCH LAB
SYSTEMS APPROACH TO INSTRUCTION. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUL 65 41P STOLUROW,LAWRENCE M. ;
REPT. NO. TR-7
CONTRACT: NONR398504 ,NONR183436
PROJ: NR154 239

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-435 032.

DESCRIPTORS: (*EDUCATION, TEACHING MACHINES), (*TEACHING MACHINES, LEARNING), TRAINING DEVICES, INSTRUCTORS, MODELS(SIMULATION), STUDENTS, THEORY, PROGRAMMING(COMPUTERS), FEEDBACK, CYBERNETICS (U)
IDENTIFIERS: SOCRATES, CBIS SYSTEM, SYSTEMS ANALYSIS, PROGRAMMED INSTRUCTION, ADAPTIVE PROCESSES, MAN-MACHINE SYSTEMS (U)

THIS PAPER HAS OUTLINED THE NATURE OF THE SYSTEMS APPROACH AS IT RELATES TO INSTRUCTION. A GENERAL, BUT OPERATIONAL, MODEL OF INSTRUCTION AS A TUTORIAL SYSTEM ALSO WAS PRESENTED. THE SCHEMATICS OF AN ACTUAL COMPUTERASSISTED INSTRUCTIONAL MODEL KNOWN AS SOCRATES HAVE BEEN DESCRIBED. THE MODEL IS CYBERNETIC. IT ALSO RELATES THE LEARNER'S CHARACTERISTICS TO TEACHING DECISIONS AND IN THIS SENSE IT IS IDIOGRAPHIC. IN ADDITION, IT PERFORMS THE NECESSARY FUNCTIONS FOR HIGHLY ADAPTIVE INSTRUCTION WITH INSTRUCTIONAL OBJECTIVES, AS IMPLEMENTED IN SOCRATES. THIS INVOLVES A THREE-PROCESS CYCLE. THE FIRST OF THESE CONSISTS OF THE PRETUTORIAL DECISIONS WHICH MATCH INDIVIDUAL DIFFERENCES AMONG LEARNERS. THE SECOND OF THESE CONSISTS OF TUTORIAL DECISIONS WHICH ARE IMPLEMENTATION OF A SPECIFIC SET OF RULES. THE THIRD OF THESE CONSISTS OF THE CHANGING OF TUTORIAL DECISIONS WHICH INVOLVES THE SUBSTITUTION OF A SET OF RULES WHENEVER THE PREVIOUS SET FAILS TO PRODUCE THE DESIRED PERFORMANCE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-619 657
APPLIED PSYCHOLOGICAL SERVICES WAYNE PA
MASS TRAINING TECHNIQUES IN CIVIL DEFENSE. II. A
FURTHER STUDY OF TELEPHONIC ADJUNCT TRAINING. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUL 65 75P SIEGEL,ARTHUR I. ;FISCHL,
MYRON A. ;

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS, TRAINING),
(*APPLIED PSYCHOLOGY, CIVIL DEFENSE SYSTEMS),
TRAINING DEVICES, TELEPHONE COMMUNICATION SYSTEMS,
TEACHING MACHINES, POPULATION, CIVIL DEFENSE
PERSONNEL, PERFORMANCE(HUMAN), LEARNING,
MEASUREMENT, STATISTICAL TESTS, STATISTICAL
ANALYSIS (U)
IDENTIFIERS: PROGRAMMED INSTRUCTION (U)

THE GAIN IN KNOWLEDGE ACCRUING THROUGH USE OF
TELEPHONIC ADJUNCT TRAINING WAS INVESTIGATED AMONG
INDIVIDUALS OF LIMITED FORMAL EDUCATION. THE
RESULTS INDICATED THAT BOTH ADJUNCT AUGMENTED
TELEPHONIC TRAINING AND ADJUNCT AUGMENTED READING
WERE MORE EFFECTIVE THAN EITHER READING OR
UNAUGMENTED TELEPHONIC TRAINING FOR PRESENTING ATTACK
SURVIVAL MATERIAL TO THIS SAMPLE OF SUBJECTS. THE
TWO PRIOR STUDIES IN THE PROGRAM ARE REVIEWED, AND
THE IMPLICATIONS OF THE OVERALL PROGRAM'S RESULTS FOR
PUBLIC EDUCATION IN CIVIL DEFENSE ARE DISCUSSED.
(AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-620 663
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
THE VALIDATION OF AN AUTOMATED COUNSELING SYSTEM,
(U)
DESCRIPTIVE NOTE: TECHNICAL MEMO.,
AUG 65 196P FRIESEN,DELOSS DAVID ;
REPT. NO. TM-2611/000/00

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*EDUCATION, DATA PROCESSING SYSTEMS),
(*DATA PROCESSING SYSTEMS, EDUCATION), STUDENTS,
COMPUTERS, SIMULATION, BEHAVIOR,
PROGRAMMING(COMPUTERS), DECISION MAKING,
SCHEDULING (U)
IDENTIFIERS: INTERVIEWS, COUNSELING (U)

THE REPORT DESCRIBES EXPERIMENTS CONCERNED WITH THE VALIDITY OF AN AUTOMATED COUNCELING SYSTEM. FORTY 9THGRADE STUDENTS FROM THE PALO ALTO SCHOOL DISTRICT PARTICIPATED IN THE VALIDATION STUDY. THE CUMULATIVE RECORDS OF THE 40 STUDENTS WERE ANALYZED BY THE AUTOMATED APPRAISAL PROGRAM AND THE 40 STUDENTS PARTICIPATED IN THE AUTOMATED EDUCATIONAL PLANNING INTERVIEW. TWENTY OF THE 40 STUDENTS ALSO WERE INTERVIEWED BY THE ORIGINAL COUNSELOR WHOSE BEHAVIOR WAS BEING SIMULATED BY THE AUTOMATED PROGRAM. THE OTHER 20 STUDENTS WERE INTERVIEWED BY A SECOND COUNSELOR FROM THE SCHOOL DISTRICT. BOTH COUNSELORS MADE APPRAISALS OF THE STUDENTS FROM THE STUDENT CUMULATIVE RECORD. THE PERFORMANCE OF THE AUTOMATED COUNSELING SYSTEM WAS COMPARED TO THE PERFORMANCE OF THE TWO COUNSELORS ON THE FOLLOWING FOUR VARIABLES: THE APPRAISAL OF PUPIL RECORDS PRIOR TO THE INTERVIEW, THE POST-INTERVIEW APPRAISAL OF STUDENTS, THE EDUCATIONAL DECISIONS MADE BY THE STUDENTS, AND THE COMPLETENESS OF STUDENTS' EDUCATIONAL PLAN. THIS IS DR. FRIESEN'S DOCTORAL DISSERTATION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-621 169
ILLINOIS UNIV URBANA TRAINING RESEARCH LAB
A LISTING OF SOCRATES RESEARCH STUDIES FROM MARCH, 1964, TO JUNE, 1965. (U)
DESCRIPTIVE NOTE: TECHNICAL MEMO.,
SEP 65 8P STOLUROW,LAWRENCE M. ;
REPT. NO. TM-19
CONTRACT: NONR398504

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*EDUCATION, SCIENTIFIC RESEARCH), (*LEARNING, CYBERNETICS), REVIEWS, INSTRUCTORS, COMPUTERS, PROGRAMMING(COMPUTERS) (U)
IDENTIFIERS: SOCRATES, PROGRAMMED INSTRUCTION (U)

SOCRATES RESEARCH STUDIES AND BIBLIOGRAPHY OF TECHNICAL REPORTS.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-621 923
ILLINOIS UNIV URBANA TRAINING RESEARCH LAB
CORRECTION AND REVIEW ON SUCCESSIVE PARTS IN LEARNING A HIERARCHICAL TASK. (U)
65 3P MERRILL,M. DAVID ;
CONTRACT: NONR398504

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PROCEEDINGS OF THE ANNUAL CONVENTION OF THE AMERICAN PSYCHOLOGICAL ASSOCIATION (73RD), HELD AT CHICAGO, ILL., JUL 65.

DESCRIPTORS: (*LEARNING, TEACHING MACHINES), (*TEACHING MACHINES, LEARNING), EFFECTIVENESS, PROGRAMMING(COMPUTERS), TESTS, ERRORS, RETENTION, ANALYSIS OF VARIANCE (U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, SOCRATES (U)

A COMMON ASSUMPTION, SUPPORTED BY THE THEORETICAL FORMULATIONS OF AUSUBEL (1963) AND GAGNE (1965) AND THE PROGRAMMING TECHNIQUES ADVOCATED BY CROWDER (1960), IS THAT LEARNING AND RETENTION OF A HIERARCHICAL TASK ARE BOTH FACILITATED BY MASTERING EACH SUCCESSIVE PART BEFORE PROCEEDING TO THE NEXT PART. ON THE BASIS OF THIS ASSUMPTION IT WAS HYPOTHESIZED THAT: IN A HIERARCHICAL LEARNING TASK, (A) IF PART I IS MASTERED, SS ARE ABLE TO LEARN PART II FASTER AND WITH FEWER ERRORS THAN IF PART I IS NOT MASTERED BEFORE PROCEEDING TO PART II, ETC.; (B) WHEN THE TERMINAL TEST REQUIRES EVERY S TO REVIEW PREVIOUSLY PRESENTED MATERIALS UNTIL HE IS ABLE TO ANSWER EVERY QUESTION CORRECTLY, SS WHO ARE REQUIRED TO MASTER EACH SUCCESSIVE PART OF THE TASK BEFORE PROCEEDING TAKE LESS TOTAL TIME TO MASTER THE TERMINAL TEST THAN SS WHO PROCEED FROM PART TO PART WITH NO REQUIREMENT OF MASTERY; (C) SS WHO ARE REQUIRED TO MASTER EACH SUCCESSIVE PART OF THE TASK BEFORE PROCEEDING RETAIN THE MATERIAL BETTER THAN SS WHO PROCEED FROM PART TO PART WITH NO REQUIREMENT OF MASTERY EVEN WHEN THE TERMINAL TEST REQUIRES EVERY S TO REVIEW PREVIOUSLY PRESENTED MATERIALS UNTIL HE IS ABLE TO ANSWER EVERY QUESTION CORRECTLY. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-622 011
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
SOME CONSIDERATIONS IN THE EDUCATION OF INDIGENOUS GROUPS IN THE SOUTHWEST. (U)
DESCRIPTIVE NOTE: PROFESSIONAL PAPER,
JUL 65 14P BERMAN, MARK L. ;
REPT. NO. SP-2148

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH ARIZONA STATE UNIV., TEMPE.

DESCRIPTORS: (*EDUCATION, UNITED STATES), POPULATION, CULTURE, POLITICAL SCIENCE, ECONOMICS, STUDENTS, CALIFORNIA, NEVADA, NEW MEXICO, ARIZONA (U)
IDENTIFIERS: PROGRAMMED INSTRUCTION (U)

CURRENT INTEREST IN THE EDUCATIONAL PROBLEMS OF THE INDIGENOUS POPULATION OF THE SOUTHWESTERN UNITED STATES, INCLUDING INDIANS AND SPANISH-SPEAKING PEOPLES, IS HIGH. THE PAPER DISCUSSES THE GENERAL SIZE AND DISTRIBUTION OF THESE POPULATIONS IN THE SOUTHWEST. IN ADDITION, SELECTED RESEARCH FINDINGS RELATING TO EFFORTS TO DEVELOP IMPROVED METHODS OF DEALING WITH THE EDUCATIONAL PROBLEMS OF THESE PEOPLE ARE PRESENTED. FINALLY, THE APPLICABILITY OF CERTAIN EDUCATORY TECHNIQUES, SUCH AS PROGRAMMED INSTRUCTION, IS DISCUSSED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-622 473
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
THE TEACHER AND CYBERNETICS. (U)
SEP 65 10P EFIMOV,S. ;
REPT. NO. FTD-TT-65-1152
MONITOR: TT . 65-64196

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. FROM KOMSOMOLSKAYA PRAVDA (USSR) 9 OCT P3 1962.

DESCRIPTORS: (*EDUCATION, CYBERNETICS), (*TEACHING MACHINES, EDUCATION), TRAINING DEVICES, REASONING, INSTRUCTORS, USSR (U)

TRANSLATION OF RUSSIAN ARTICLE: THE TEACHER AND CYBERNETICS.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-623 025
ILLINOIS UNIV URBANA TRAINING RESEARCH LAB
SOCIAL REINFORCEMENT AND PERFORMANCE IN PROGRAMED
LEARNING IN ITALY. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
OCT 65 37P PARISI,DOMENICO ;
REPT. NO. TR-27
CONTRACT: NONR1834 36 ,USOE2 20 003
PROJ: NR177 472

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: MASTER'S THESIS. RESEARCH SUPPORTED
IN PART BY HEW, NDEA TITLE VI; CONTRACT USOE4 20 002.

DESCRIPTORS: (*LEARNING, PERFORMANCE(HUMAN)),
(*SOCIAL PSYCHOLOGY, LEARNING), ACHIEVEMENT TESTS,
VERBAL BEHAVIOR, REASONING, INTELLIGENCE TESTS,
PERSONALITY, ATTITUDES, MOTIVATION, FEEDBACK,
CORRELATION TECHNIQUES, STUDENTS, ITALY, UNITED
STATES (U)
IDENTIFIERS: REINFORCEMENT(PSYCHOLOGY),
PROGRAMMED INSTRUCTION (U)

THE STUDY ATTEMPTED TO ASSESS THE EFFECTS OF SOCIAL
REINFORCEMENT ON PERFORMANCE IN A PROGRAMED LEARNING
TASK. THE FOUR EXPERIMENTAL CONDITIONS THAT
DETERMINED THE TREATMENT GROUPS WERE: POSITIVE,
NEGATIVE, POSITIVE AND NEGATIVE, AND NO SOCIAL
REINFORCEMENT (EVALUATING FEEDBACK).
INFORMATIONAL FEEDBACK IN THE BRANCHING PROGRAM USED
IN THE EXPERIMENT WAS IDENTICAL FOR ALL GROUPS.
ONE HUNDRED AND EIGHT MALE HIGH SCHOOL STUDENTS
WERE RANDOMLY ASSIGNED TO ONE OF THE FOUR TREATMENT
GROUPS. RESULTS INDICATE THAT NEGATIVE EVALUATIVE
FEEDBACK PRODUCED THE LARGER VARIANCE IN ACHIEVEMENT.
PERFORMANCE LEVEL IS HIGHER WHEN NEGATIVE
REINFORCEMENT IS GIVEN THAN WHEN IT IS NOT GIVEN.
POSITIVE EVALUATIVE FEEDBACK REINFORCEMENT DID NOT
AFFECT PERFORMANCE. THE NUMBER OF SIGNIFICANT
CORRELATIONS BETWEEN ACHIEVEMENT, ON THE ONE HAND,
AND VERBAL AND ABSTRACT REASONING APTITUDES AND 16
PF INTELLIGENCE FACTOR ON THE OTHER HAND, TENDS TO
DECREASE WITH INCREASING SOCIAL REINFORCEMENT
CONDITIONS. SO[illegible] REINFORCEMENT ATTENUATES THE
USUAL CORRELATION BETWEEN INTELLIGENCE AND
ACHIEVEMENT TEST PERFORMANCE FOLLOWING PROGRAMED
LEARNING. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-623 526
ILLINOIS UNIV URBANA COORDINATED SCIENCE LAB
THE USES OF PLATO: A COMPUTER-CONTROLLED TEACHING SYSTEM. (U)
OCT 65 35P BITZER,DONALD L. ;LYMAN, ELIZABETH R. ;EAGLEY,J. A. ,JR.;
REPT. NO. R-268
CONTRACT: DA28 043AMC00073E ,NONR398508
PROJ: 20014501831F

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TEACHING MACHINES, DIGITAL COMPUTERS), DECISION MAKING, STUDENTS, COMPILERS, TELEVISION DISPLAY SYSTEMS, EDUCATION, PROGRAMMING(COMPUTERS), AUTOMATIC, LEARNING (U)
IDENTIFIERS: CDC 1604 COMPUTER, PLATO TEACHING SYSTEM, TIME SHARING(COMPUTERS), LEARNING MACHINES (U)

THE USE OF A HIGH-SPEED DIGITAL COMPUTER AS A CENTRAL CONTROL ELEMENT PROVIDES GREAT FLEXIBILITY IN AN AUTOMATIC TEACHING SYSTEM. USING A COMPUTER-BASED SYSTEM PERMITS VERSATILITY IN TEACHING LOGICS SINCE CHANGING THE TYPE OF TEACHER MERELY REQUIRES CHANGING THE COMPUTER PROGRAM, NOT TH HARDWARE. IN ADDITION, HAVING ACCESS TO THE DECISION-MAKING CAPACITY OF A LARGE COMPUTER LOCATED AS ONE UNIT PERMITS COMPLICATED DECISIONS TO BE MADE FOR EACH STUDENT. SUCH CAPACITY WOULD BE PROHIBITIVELY EXPENSIVE TO PROVIDE BY MEANS OF DECISIONMAKING EQUIPMENT LOCATED AT EACH STUDENT STATION. THE RESULTS OF EXPLORATORY QUEUING STUDIES SHOW THAT THE SYSTEM COULD TEACH AS MANY AS A THOUSAND STUDENTS SIMULTANEOUSLY WITHOUT INCURRING A NOTICEABLE DELAY FOR ANY STUDENT'S REQUEST. THE EDUCATIONAL RESULTS THUS FAR HAVE BEEN EXTREMELY ENCOURAGING. HOWEVER, RELIABLE CONCLUSIONS ON EDUCATIONAL ACHIEVEMENT MUST AWAIT THE RESULTS OF MORE THOROUGH EXPERIMENTS NOW IN PROGRESS WHICH INCLUDE LARGER NUMBERS OF STUDENTS LEARNING UNDER A VARIETY OF CONDITIONS. THE ADAPTABILITY AND USEABILITY OF THE SYSTEM FOR A VARIETY OF PURPOSES IN EDUCATION AND THE BEHAVIORAL AND PHYSICAL SCIENCES HAVE BEEN CLEARLY DEMONSTRATED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-623 824 17/7 9/2
UNIVAC DIV SPERRY RAND CORP ST PAUL MINN
PROGRAMMING, INTEGRATION, AND CHECKOUT OF THE STORED PROGRAM ALPHA-NUMERIC BEACON SYSTEM. (U)
DESCRIPTIVE NOTE: FINAL REPT.
JUN 65 90P
REPT. NO. PX-3539
CONTRACT: FA64WA-5020
PROJ: 105-200D
MONITOR: SRDS . RD-65-79

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*PROGRAMMING(COMPUTERS), AIR TRAFFIC CONTROL SYSTEMS), (*RADAR BEACONS, AIR TRAFFIC CONTROL SYSTEMS), (*AIR TRAFFIC CONTROL SYSTEMS, RADAR BEACONS), DISPLAY SYSTEMS, CHECKOUT PROCEDURES, OPERATIONS RESEARCH, DIGITAL SYSTEMS, VIDEO INTEGRATION (U)
IDENTIFIERS: SPAN(STORED PROGRAM ALPHA-NUMERICBEACON SYSTE) (U)

THE STORED PROGRAM ALPHA-NUMERIC BEACON SYSTEM PROVIDES ENROUTE AREA CONTROLLERS WITH BRIGHT DISPLAY OF SYMBOLIC AND ALPHA-NUMERIC DATA RELATIVE TO CONTROLLER INITIATED TRACKS AND AUTOMATICALLY MAINTAINS CONTINUOUS ASSOCIATION BETWEEN THIS DATA AND BEACON VIDEO BY MEANS OF DIGITAL TRACKING TECHNIQUES. THE SYSTEM CONSISTS OF A DIGITAL COMPUTATIONAL SUBSYSTEM, THREE BEACON SUBSYSTEMS, AND A DISPLAY SUBSYSTEM. WORK PERFORMED UNDER THIS CONTRACT INCLUDES DESIGN AND PREPARATION OF THE COMPUTER PROGRAM FOR THE OPERATIONAL SYSTEM, ELECTRICAL AND OPERATIONAL INTEGRATION OF THE SYSTEM AT THE AIR ROUTE TRAFFIC-CONTROL CENTER AT INDIANAPOLIS, INDIANA, AND CHECKOUT OF THE SYSTEM TO VERIFY ITS COMPLIANCE TO GOVERNMENT SPECIFICATIONS AND REQUIREMENTS. ALL SYSTEM EQUIPMENTS, THE SYSTEM SITE, AND SITE FURNISHINGS WERE PROVIDED BY THE GOVERNMENT. THE MAJOR FUNCTIONAL ELEMENTS OF THE OPERATIONAL COMPUTER PROGRAM ARE TRACKING, PROCESSING OF CONTROLLER INSERTED DATA AND REQUESTS, AND PREPARATION OF PROPERLY FORMATTED MESSAGES FOR DISPLAY. THE TRACKING FUNCTION IS MULTISTATE ALPHA, BETA, STRAIGHT LINE TRACKING. THE AVAILABILITY OF THE SYSTEM'S GENERAL PURPOSE DIGITAL COMPUTER MADE POSSIBLE AN APPROACH TO EQUIPMENT SYSTEM INTEGRATION WHICH WAS PRIMARILY BASED UPON A SEQUENCE OF SPECIALLY DESIGNED PROGRAMED TESTS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-623 916 5/9
HARVARD UNIV CAMBRIDGE MASS
THE RELATION OF POSTTEST PERFORMANCE TO RESPONSE-CONTINGENCIES IN PROGRAMMED INSTRUCTION. (U)
JUN 65 15P SHERMAN,MARK A. ;
CONTRACT: AF19(628)-2404
PROJ: 5F-7682
TASK: 768204
MONITOR: ESD . TR-65-357

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, EFFECTIVENESS), TEACHING MACHINES, STUDENTS, TESTS, RECALL, LEARNING, PERFORMANCE(HUMAN) (U)

TWO PROGRAMS, CONTAINING FICTITIOUS SUBJECT MATTER, WERE EMPLOYED IN A STUDY DESIGNED TO COMPARE THE TEACHING EFFECTIVENESS (AS MEASURED BY POSTTEST) OF TEXTUAL MATERIAL PRESENTED (1) AS CONTINGENCIES FOR RESPONSES IN A PROGRAM, OR (2) AS MATERIAL UPON WHICH RESPONSES WERE NOT CONTINGENT. THE CONTENT OF THE PROGRAMS WAS IDENTICAL, AND THEY DIFFERED ONLY IN THAT MATERIAL WHOSE READING WAS NECESSARY FOR CORRECT RESPONDING IN ONE PROGRAM WAS NOT NECESSARY FOR CORRECT RESPONDING IN THE OTHER AND VICE VERSA. THE POSTTEST WAS THE SAME FOR ALL SUBJECTS, HALF OF THE POSTTEST RELATED TO MATERIAL WHICH WAS RESPONSECONTINGENT IN ONE OF THE PROGRAMS, AND THE OTHER HALF RELATED TO MATERIAL WHICH WAS RESPONSE-CONTINGENT IN THE OTHER PROGRAM. RESULTS INDICATE THAT RESPONSECONTINGENT MATERIAL LEADS TO HIGHER POSTTEST SCORES THAN THE SAME MATERIAL WHEN IT IS NOT NECESSARY FOR CORRECT RESPONDING WITHIN THE PROGRAM. THE PROBABILITY OF INFORMATION BEING ACQUIRED FROM A PROGRAM IS INCREASED WHEN THIS INFORMATION IS RESPONSE-CONTINGENT. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-624 152 9/2 6/4
BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS
CYCLOPS-2: A COMPUTER SYSTEM THAT LEARNS TO
SEE. (U)
DESCRIPTIVE NOTE: FINAL SCIENTIFIC REPT. 1 JUL 64-13
OCT 65.
OCT 65 68P BLOOM,BURTON H. ;MARILL,
THOMAS ;
REPT. NO. TR65-RD1-1 ,BBN1333
CONTRACT: AF19(628)-4306
PROJ: AF-4641
TASK: 4641-02
MONITOR: AFCRL 65-731

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*PATTERN RECOGNITION,
PROGRAMMING(COMPUTERS)),
(*PROGRAMMING(COMPUTERS), PATTERN RECOGNITION),
(*LEARNING, PROGRAMMING(COMPUTERS)), DIGITAL
COMPUTERS, ANALYSIS, ARTIFICIAL INTELLIGENCE,
COMPUTER STORAGE DEVICES, INFORMATION RETRIEVAL (U)
IDENTIFIERS: LIST PROCESSING, CYCLOPS COMPUTER
SYSTEM,PDP-1 COMPUTER (U)

THE DESIGN OF THE CYCLOPS-2 SYSTEM IS DISCUSSED
IN DETAIL. WHEN COMPLETED, THE SYSTEM WILL HAVE
THE ABILITY TO RECOGNIZE VISUAL SHAPES COMPOSED OF
ARBITRARY LINES, TO ANALYZE SCENES COMPOSED OF SUCH
SHAPES, AND TO LEARN, I.E., TO IMPROVE ITS OWN
PERFORMANCE BY EXAMINING CORRECTLY LABELED EXAMPLES.
THE TECHNIQUES EMBEDDED IN THE DESIGN ARE QUITE
GENERAL AND CAN BE APPLIED TO OTHER RECOGNITION OR
LEARNING SITUATIONS THAN THOSE CYCLOPS-2 WAS
SPECIFICALLY DESIGNED TO HANDLE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-624 437 9/2
STANFORD RESEARCH INST MENLO PARK CALIF
NOTES ON CLASSIFICATION CAPACITIES. (U)
DESCRIPTIVE NOTE: INTERIM REPT.,
OCT 65 26P COVER.T. ;
CONTRACT: AF30(602)-3448
PROJ: 5581
TASK: 558104
MONITOR: RADC . TR-65-263

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-436 347.

DESCRIPTORS: (*LEARNING MACHINES, NETWORKS), (*COMPUTER LOGIC, PATTERN RECOGNITION), CLASSIFICATION, DATA STORAGE SYSTEMS, LINEAR SYSTEMS, MATHEMATICAL LOGIC (U)
IDENTIFIERS: THRESHOLD LOGIC UNIT (U)

THIS IS A WORKING PAPER CONCERNED WITH THE PROBLEM OF DETERMINING THE INFORMATION STORAGE CAPACITIES OF NETWORKS OF LINEAR THRESHOLD DEVICES. CAPACITIES FOR SINGLE ELEMENT NETWORKS AND LOW DIMENSIONAL MULTIELEMENT NETWORKS ARE FOUND, AND BOUNDS ON CAPACITIES ARE DISCUSSED FOR GENERAL NETWORKS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-624 548 9/2
ILLINOIS UNIV URBANA ELECTRICAL ENGINEERING RESEARCH LAB
AUTOMATIC ADJUSTMENT IN A CONTINUOUS ENVIRONMENT, (U)

SEP 65 23P ANDREW,A. M. ;
REPT. NO. TR-8
CONTRACT: AF AFOSR-7-64
MONITOR: AFOSR 65-2283

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*LEARNING MACHINES, ADAPTIVE SYSTEMS), CONTROL SYSTEMS, AUTOMATIC, OPTIMIZATION, ARTIFICIAL INTELLIGENCE, MATHEMATICAL MODELS (U)

CONTROL DEVICES, BIOLOGICAL OR OTHERWISE, WHICH ARE ABLE TO ADJUST THEIR OWN INTERNAL PARAMETERS ARE DISCUSSED. IT IS SHOWN THAT UNDER CERTAIN CIRCUMSTANCES THE ADJUSTMENT PROCESS MUST DEPEND ON EXPERIMENTAL FLUCTUATIONS SUPERIMPOSED ON EITHER THE PARAMETERS OR THE CONTROL SIGNALS. THE WAY IS STUDIED IN WHICH THE EFFECTIVE FLUCTUATIONS ATTRIBUTED TO THE PARAMETERS CAN BEST BE COMPUTED FROM FLUCTUATIONS OF THE CONTROL SIGNALS. A MATHEMATICAL COMPARISON IS GIVEN OF TWO WAYS IN WHICH A SELF-IMPROVING CONTROLLER MAY OPERATE, NAMELY WITH AND WITHOUT AN EXPLICIT MODEL OF THE ENVIRONMENT. FOR A SIMPLE CONTROL TASK THE TWO ARE SHOWN TO BE ALMOST EXACTLY EQUIVALENT. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-624 937 5/9 9/2
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
COMPUTERS IN SYSTEMS OF HIGHER EDUCATION. (U)
DEC 65 14P CAFFREY,JOHN G. ;
REPT. NO. SP-2213

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE AEDS-STANFORD CONFERENCE, OCTOBER 31-NOVEMBER 3, 1965, AT STANFORD UNIV.

DESCRIPTORS: (*EDUCATION, COMPUTERS), (*COMPUTERS, EDUCATION), DATA PROCESSING SYSTEMS, UNIVERSITIES, MANAGEMENT ENGINEERING, PERSONNEL, TRAINING (U)

DESIGNING AN INFORMATION SYSTEM REQUIRES THAT THE ADMINISTRATOR THINK CAREFULLY AND MAKE VERY EXPLICIT HIS OBJECTIVES AND CRITERIA, AND SOME OBSERVERS FEEL THAT SUCH AN IMPERATIVE IS A USEFUL DISCIPLINE IN ITS OWN RIGHT. AS THE NEED FOR REGIONAL AND INTER-INSTITUTIONAL USE OF COMPUTER AND INFORMATION SYSTEMS INCREASES, NEW ARRANGEMENTS WILL BE NEEDED FOR COOPERATION, BOTH VERTICALLY AND HORIZONTALLY, AMONG AND BETWEEN INSTITUTIONS AND THEIR GOVERNING OR REGULATORY BOARDS. STEPS WILL HAVE TO BE TAKEN TO PROVIDE TRAINING AND ORIENTATION FOR ALL LEVELS OF MANAGEMENT IN HIGHER EDUCATION, ESPECIALLY IN THE TRAINING OF NOVICE ADMINISTRATORS WHO WILL MANAGE TOMORROW'S SYSTEMS OF HIGHER EDUCATION. USING THE EXISTING TECHNOLOGY (NOT ALL OF IT AS YET WIDELY DISSEMINATED OR WELL UNDERSTOOD), IT IS POSSIBLE TO DRAW A PICTURE OF THE UNIVERSITY OF TOMORROW IN WHICH THE COMPUTER, WITH ITS ATTENDANT PERIPHERAL EQUIPMENT AND SOFTWARE SYSTEMS, WILL BE A BASIC AND INDISPENSABLE PART OF THE FABRIC OF MANAGEMENT AS WELL AS OF THE TOTAL OPERATING AND INSTRUCTIONAL PROGRAM OF THE INSTITUTION. THE MAIN PROBLEM AT THE MOMENT IS NOT THE TECHNOLOGY, WHICH HAS OUTPACED ITS USERS IN HIGHER EDUCATION, BUT DISSEMINATION, DEVELOPMENT, AND THE TRAINING OF APPROPRIATE PERSONNEL. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-625 225 6/4 9/2
NAVAL ORDNANCE LAB WHITE OAK MD
SYNTHETIC NERVE NETWORKS. (U)
DESCRIPTIVE NOTE: FINAL REPT.,
APR 65 141P COTE,ALFRED J. ,JR.;
REPT. NO. NOLTR-65-55
TASK: RREN-04/012/212/1/F008-21/02,RUDC-4B-000/212-1/F001-05-02

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*LEARNING MACHINES, MICROMINIATURIZATION(ELECTRONICS)), (*PATTERN RECOGNITION, LEARNING MACHINES), (*BIONICS, MICROMINIATURIZATION(ELECTRONICS)), (*ARTIFICAL INTELLIGENCE, PATTERN RECOGNITION), ANALOG SYSTEMS, VISION, SOUND, SENSORY MECHANISMS, NERVE CELLS, NERVOUS SYSTEMS, SIMULATION (U)

MOST MODELS OF PATTERN RECOGNITION PROCESSES ARE CONCEIVED WITHOUT REGARD TO THE DIFFICULTIES WHICH MIGHT BE ANTICIPATED IF ONE HAD TO FABRICATE A FULL SCALE ENGINEERING MODEL EMBODYING THE PROPOSED PRINCIPLES. THIS REPORT DISCUSSES RECOGNITION SYSTEMS WHICH TAKE INTO ACCOUNT THE FABRICATION LIMITATIONS ONE WOULD EXPECT TO ENCOUNTER IN THE CONSTRUCTION OF EXTREMELY HIGH DENSITY MICROELECTRONIC PATTERN RECOGNITION SYSTEMS. THE RESULTING ANALOG SYSTEMS RESPOND TO TRANSIENT PATTERNS AND THE VARIOUS ARTIFICIAL NEURONS WITHIN THEM EXHIBIT FUNCTIONAL BEHAVIOR COMPARABLE TO THAT FOUND IN BIOLOGICAL PROTOTYPES. THE APPLICATION OF THESE PRINCIPLES IS FIRST DISCUSSED IN TERMS OF A VISUAL PROCESSING SYSTEM WHICH WOULD EXHIBIT MANY OF THE PROPERTIES ATTRIBUTED TO NERVE FIBRES IN THE VISUAL SYSTEMS OF FROGS AND CATS, INCLUDING THOSE LINE SENSING PROPERTIES ATTRIBUTED BY HUBEL TO FIBRES IN THE CAT'S VISUAL CORTEX. THE MANNER IN WHICH THESE SAME PRINCIPLES CAN BE APPLIED TO THE PROBLEM OF SOUND RECOGNITION IS THEN CONSIDERED. METHODS OF REALIZATION, AND AN IMPORTANT FUNCTION OF LEARNING IN SUCH SYSTEMS, ARE ALSO DISCUSSED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-625 498 5/2 9/2
FEDERATION OF AMERICAN SOCIETIES FOR EXPERIMENTAL BIOLOGY
WASHINGTON D C
1965 CONGRESS, INTERNATIONAL FEDERATION FOR
DOCUMENTATION (FID), 10-15 OCTOBER 1965, WASHINGTON,
D. C.: ABSTRACTS, (U)
OCT 65 96P
CONTRACT: AF49(638)-1561
PROJ: AF-9769
TASK: 976901
MONITOR: AFOSR , 65-1891

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*DOCUMENTATION, SYMPOSIA), ABSTRACTS,
EDUCATION, TRAINING, EASTERN EUROPE, PAKISTAN,
LIBRARIES, SOUTH AMERICA, SWEDEN, INFORMATION
RETRIEVAL, CANADA, FRANCE, JAPAN, WEST
GERMANY, MANAGEMENT PLANNING, TRANSFORMATIONAL
GRAMMARS, CLASSIFICATION, COMPUTERS, OPTICAL
SCANNING, PUNCHED TAPE, MAN-MACHINE SYSTEMS (U)
IDENTIFIERS: MAC PROJECT, FILE STRUCTURES,
CITATIONINDEX, USER SURVEYS (U)

THE BOOKLET CONTAINS ABSTRACTS OF SYMPOSIUM PAPERS
AND CONTRIBUTED PAPERS PRESENTED AT THE 1965
CONGRESS. SYMPOSIUM ABSTRACTS ARE GROUPED IN FIVE
TOPIC AREAS: (1) EDUCATION AND TRAINING OF
DOCUMENTALISTS, (2) ORGANIZATION OF INFORMATION
FOR DOCUMENTATION, (3) INFORMATION NEEDS OF
SCIENCE AND TECHNOLOGY, (4) INFORMATION NEEDS OF
SOCIETY, AND (5) PRINCIPLES OF DOCUMENTATION AND
SYSTEMS DESIGN. CONTRIBUTED ABSTRACTS ARE ARRANGED
ALPHABETICALLY BY NAME OF THE FIRST AUTHOR. AN
AUTHOR INDEX IS INCLUDED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-625 759 6/16 5/2 5/10 6/4
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
SUPERIMPOSED RANDOM CODING OF STIMULUSRESPONSE
CONNECTIONS. (U)
DESCRIPTIVE NOTE: PROFESSIONAL PAPER,
NOV 65 18P GREENE,PETER H. ;
REPT. NO. SP-2071/000/00
CONTRACT: NONR-2121(17)
PROJ: NR-049-148

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*NERVOUS SYSTEM, CODING),
(*INFORMATION RETRIEVAL, CODING), LEARNING,
NERVE CELLS, REPORTS, PUNCHED CARDS,
STIMULATION, REACTION(PSYCHOLOGY),
PROGRAMMING(COMPUTERS) (U)
IDENTIFIERS: PERCEPTRONS,
REINFORCEMENT(PSYCHOLOGY), DESCRIPTORS (U)

THE PROBLEM OF ECONOMICALLY LINKING A LARGE NUMBER OF STIMULI WITH A LARGE NUMBER OF POTENTIAL RESPONSES IS CONSIDERED TO RESEMBLE A PROBLEM OF EFFICIENT RETRIEVAL OF DOCUMENTS (THE RESPONSES) ON THE BASIS OF THEIR CHARACTERIZATION BY DESCRIPTORS (THE STIMULI TO WHICH THE RESPONSES ARE APPROPRIATE). IN THIS RETRIEVAL PROBLEM, A METHOD WHEREBY THE CODES FOR DESCRIPTORS ARE RANDOM POSITIONS IN A CODING FIELD, AND WHEREBY CODES FOR ALL APPLICABLE DESCRIPTORS ARE SUPERIMPOSED IN THE SAME FIELD, SEEMS TO BE THE SIMPLEST WAY OF AVOIDING SERIOUS DIFFICULTIES OF RETRIEVAL. AFTER A REVIEW OF THIS METHOD, THE POSSIBILITY IS CONSIDERED THAT VERY SIMPLE NEURAL MECHANISMS COULD EMBODY THE ESSENTIAL FEATURES OF THE METHOD. THE AIM OF THE DISCUSSION IS TO LEARN WHETHER VERY SIMPLE STRUCTURES AND PATTERNS OF REINFORCEMENT WOULD BE ADEQUATE TO CARRY OUT USEFUL INFORMATION PROCESSING IN THE BRAIN, AND TO SHOW SOME CONCEIVABLE FUNCTIONS OF SIMPLE NEURAL NETWORKS THAT THE EXPERIMENTER MIGHT KEEP IN MIND. THE DISCUSSION ALSO SHOWS HOW THE STRUCTURE OF A SIMPLE 'PERCEPTRON-LIKE' NETWORK IS SUGGESTED BY THE REQUIREMENTS OF A RETRIEVAL TASK. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-626 262 5/7 5/9
HUMAN RESOURCES RESEARCH OFFICE GEORGE WASHINGTON UNIV
ALEXANDRIA VA
A SELF-INSTRUCTIONAL TACTICAL LANGUAGE COURSE IN
RUSSIAN. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
DEC 65 74p ROCKLYN,EUGENE H. ;
REPT. NO. HUMRRO-TR-65-14
CONTRACT: DA-44-188-ARO-2
PROJ: DA-2J02401A712-01

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*RUSSIAN LANGUAGE, PROGRAMMED INSTRUCTION), EDUCATION, TEACHING METHODS, MILITARY TACTICS, INSTRUCTION MANUALS, VOCABULARY (U)

TO ENABLE THE COMBAT SOLDIER TO OBTAIN PERISHABLE, TACTICAL INFORMATION FROM NEWLY CAPTURED PRISONERS OF WAR, A BRIEF, SELF-INSTRUCTIONAL RUSSIAN LANGUAGE COURSE WAS DEVELOPED AND EVALUATED. MATERIALS OBTAINED FROM QUESTIONNAIRES ADMINISTERED OF COMBAT-EXPERIENCED PERSONNEL WERE REVIEWED AND REFINED, RESULTING IN A FINAL VERSION OF COURSE CONTENT THAT COVERED AREAS OF INFORMATION LIKELY TO BE USED IN ANY OFFENSIVE OR DEFENSIVE QUESTIONING SITUATION. THE COURSE WAS TAKEN BY 13 STUDENTS HAVING LANGUAGE APTITUDES RANGING FROM 0 TO THE 97TH PERCENTILE ON THE ARMY LANGUAGE APTITUDE TEST. UPON COMPLETION, THEY WERE TESTED ON CONTENT ACQUISITION OF ALL MATERIAL IN THE COURSE AND ON ABILITY TO USE THE MATERIAL TO OBTAIN INFORMATION FROM NATIVE RUSSIANS DURING SIMULATED COMBAT-AREA QUESTIONING. THE RESULTS WERE A MEAN OF 93% CORRECT FOR SPEAKING AND UNDERSTANDING RUSSIAN AND AN 89% MEAN IN TRANSLATING ANSWERS GIVEN BY THE RUSSIANS, THUS DEMONSTRATING THE FEASIBILITY OF SUCH A COURSE. THE STRUCTURE AND QUESTIONING TECHNIQUES SEEM EFFECTIVE IN HELPING TO ELICIT UNDERSTANDABLE ANSWERS FROM NONENGLISH-SPEAKING PERSONNEL AND MAY SERVE AS A BASIS FOR DEVELOPMENT OF SIMILAR COURSES IN OTHER LANGUAGES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-627 076 5/9
ILLINOIS UNIV URBANA COORDINATED SCIENCE LAB
REPLAB, A STUDY IN SCIENTIFIC INQUIRY USING THE PLATO SYSTEM, (U)
DEC 65 36P BITZER,DONALD L. ;LYMAN, ELISABETH R. ;SUCHMAN,J. RICHARD ;
REPT. NO. R-260
CONTRACT: DA-28-043-AMC-00073(E) ,NONR-3985(08)
PROJ: DA-20014501831F

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-623 526.

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, LEARNING), (*TEACHING MACHINES, DIGITAL COMPUTERS), EDUCATION, STUDENTS, MAN-MACHINE SYSTEMS, PERFORMANCE(HUMAN), EXPERIMENTAL DESIGN, DECISION MAKING (U)
IDENTIFIERS: PLATO TEACHING SYSTEM (U)

ONE OF THE TEACHING TECHNIQUES EMPLOYED IN THE ILLINOIS STUDIES IN INQUIRY TRAINING PROJECT WAS A LESSON, REPLAB, (RESPONSIVE ENVIRONMENT PROGRAMMED LABORATORY), WRITTEN FOR USE WITH THE PLATO COMPUTER-CONTROLLED TEACHING SYSTEM. THE LESSON WAS DESIGNED TO DEVELOP INQUIRY SKILLS AND TO STUDY INQUIRY STYLES OF INDIVIDUAL STUDENTS. A FILM, SHOWING AN EVENT INVOLVING A BIMETALLIC STRIP WAS PRESENTED TO THE STUDENTS BY MEANS OF A COMPUTER-ACTIVATED PROJECTOR. THE STUDENTS ANSWERED QUESTIONS ABOUT THE EVENT POSED THEM VIA THE PLATO 'ELECTRONIC BOOK.' ANSWERS TO SOME OF THE QUESTIONS COULD BE FOUND BY CAREFUL OBSERVATION OF THE FILM, OTHERS BY OBTAINING FURTHER INFORMATION FROM RESULTS DISPLAYED ON THEIR 'ELECTRONIC BLACKBOARDS' BY THE COMPUTER IN RESPONSE TO THEIR INQUIRIES IN THE PLATO EXPERIMENT LABORATORY, PROPERTY LABORATORY OR CONDITION LABORATORY. ONE SET OF QUESTIONS IN THE QUESTION SEQUENCE TESTED THE STUDENTS' ABILITY TO GO BEYOND THE DATA THEY HAD OBTAINED FROM THE COMPUTER AND FORMULATE THEORIES. THE DETAILED RECORD OF THE REPLAB STUDENT RESPONSES PROVIDED BY THE PLATO SYSTEM GAVE DATA FOR A CORRELATION OF VARIABLES IN THE REPLAB LESSON WITH THOSE FROM PRE-TESTS AND POST-TESTS GIVEN THE STUDENTS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-627 162 5/9 1/2
NAVAL PERSONNEL RESEARCH ACTIVITY SAN DIEGO CALIF
COMPARISON OF CONVENTIONAL AND PROGRAMED INSTRUCTION
IN TEACHING AVIONICS FUNDAMENTALS. (U)
DESCRIPTIVE NOTE: TECHNICAL BULLETIN,
DEC 65 32P LONGO,ALEXANDER A. ;MAYO,G.
DOUGLAS ;
REPT. NO. STB-66-16
PROJ: PF017030401

UNCLASSIFIED REPORT

DESCRIPTORS: (*EDUCATION, ANALYSIS), (*AERONAUTICS, NAVAL TRAINING), (*NAVAL TRAINING, PROGRAMMED INSTRUCTION), (*PROGRAMMED INSTRUCTION, EFFECTIVENESS), ELECTRONIC EQUIPMENT, ELECTRICAL EQUIPMENT, PSYCHOMETRICS, DIRECT CURRENT, CIRCUITS, METERS, NAVAL PERSONNEL (U)
IDENTIFIERS: AVIONICS SYSTEMS (U)

THE STUDY IS ONE OF A SERIES OF INVESTIGATIONS INVOLVING A VARIETY OF COURSE CONTENT AND TRAINING CONDITIONS WHERE PROGRAMED INSTRUCTION WILL BE COMPARED WITH CONVENTIONAL CLASSROOM INSTRUCTION TO PROVIDE INFORMATION ABOUT THE GENERAL UTILITY OF PROGRAMED INSTRUCTION. HERE THE PERFORMANCE OF 200 TRAINEES TAKING 24 HOURS OF CONVENTIONAL INSTRUCTION IN ELECTRICAL CALCULATIONS, DIRECT CURRENT CIRCUITS, AND DIRECT CURRENT METERS IS COMPARED WITH THE PERFORMANCE OF 200 TRAINEES TAKING 19 HOURS OF PROGRAMED INSTRUCTION ON THE SAME CONTENT. RESULTS INDICATE: (1) THE BASIC ELECTRONICS STUDENTS LEARNED A RELATIVELY LARGE BLOCK OF PROGRAMED MATERIAL TO ABOUT THE SAME DEGREE BUT IN SUBSTANTIALLY LESS TIME THAN WAS REQUIRED BY CONVENTIONAL INSTRUCTION; (2) THE CONSTRUCTED RESPONSE EXAMINATION, PREPARED FOR PROGRAMED INSTRUCTION PURPOSES, EXHIBITED SATISFACTORY RELIABILITY; (3) THE CONVENTIONAL AND PROGRAMED INSTRUCTION GROUPS DID NOT DIFFER SIGNIFICANTLY WITH RESPECT TO VARIABILITY IN PERFORMANCE; (4) THE '09/90 PERFORMANCE LEVEL' OF PROGRAMED MATERIAL DECREASED AS A FUNCTION OF THE AMOUNT OF PROGRAMED MATERIAL TESTED AT A GIVEN TIME. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OMKOB

AD-627 335 9/2
STANFORD RESEARCH INST MENLO PARK CALIF
GRAPHICAL-DATA-PROCESSING RESEARCH STUDY AND
EXPERIMENTAL INVESTIGATION. (U)
DESCRIPTIVE NOTE: QUARTERLY PROGRESS REPT. NO. 9, 1 AUG-
31 OCT 65.
NOV 65 39P BRAIN,ALFRED E. ;DUDA,RICHARD
O. ;FORSEN,GEORGE E. ;MUNSON,JOHN H. ;
REPT. NO. SRI-R-21
CONTRACT: DA-36-039-AMC-03247(E)
PROJ: DA-1P0-20401-A-327 ,SRI-4565
TASK: 1P0-20401-A-327-02-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-623 280.

DESCRIPTORS: (*GRAPHICS, DATA PROCESSING SYSTEMS),
(*INFORMATION RETRIEVAL, GRAPHICS), (*PATTERN
RECOGNITION, GRAPHICS), (*DATA PROCESSING SYSTEMS,
MILITARY REQUIREMENTS), DIGITAL COMPUTERS,
COMPUTER LOGIC, TRAINING, MAPS, TELEVISION
COMMUNICATION SYSTEMS, TELEVISION DISPLAY SYSTEMS,
PICTURES (U)
IDENTIFIERS: MINOS II, SDS 910 COMPUTER, SHIFT
REGISTERS,SYMBOLS (U)

THE EXPERIMENTS ON THE RECOGNITION OF HAND-DRAWN MILITARY MAP SYMBOLS, USING THE EDGE-DETECTOR MASK PLATE IN THE 1000-IMAGE PREPROCESSOR, HAVE BEEN CONTINUED WITH EACH IMAGE BEING DISPLAYED IN A SERIES OF 9 POSITIONS, PLUS A 10TH VIEW WITH THE IMAGE SOMEWHAT LARGER. THIS GAVE A DATA SET OF 4050 PATTERNS; 3240 WERE USED FOR TRAINING, 810 FOR TESTING. THE ERROR RATE WAS RELATIVELY HIGHER FOR THE TRAINING DATA AS COMPARED WITH PREVIOUSLY REPORTED RESULTS, BUT RELATIVELY LOWER FOR THE TEST DATA. THE PIECEWISE LINEAR STRUCTURE PERFORMED SIGNIFICANTLY BETTER THAN THE COMMITTEE MACHINE. A BRIEF ACCOUNT IS GIVEN OF THE METHOD USED TO DISPLAY THE CHARACTERISTICS OF THE DOT PRODUCT UNITS IN MINOS II. THE SHIFT-REGISTER INTERFACE BETWEEN THE TV CAMERA AND THE SDS 910 HAS NOW BEEN COMPLETED AND IS OPERATIONAL. ILLUSTRATIONS ARE SHOWN OF THE NORMAL PICTURE, QUANTIZED PICTURE, 120-LINE STORED PICTURE, AND 24-LINE STORED PICTURE FOR THE MAP SYMBOLS USED IN THE TESTS DESCRIBED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-627 908 9/2 6/4
BELL AEROSYSTEMS CO BUFFALO N Y
A UNIFYING MATHEMATICAL THEORY FOR TRAINING LEARNING NETS. (U)
DESCRIPTIVE NOTE: FINAL REPT.,
OCT 65 100P GOERNER,J. G. ;GERHARDT,L. A. ;
POWELL,F. D. ;
REPT. NO. 9500-920032
CONTRACT: AF49(638)-1449
PROJ: AF-9769
TASK: 976906
MONITOR: AFOSR , 65-2710

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*LEARNING MACHINES, ALGORITHMS), (*ALGORITHMS, LEARNING MACHINES), ARTIFICIAL INTELLIGENCE, TRAINING, SADDLE POINT METHOD, OPTIMIZATION (U)

THIS REPORT ANALYZES THE DETERMINISTIC APPROACHES WHICH HAVE BEEN APPLIED TO THE DESCRIPTION OF NEURAL NET CONFIGURATIONS AND THEIR TRAINING ALGORITHMS WHICH EMPLOY A SINGLE LAYER OF TRAINABLE GAIN ELEMENTS AND PARTITION THE INPUT SPACE BY HYPERPLANES. THE NETS ARE DESCRIBED BY N-DIMENSIONAL GEOMETRIC VECTOR METHODS. A GENERAL ALGORITHM IS DEVELOPED BASED ON GRADIENT OR STEEPEST-DESCENT METHODS FOR OPTIMIZING A SYSTEM GIVEN A QUADRATIC INDEX OF PERFORMANCE. REDUCTIONS OF THIS ALGORITHM TO THE TWO BASIC CLASSES OF (A) ERROR CORRECTING AND (B) FORCED LEARNING ALGORITHMS AS SPECIAL CASES ARE CONSIDERED. EFFECTS ARE DISCUSSED OF COMPONENT IMPERFECTIONS SUCH AS SATURATION, NONLINEAR ADAPTION RATES, HYSTERESIS, AND COMPONENT FAILURE. EXAMINATION OF ADVANTAGES AND DISADVANTAGES OF THE VARIOUS ALGORITHMS INDICATE THAT THE ERROR CORRECTING ALGORITHM AND ITS MODIFIED FORMS HAVE THE FOLLOWING AREAS OF SUPERIORITY: (1) CAPABILITY IN SEPARATING SEPARABLE CLASSES, (2) ABILITY TO FORM LEAST-MEAN-SQUARE ERROR FOR NON-SEPARABLE CLASSES, (3) MINIMUM MAGNITUDE GAIN VECTOR, AND (4) RELATIVE INSENSITIVITY TO COMPONENT IMPERFECTIONS. THE FORCED LEARNING ALGORITHMS RESPOND TO THE RELATIVE FREQUENCY OF THE INPUT CLASSES. WHERE THIS SENSITIVITY IS IMPORTANT, THE FORCED LEARNING ALGORITHM MAY BE SUPERIOR. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-628 405 5/4 9/2 5/1
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
SDC DOCUMENTS APPLICABLE TO STATE AND LOCAL
GOVERNMENT PROBLEMS. (U)
DESCRIPTIVE NOTE: TECHNICAL MEMO.,
JAN 66 21P KIBBEE,JOEL M. ;
REPT. NO. TM-2025/000/02.

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*POLITICAL SCIENCE, BIBLIOGRAPHIES),
(*DATA PROCESSING SYSTEMS, POLITICAL SCIENCE),
URBAN PLANNING, LAW, PUBLIC HEALTH, EDUCATION,
PROGRAMMING(COMPUTERS), MANAGEMENT CONTROL
SYSTEMS, INFORMATION RETRIEVAL, SIMULATION,
COMPUTERS (U)
IDENTIFIERS: GOVERNMENT, PUBLIC ADMINISTRATION (U)

THE DOCUMENT CONTAINS A SELECTIVE LIST OF SDC
PUBLICATIONS SELECTED ON THE BASIS OF THEIR GENERAL
OR SPECIFIC APPLICABILITY TO CURRENT PROBLEMS OF
STATE AND LOCAL GOVERNMENT. WORK OF A MORE BASIC
RESEARCH NATURE HAS BEEN OMITTED. THE LIST IS
ORGANIZED BY SUBSTANTIVE CATEGORIES AND
ALPHABETICALLY BY AUTHOR WITHIN EACH CATEGORY. THE
CATEGORIES INCLUDE: PUBLIC ADMINISTRATION, URBAN
AND REGIONAL PLANNING, THE ADMINISTRATION OF
JUSTICE, BIO-MEDICAL SYSTEMS, EDUCATIONAL
SYSTEMS, COMPUTER PROGRAM SYSTEMS, THE
DEVELOPMENT AND MANAGEMENT OF COMPUTER-BASED SYSTEMS,
INFORMATION RETRIEVAL, SIMULATION. AD NUMBERS
ARE PROVIDED FOR THOSE DOCUMENTS WHICH CAN BE
OBTAINED FROM THE DEFENSE DOCUMENTATION CENTER
OR THE DEPARTMENT OF COMMERCE'S CLEARINGHOUSE
FOR FEDERAL SCIENTIFIC AND TECHNICAL
INFORMATION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-628 444 5/9 5/10
HUMAN RESOURCES RESEARCH OFFICE GEORGE WASHINGTON UNIV
ALEXANDRIA VA
THE INFLUENCE OF PRACTICE FRAMES AND VERBAL ABILITY
ON PROGRAMED INSTRUCTION PERFORMANCE. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
JAN 66 25P MELCHING,WILLIAM H. INELSON,
FRANK B. ;
REPT. NO. HUMRRO-TR-66-1
CONTRACT: DA-44-188-ARO-2.
PROJ: DA-2J024701A712-01.

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, LEARNING), (*VERBAL BEHAVIOR, PERFORMANCE TESTS), (*LEARNING, PERFORMANCE TESTS), ACHIEVEMENT TESTS, ANALYSIS OF VARIANCE, PERFORMANCE(HUMAN), COUNTERINSURGENCY (U)

THE EFFECT OF SPECIAL PRACTICE FRAMES UPON PROGRAMED INSTRUCTION PERFORMANCE WAS EXAMINED USING A PROGRAM IN COUNTERINSURGENCY. THE INDIVIDUALS WHO SERVED AS SUBJECTS REPRESENTED TWO LEVELS OF VERBAL ABILITY. PRACTICE FRAMES ENABLED SUBJECTS TO PROCEED THROUGH THE PROGRAM AT A FASTER RATE PER FRAME, MAKE FEWER PROGRAM ERRORS, AND SCORE HIGHER ON A RECALL TYPE OF ACHIEVEMENT TEST. SUBJECTS OF HIGHER VERBAL ABILITY WERE ABLE TO PROCEED THROUGH THE PROGRAM AT A FASTER RATE, MAKE FEWER PROGRAM ERRORS, AND EXHIBIT HIGHER SCORES ON ALL MEASURES OF ACHIEVEMENT. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-628 707 6/4 12/1
INFORMATION RESEARCH ASSOCIATES INC CAMBRIDGE MASS
NON-PARAMETRIC PATTERN RECOGNITION. PART II. THE
NON-DISJOINT CASE. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
OCT 65 13P OWEN,JOEL ;
REPT. NO. TR-2,IRA-100:5-PT-2
CONTRACT: NONR-4752(00).
PROJ: NR-348-010.

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*PATTERN RECOGNITION, DECISION THEORY), TRANSORMATIONS(MATHEMATICS), PROBABILITY, DISTRIBUTION THEORY, STATISTICAL ANALYSIS, LEARNING MACHINES, LEARNING, AUTOMATA, BIONICS, INFORMATION THEORY (U)

IN PART I OF THIS PAPER (AD-628 706), A NON-PARAMETRIC DISCRIMINATION TECHNIQUE WAS PROPOSED. IT WAS SHOWN THAT WHEN PERFECT DISCRIMINATION WAS POSSIBLE, THIS TECHNIQUE ACHIEVED THIS PERFECTION AND IN CERTAIN CASES ACHIEVED IT WITH A FINITE LEARNING PHASE. IN THIS REPORT, PROPERTIES OF THIS TECHNIQUE ARE INVESTIGATED FOR THE CASE WHEN PERFECT DISCRIMINATION IS NOT POSSIBLE. IN PARTICULAR, IT IS SHOWN THAT EVEN UNDER THESE CONDITIONS ASYMPTOTIC OPTIMALITY IN THE RISK SENSE IS ATTAINED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-628 776 9/2 5/2 5/9 12/2
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
RESEARCH AND TECHNOLOGY DIVISION REPORT FOR
1965. (U)
DESCRIPTIVE NOTE: TECHNICAL MEMO.,
JAN 66 178P DRUKEY,D. L. ;YARNOLD,K. W. ;
SCHWARTZ,J. I. ;DOBBS,G. M. ;
REPT. NO. TM-530/009/00.
CONTRACT: AF 19(628)-3418 ,NONR-4421(00)

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*DATA PROCESSING SYSTEMS, SCIENTIFIC RESEARCH), (*PROGRAMMING(COMPUTERS), OPERATIONS RESEARCH), EDUCATION, TRAINING, MATHEMATICS, DECISION MAKING, INFORMATION RETRIEVAL (U)

THE DOCUMENT DESCRIBES THE WORK OF SDC'S RESEARCH AND TECHNOLOGY DIVISION FOR 1965. THE PROGRESS OF THE VARIOUS STUDIES AND ACTIVITIES IN THE DIVISION IS DESCRIBED UNDER THE FOLLOWING MAJOR HEADINGS: ADVANCED PROGRAMMING, INFORMATION PROCESSING RESEARCH, PROGRAMMING SYSTEMS, DATA BASE SYSTEMS, LANGUAGE PROCESSING AND RETRIEVAL, DECISION PROCESSES, EDUCATION AND TRAINING, MATHEMATICS AND OPERATIONS RESEARCH, RESEARCH AND TECHNOLOGY LABORATORY, AND COMPUTER CENTER DEPARTMENT. IN ADDITION, THE REPORT CONTAINS DESCRIPTIONS OF DIVISION-SPONSORED BOOKS, MEETINGS AND COLLOQUIA, AND PROFESSIONAL ACTIVITIES OF THE STAFF. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-628 935 9/2 5/9
MILITARY ACADEMY WEST POINT N Y
SEMINAR OF MILITARY COMPUTER EDUCATORS AND COMPUTER CENTER DIRECTORS, (U)
65 419P

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PROCEEDINGS OF THE CONFERENCE OF MILITARY COMPUTER EDUCATORS (1ST), CONDUCTED AT THE UNITED STATES MILITARY ACADEMY 14-17 JUNE 1965.

DESCRIPTORS: (*COMPUTERS, EDUCATION), (*COMPUTER PERSONNEL, TRAINING), (*TRAINING DEVICES, COMPUTERS), SYMPOSIA, DATA PROCESSING SYSTEMS, MILITARY TRAINING, TEACHING MECHINES, COMPUTER OPERATORS (U)

THE OBJECTIVES OF THE CONFERENCE WERE TO PROVIDE ATTENDEES AN OPPORTUNITY TO ACCOMPLISH ALL OR PART OF THE FOLLOWING DESIRABLE GOALS: (A) COORDINATE PROGRAMS OF INSTRUCTION, (B) COMPARE METHODS OF COMPUTER INSTRUCTION, (C) REDUCE REQUIREMENTS FOR INDIVIDUAL COORDINATION VISITS, (D) DEVELOP CONSISTENT PHILOSOPHY TOWARD COMPUTER EDUCATION, (E) DETERMINE LEVEL OF COMPUTER KNOWLEDGE DESIRED OF INCOMING STUDENTS AT ALL LEVELS OF MILITARY EDUCATION, (F) ANALYZE SERVICE REQUIREMENTS FOR COMPUTER EDUCATION AND MEANS OF SATISFYING THESE REQUIREMENTS, (G) IDENTIFY SPECIFIC AREAS OF WEAKNESS AND STRENGTH IN COMPUTER PROGRAMS NOW BEING IMPLEMENTED BY PARTICIPANTS, (H) DEVELOP METHODS AND TECHNIQUES BY WHICH COMPUTERS CAN CONTRIBUTE MORE EFFECTIVELY TO THE TEACHING OF NON-COMPUTER SUBJECTS, (I) EXCHANGE INFORMATION ON AUDIO-VISUAL AIDS APPROPRIATE TO COMPUTER AND COMPUTER-AIDED INSTRUCTION, (J) ASSURE THAT EACH RECEIVES MAXIMUM BENEFIT FROM EXPERIENCES OF OTHER MILITARY EDUCATIONAL ACTIVITIES INVOLVED TO VARYING DEGREES IN COMPUTER AND COMPUTER-AIDED INSTRUCTION. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-629 444 5/7 15/4
HUMAN RESOURCES RESEARCH OFFICE GEORGE WASHINGTON UNIV
ALEXANDRIA VA
DEVELOPMENT AND EVALUATION OF A TACTICAL MANDARIN
CHINESE LANGUAGE COURSE. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
DEC 65 49P GARVEY,CATHERINE ;ROCKLYN,
EUGENE H. ;
REPT. NO. HUMRRO-TR-65-15
CONTRACT: DA-44-188-ARO-2,
PROJ: DA-2J024701A712-01.

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*CHINESE LANGUAGE, PROGRAMMED
INSTRUCTION), TRAINING, TACTICAL WARFARE, MILITARY
INTELLIGENCE, ENEMY PERSONNEL, PRISONERS, MILITARY
TRAINING, LEARNING, ACHIEVEMENT TESTS, PROGRAMMING
LANGUAGES (U)
IDENTIFIERS: CONTACT TASK, INTERROGATION,
TONEDISCRIMINATION, PERSONNEL MANAGEMENT PROJECT (U)

TO MEET THE NEED FOR A SHORT, SELF-INSTRUCTIONAL
TACTICAL LANGUAGE COURSE IN A FAR EASTERN TONAL
TYPE LANGUAGE OF POTENTIAL MILITARY SIGNIFICANCE, A
COURSE IN MANDARIN CHINESE WAS DEVELOPED, BY
ADAPTING THE METHODS DESCRIBED IN SUBTASK CONTACT
II WITH REFERENCE TO A EUROPEAN TYPE LANGUAGE
(RUSSIAN). THE PURPOSE OF THE COURSE WAS TO
ENABLE COMBAT SOLDIERS TO ACQUIRE PERISHABLE TACTICAL
INFORMATION FROM NEWLY CAPTURED POWS. THE COURSE
WAS PROGRAMED IN THE FORMAT OF THE RUSSIAN MODEL
WITH A MAJOR CHANGE IN THE ADDITION OF TONE-
DISCRIMINATION AND TONE-PRODUCTION LESSONS. SIX
MALE STUDENTS, HIGH SCHOOL SENIORS AND GRADUATES WITH
VARIED LANGUAGE-LEARNING APTITUDES, TOOK THE COURSE
AND COMPLETED IT IN 61 TO 84 HOURS. THEIR FINAL
TEST SCORES, INDICATING ABILITY TO SPEAK AND
UNDERSTAND ALL THE ASSIGNED CHINESE VOCABULARY,
RANGED FROM 55% TO 98% CORRECT. IN A SIMULATED
QUESTIONING TEST, THE MEAN PERCENTAGE OF CORRECTLY
TRANSLATED ANSWERS WAS 86%. ALTHOUGH LOW LANGUAGE-
LEARNING APTITUDE WAS ASSOCIATED WITH LOWER SCORES,
THE OVERALL ACHIEVEMENT APPEARED TO BE SATISFACTORY.
(AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-629 692 5/7 5/9 9/2
ITEK CORP WALTHAM MASS
RUSSIAN STENOTYPE EQUIPMENT, VOLUME I, RUSSIAN STENOTYPE SYSTEMS CODES, COMPUTER SYSTEMS, AND TRAINING. (U)
DESCRIPTIVE NOTE: FINAL REPT., VOL. I OCT 63-SEP 65, JAN 66 79P MARCUS,RICHARD ;LIBBY, RICHARD ;NOVIER,PHILLIP ;
CONTRACT: AF 30(602)-3213,
PROJ: AF-5591,
MONITOR: RADC , TR-65-329-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-608 663.

DESCRIPTORS: (*RUSSIAN LANGUAGE, MACHINE TRANSLATION), (*MACHINE TRANSLATION, OFFICE EQUIPMENT + SUPPLIES), (*DATA PROCESSING SYSTEMS, RUSSIAN LANGUAGE), PROGRAMMING(COMPUTERS), INPUT-OUTPUT DEVICES, CODING, TYPEWRITERS, TEACHING MACHINES, DISPLAY SYSTEMS, TRAINING, DICTIONARIES (U)
IDENTIFIERS: STENOTYPE EQUIPMENT, CYRILLIC ALPHABET,KEYBOARDS (U)

A PROGRAM TO DEVELOP A RUSSIAN STENOTYPE SYSTEM WAS UNDERTAKEN TO PROVIDE A RAPID AND EFFICIENT METHOD FOR CONVERTING RUSSIAN TEXT INTO MACHINE PROCESSABLE FORM. THE RUSSIAN STENOTYPE SYSTEM IS A MANUAL CODING SYSTEM DESIGNED TO REDUCE THE CODING TIME AND COST OF THE INPUT FUNCTION OF MACHINE AIDED TRANSLATION. THIS SYSTEM WILL EVENTUALLY REPLACE THE FLEXOWRITERS, WHICH ARE CURRENTLY USED, AND WITH THE INSTALLATION OF AN OPERATIONAL RUSSIAN PRINT READER, WILL SERVE AS BACK-UP. THE REPORT COVERS THE SOFTWARE ASPECTS OF THE WORK. IN PARTICULAR, THE DESIGN OF THE RUSSIAN STENOTYPE KEYBOARD AND CODING SYSTEM, COMPUTER TRANSCRIPTION SYSTEMS, DICTIONARY COMPILATION, TRAINING PROCEEDURES AND STUDY OF INFORMATION LOSS ARE DISCUSSED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-629 693 5/7 14/3
ITEK CORP WALTHAM MASS
RUSSIAN STENOTYPE EQUIPMENT, VOLUME II, RUSSIAN STENOTYPE TERMINAL EQUIPMENT AND INPUT MULTIPLEXING.(U)
DESCRIPTIVE NOTE: FINAL REPT., VOL. 2,
JAN 66 45P MARCUS,RICHARD ;LIBBY, RICHARD INOVIER,PHILLIP ;
CONTRACT: AF 30(602)-3213,
MONITOR: RADC TR-65-329-VOL-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-629 692.

DESCRIPTORS: (*DATA PROCESSING SYSTEMS, RUSSIAN LANGUAGE), (*MACHINE TRANSLATION, OFFICE EQUIPMENT + SUPPLIES), (*RUSSIAN LANGUAGE, MACHINE TRANSLATION), INPUT-OUTPUT DEVICES, DIGITAL SYSTEMS, CODING, TELEPHONE TRANSMITTERS, PUNCHED TAPE, ENGLISH LANGUAGE, TEACHING MACHINES, DISPLAY SYSTEMS, RECORDING SYSTEMS, MATHEMATICAL MODELS, TYPEWRITERS, DESIGN, COSTS (U)
IDENTIFIERS: CYRILLIC ALPHABET, STENOTYPE EQUIPMENT, AN/GSQ(XW-2), KEYBOARDS, MULTIPLEX (U)

THE VOLUME COVERS THE UNDERLYING CONCEPTS AND DESCRIPTION OF REMOTE-INPUT TERMINAL EQUIPMENT DEVELOPED FOR CONVERTING STENOTYPE KEYBOARD ACTUATIONS INTO ELECTRICAL SIGNALS SUITABLE FOR TRANSMISSION TO A DIFFERENT LOCATION FOR SUBSEQUENT TRANSLATION TYPE PROCESSING. IN ADDITION THE PROBLEM OF MULTIPLEXING SEVERAL SUCH INPUT TERMINALS INTO THE INPUT OF A SINGLE TRANSLATING SYSTEM IS TREATED. THE GENERAL PROBLEM ADDRESSED IS POSED BY THE POSSIBLE USE OF RUSSIAN STENOTYPE KEYBOARDS AS EFFICIENT AND HIGHER SPEED CONVERTERS OF CYRILLIC TEXT INTO MACHINE READABLE FORM. THIS WOULD BE USEFUL IN A MECHANICAL TRANSLATION SYSTEM SUCH AS THE U. S. AIR FORCE'S AN/GSQ-16(XW-2) AS WELL AS IN OTHER TEXT CONVERSION OPERATIONS. THE GENERAL SYSTEM CONFIGURATIONS STUDIED AND THE SPECIFIC EQUIPMENT DESCRIPTIONS ARE BASED UPON THE EXISTENCE OF AN ELECTRICALLY WIRED STENOGRAPH KEYBOARD WITH AN OPTIMIZED RUSSIAN KEYBOARD ARRANGEMENT, AND A REMOTE TERMINAL 'SERIALIZER-ENCODER' WHICH IS CAPABLE OF ONE-HALF DUPLEX TELEPHONE LINE TRANSMISSION AS WELL AS CONTROLLING OPERATION OF A PAPER TAPE PUNCH OR SOME OTHER RECORDING DEVICE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OMK08

AD-629 694 5/7 5/9
ITEK CORP WALTHAM MASS
RUSSIAN STENOTYPE EQUIPMENT, VOLUME III, RUSSIAN STENOTYPE TRAINING AND EVALUATION MACHINE. (U)
DESCRIPTIVE NOTE: FINAL REPT., VOL. 3,
JAN 66 33P MARCUS,RICHARD ;LIBBY, RICHARD ;NOVIER,PHILLIP ;
CONTRACT: AF 30(602)-3213,
MONITOR: RADC , TR-65-329-VOL-3

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-629 693.

DESCRIPTORS: (*RUSSIAN LANGUAGE, MACHINE TRANSLATION), (*MACHINE TRANSLATION, OFFICE EQUIPMENT + SUPPLIES), (*TEACHING MACHINES, OFFICE EQUIPMENT + SUPPLIES), TEACHING METHODS, TRAINING, TYPEWRITERS, TRAINING DEVICES, PROGRAMMED INSTRUCTION, DISPLAY SYSTEMS, COSTS, LEARNING (U)
IDENTIFIERS: STENOTYPE EQUIPMENT (U)

THE VOLUME DISCUSSES EQUIPMENT DEVELOPMENT CONCERNED WITH AUTOMATING CERTAIN ASPECTS OF THE TEACHING OF STENOTYPE AS A METHOD FOR CONVERTING BOTH TEXTUAL AND VERBAL RUSSIAN LANGUAGE SOURCE MATERIALS INTO MACHINE READABLE FORM, WHILE VOLUME I COVERED THE 'SOFTWARE' AND LINGUISTIC ASPECTS OF THIS PROBLEM, THIS REPORT DESCRIBES AN EXPERIMENTAL AUTOMATED TEACHING AND EVALUATION EQUIPMENT. THE METHODS AND PROCEDURES FOR ITS USE, AND THE RATIONALE OF ITS DEVELOPED CHARACTERISTICS. DETAILED TECHNICAL DESCRIPTION IS INCLUDED ELSEWHERE IN A TECHNICAL MANUAL. THE EQUIPMENT SYSTEM DESCRIBED IS AN ATTEMPTED COMPROMISE BETWEEN EQUIPMENT COST, LESSON PREPARATION FLEXIBILITY, AND TEACHING AND EVALUATION EFFECTIVENESS. IT IS CONCLUDED THAT A VERSATILE TOOL HAS BEEN PRODUCED FOR EVALUATING STENOTYPE CODING PROCEDURES AS WELL AS FOR STUDYING TRAINING AND EVALUATION PARAMETERS FOR EXPLOITING THE GREAT POTENTIAL OF STENOTYPY AS A HIGH SPEED, VERSATILE INPUT KEYING METHOD. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-629 695 5/7 5/9
ITEK CORP WALTHAM MASS
RUSSIAN STENOTYPE EQUIPMENT, VOLUME IV, INSTRUCTOR'S TRAINING MANUAL FOR RUSSIAN STENOTYPE. (U)
DESCRIPTIVE NOTE: FINAL REPT., VOL. 4,
JAN 66 96P MARCUS,RICHARD ;LIBBY, RICHARD ;NOVIER,PHILLIP ;
CONTRACT: AF 30(602)-3213,
MONITOR: RADC , TR-65-329-VOL-4

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-629 694.

DESCRIPTORS: (*RUSSIAN LANGUAGE, MACHINE TRANSLATION), (*MACHINE TRANSLATION, OFFICE EQUIPMENT + SUPPLIES), (*TEACHING METHODS, OFFICE EQUIPMENT + SUPPLIES), INSTRUCTION MANUALS, TRAINING, TEACHING MACHINES, LEARNING, TYPEWRITERS, EFFECTIVENESS (U)
IDENTIFIERS: KEYBOARDS, STENOTYPE EQUIPMENT, CYRILLICALPHABET (U)

RUSSIAN STENOTYPE SYSTEMS PROVIDE A RAPID AND EFFICIENT METHOD FOR CONVERTING TEXTUAL OR ORAL RUSSIAN LANGUAGE SOURCE MATRIALS INTO MACHINE READABLE FORM. ONE IMPORTANT ASPECT OF THIS METHOD IS THE TRAINING OF STENOTYPISTS. A TEACHING MACHINE WAS DESIGNED AND BUILT TO AID IN THIS TRAINING. THIS REPORT DESCRIBES THE TRAINING PROCEDURES THAT WOULD BE EMPLOYED WITH THE TEACHING MACHINE. WHILE THE TEACHING MACHINE ITSELF HAS NOT YET BEEN TESTED, THE TRAINING PROCEDURES DESCRIBED IN THIS REPORT HAVE BEEN HAND-SIMULATED IN THE SUCCESSFUL TRAINING OF STUDENTS WHO HAVE HAD NO PREVIOUS KNOWLEDGE OF RUSSIAN. FURTHER WORK IS RECOMMENDED TO DETERMINE THE ACTUAL EFFECTIVENESS OF THESE PROCEDURES IN THE TEACHING MACHINE ENVIRONMENT. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-630 981 5/9 9/2
NAVAL PERSONNEL RESEARCH ACTIVITY SAN DIEGO CALIF
EFFECTIVENESS OF PROGRAMMED INSTRUCTIONAL MATERIALS DESIGNED TO INTEGRATE LOWER-LEVEL SUPPORTING BEHAVIORS INTO HIGHER-LEVEL BEHAVIORS IN A LEARNING PROGRAM FOR COMPUTER FLOW CHART DESIGN. (U)
DESCRIPTIVE NOTE: TECHNICAL BULLETIN (FINAL),
FEB 66 39P FORD,JOHN D. ,JR.;MEYER, JOHN K. ;
REPT. NO. STB-66-24,
PROJ: PF017030210,

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-616 880.

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, FLOW CHARTING), (*FLOW CHARTING, TEACHING METHODS), (*COMPUTERS, FLOW CHARTING), (*TRAINING, PROGRAMMING(COMPUTERS)), DESIGN, APTITUDE TESTS, BEHAVIOR, INSTRUCTION MANUALS, LEARNING (U)
IDENTIFIERS: HIERARCHY, SYMBOLS (U)

THE STUDY SOUGHT TO EVALUATE A PRELIMINARY VERSION OF A LEARNING PROGRAM DESIGNED TO TEACH COMPUTER FLOW CHARTING. A METHOD SUGGESTED BY GAGNE WAS APPLIED TO THE TASK OF DESIGNING COMPUTER FLOW CHARTS. ANALYSIS BEGAN BY IDENTIFYING THE SUPPORTING BEHAVIORS NEEDED TO PERFORM THE CRITERION TASK. IT WAS IMPOSSIBLE TO OBTAIN A COMPLETE HIERARCHICAL STRUCTURE FOR THE FLOW CHARTING TASK. INSTRUCTIONAL MATERIALS WERE DEVELOPED FOR VIRTUALLY ALL OF THE LEARNING SETS. THESE MATERIALS COMPRISED THE BASIC OR CONTROL PROGRAM. IN THE EXPERIMENTAL PROGRAM INTEGRATIVE INSTRUCTIONAL MATERIALS WERE ADDED TO THE CONTROL PROGRAM. EACH TRAINEE SPENT 15 HOURS ON A PROGRAM. TRAINEE FLOW CHARTS WERE RATED ON THREE SKILLS, (1) SYMBOLIC REPRESENTATION, (2) CONFIGURAL DESIGN, AND (3) CONCEPTUAL FORMULATION. MODERATE SUPPORT FOR A HIERARCHICAL TASK STRUCTURE IS FOUND FOR THE SKILL AREA OF SYMBOLIC REPRESENTATION. THE REMAINING TWO AREAS SEEM TO CONFORM MUCH LESS TO A HIERARCHICAL ORGANIZATION. IN ADDITION TO THE DATA OBTAINED BY RATINGS, OBSERVATION OF TRAINEES WHILE THEY WORKED ON FLOW CHART DESIGN PROBLEMS UNCOVERED PROCEDURAL OR PROCESS BEHAVIORS WHICH CHARACTERIZED THE MORE SUCCESSFUL TRAINEES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-631 138 5/9 5/10
WEST TEXAS STATE UNIV CANYON.
SOME INTERACTIONS BETWEEN INDIVIDUAL DIFFERENCES AND MODES OF INSTRUCTION. (U)
DESCRIPTIVE NOTE: FINAL REPT., JAN 64-MAR 65,
DEC 65 20P BUSH,WILMA JO ;GREGG,
DOLORES K. ;SMITH,EDGAR A. ;MCBRIDE,COIT B. ;

CONTRACT: AF 33(615)-1460,
PROJ: AF-1710,
TASK: 171007,
MONITOR: AMRL , TR-65-228

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TEACHING METHODS, HUMANS),
STUDENTS, LEARNING, PSYCHOMETRICS, ACHIEVEMENT TESTS, INTELLIGENCE TESTS, PERFORMANCE TESTS, APTITUDE TESTS, READING, VOCABULARY, MATHEMATICS, VERBAL BEHAVIOR, TRAINING DEVICES, TEACHING MACHINES, PROGRAMMED INSTRUCTION, STATISTICAL ANALYSIS, CORRELATION TECHNIQUES (U)

THIS STUDY EXPLORED THE HYPOTHESIS THAT THERE IS A RELATIONSHIP BETWEEN PATTERNS OF LEARNING ABILITY AND THE AMOUNT LEARNED IN DIFFERENT INSTRUCTIONAL CONDITIONS. SCORES FOR EACH OF 44 SUBJECTS WERE OBTAINED ON (A) THE READING VOCABULARY AND THE MATHEMATICS FUNDAMENTALS SUBTESTS OF THE CALIFORNIA ACHIEVEMENT TEST, (B) THE ADMINISTRATIVE AND THE MECHANICAL SCALES FROM THE AIRMAN QUALIFYING EXAMINATION, AND (C) THE VERBAL AND PERFORMANCE SCALES OF THE WECHSLER ADULT INTELLIGENCE SCALE. EACH OF THE 44 SUBJECTS ALSO LEARNED IN FIVE DIFFERENT TRAINING SITUATIONS. DIFFERENCES BETWEEN SCORES ON ASSOCIATED SUBTESTS (E.G., READING VOCABULARY MINUS MATHEMATICS FUNDAMENTALS) WERE CORRELATED WITH THE DIFFERENCE BETWEEN GAIN SCORES OBTAINED IN THE VARIOUS LEARNING SITUATIONS. A SIGNIFICANT RELATIONSHIP WAS OBSERVED BETWEEN THE DIFFERENCE ON THE SUBTESTS OF THE CALIFORNIA ACHIEVEMENT TEST AND THE DIFFERENCE BETWEEN THE GAIN SCORE FROM LECTURE-LIKE INSTRUCTION AND THE GAIN SCORE IN LABORATORY-LIKE INSTRUCTION. THE DATA TENDED TO SUPPORT THE HYPOTHESIS THAT STUDENTS WITH RELATIVE STRENGTH IN READING VOCABULARY ARE SUPERIOR TO STUDENTS WITH RELATIVE STRENGTH IN MATHEMATICS FUNDAMENTALS WHEN BOTH ARE REQUIRED TO LEARN FROM INSTRUCTIONAL CONDITIONS THAT ARE HIGHLY VERBAL. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-631 238 5/10
AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OHIO SCHOOL OF ENGINEERING
EFFECTIVE TECHNICAL COMMUNICATIONS. MECHANICAL DESCRIPTION -EXPERIMENT II. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
65 130P DAVIS,RICHARD M. ;
MONITOR: AFIT , TR-65-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*READING, ENGLISH LANGUAGE), (*LEARNING, READING), FACTOR ANALYSIS, TEST METHODS, SOCIAL COMMUNICATION, TEACHING MACHINES, EFFECTIVENESS (U)
IDENTIFIERS: INTELLIGENCE(HUMAN), TECHNICAL WRITING (U)

THE EFFECTS OF VARIABLES UPON THE EFFECTIVENESS OF A WRITTEN TECHNICAL COMMUNICATION WERE TESTED IN A 3X2X2X2 FACTORIAL EXPERIMENT. THE SUBJECT MATTER WAS A DESCRIPTION OF A SIMPLE MECHANISM. THE VARIABLES WERE (1) THE MANNER IN WHICH THE SIZE AND SHAPE OF THE MACHINE AND ITS PARTS WERE PRESENTED, (2) INTRODUCTION (PRESENT OR ABSENT), (3) INTERNAL ORIENTING MATERIAL (PRESENT OR ABSENT), AND (4) HEADINGS (PRESENT OR ABSENT). THE EFFECTIVENESS OF THE MESSAGE WAS MEASURED BY (1) COMPREHENSION, (2) READING TIME, (3) THE READERS' IMPRESSION OF THE AUTHOR'S KNOWLEDGE OF THE SUBJECT MATTER, AND (4) THE READERS' IMPRESSION OF THE AUTHOR'S COMPETENCE AS A WRITER. THE AUDIENCES TESTED WERE (1) BRIGHT YOUNG PEOPLE WITH KNOWN TECHNICAL INTERESTS, (2) BRIGHT YOUNG PEOPLE WITHOUT KNOWN TECHNICAL INTERESTS, (3) YOUNG MEN OF AVERAGE INTELLIGENCE KNOWN TO HAVE TECHNICAL INTERESTS, AND (4) YOUNG MEN OF BELOW AVERAGE INTELLIGENCE KNOWN TO HAVE TECHNICAL INTERESTS. THE STRUCTURAL AIDS (INTRODUCTION, INTERNAL ORIENTATION, AND HEADINGS) CONTRIBUTED LITTLE TO THE EFFECTIVENESS OF THE MESSAGE AS MEASURED BY THE CRITERIA USED, AND THEY EVEN PROVED HARMFUL IN SOME INSTANCES. THE EXPERIMENTAL METHOD USED SHOWS PROMISE AS A FAIRLY RELIABLE PREDICTIVE INSTRUMENT. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-631 414 5/9
CINCINNATI UNIV OHIO
AN EVALUATION OF PROGRAMED INSTRUCTION FOR TEACHING FACTS AND CONCEPTS. (U)
DESCRIPTIVE NOTE: FINAL REPT., APR 64-AUG 65, DEC 65 34P JACOBS,JAMES N. ;JOHNSON, KIRK A. ;ABMA,JOHN S. ;
CONTRACT: AF 33(657)-10234.
PROJ: AF-1710.
TASK: 171007.
MONITOR: AMRL TR-65-222

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH CINCINNATI PUBLIC SCHOOL SYSTEM.

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, EFFECTIVENESS), LINEAR SYSTEMS, EDUCATION, RETENTION, LEARNING, TEACHING METHODS (U)

THE STUDY EVALUATED FIVE METHODS OF TEACHING AN ACADEMIC TOPIC ('BILL OF RIGHTS') TO HIGH SCHOOL CLASSES. THE FIVE METHODS WERE: (1) LINEAR PROGRAM IN CLASS, (2) LINEAR PROGRAM AS HOMEWORK PLUS DISCUSSION IN CLASS, (3) TEXT VERSION OF LINEAR PROGRAM IN CLASS, (4) TEXT VERSION OF LINEAR PROGRAM AS HOMEWORK PLUS DISCUSSION IN CLASS, AND (5) CONVENTIONAL LECTURE-DISCUSSION METHOD IN CLASS. THE LINEAR PROGRAM ALONE PROVIDED THE BEST RESULTS WHEN MEASURED BOTH FOR THE LEARNING OF FACTUAL MATERIAL AND GENERAL CONCEPTS ABOUT THE TOPIC. THE LINEAR PROGRAM WAS BEST FOR HIGH, INTERMEDIATE, AND LOWER LEVELS OF SCHOLASTIC APTITUDE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-631 634 6/4 5/10 9/2
SYSTEM RESEARCH LTD RICHMOND (ENGLAND)
RESEARCH ON CYBERNETIC INVESTIGATION OF LEARNING AND PERCEPTION. (U)
DESCRIPTIVE NOTE: ANNUAL SUMMARY REPT. NO. 3,
FEB 66 104P PASK,GORDON ;ELSTOB,M. ;
MALLEN,GEORGE L. ;
CONTRACT: AF 61(052)-640,
PROJ: AF-9769,
MONITOR: AFOSR , 66-0644

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-611 543.

DESCRIPTORS: (*CYBERNETICS, *LEARNING), (*PERCEPTION(PSYCHOLOGY), CYBERNETICS), (*LEARNING MACHINES, ANALYSIS), ARTIFICIAL INTELLIGENCE, MATHEMATICAL MODELS, AUTOMATA, MEMORY, STABILITY, CONTROL SYSTEMS, GREAT BRITAIN (U)

RESEARCH IS SUMMARIZED ON MODELS THAT DESCRIBE THE LEARNING OF A STRUCTURED SKILL AND ON SIMULATIONS OF POPULATIONS OF AUTOMATA THAT BECOME MORE COMPLEX AS THEY DEVELOP. APPLICABILITY AND LIMITATIONS ON A SIMPLE LEARNING MODEL BASED ON TERMS OF CONTINUOUS, INFORMATION-LIKE MEASURES ARE DISCUSSED. THE MODEL CONSIDERS THE CONTRIBUTION FROM LEARNING OF THE I-TH SKILL TO LEARNING OF THE J-TH. LIMITATIONS ARISE FOR THE DESCRIPTION OF LEARNING OF HIGHER-ORDER CONCEPTS. THE RELEVANCE OF STATISTICAL AND HOMEOSTATIC APPROACHES TO THE DESCRIPTION OF LEARNING AND ADAPTATION IS CONSIDERED; EACH IS VIEWED AS CONTRIBUTING TO THE CHARACTERIZATION OF A REAL-LIFE POPULATION OF ORGANISMS. THE SIMULATION MODEL SHOWS THAT INDIVIDUAL AUTOMATA DO NOT LEARN ON THEIR OWN BUT IN COOPERATING GROUPS. THE ELABORATE POPULATION THAT IS POSTULATED SHOWS STABILITY OVER A LARGER RANGE OF COST PARAMETER VALUES IN AN UNCONSTRAINED ENVIRONMENT THAN IN A CONSTRAINED ENVIRONMENT. A GREGARIOUS AUTOMATON IS DESCRIBED THAT HAS A SENSORY SYSTEM (SENSITIVITY TO DENSITY OF POPULATION) AND A MEMORY SYSTEM; SIGNIFICANCE IS ASSOCIATED WITH PROPERTIES THAT REMAIN INVARIANT OR EXHIBIT REGULAR AND CORRELATED TRANSFORMATION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-632 189 5/9
HUMAN RESOURCES RESEARCH OFFICE GEORGE WASHINGTON UNIV
ALEXANDRIA VA
EFFECTS OF TRAINING RESPONSE MODE, TEST FORM, AND
MEASURE ON ACQUISITION OF SEMI-ORDERED FACTUAL
MATERIALS. (U)
DESCRIPTIVE NOTE: RESEARCH MEMO.,
APR 61 72P FOLLETTIE,JOSEPH F. ;
REPT. NO. HUMRRO-24

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TEACHING METHODS, EFFECTIVENESS),
(*MILITARY TRAINING, TEACHING METHODS), RETENTION,
TEACHING MACHINES, LEARNING, MILITARY PERSONNEL,
TEXTBOOKS, STATISTICAL DATA, STATISTICAL ANALYSIS (U)

FINDINGS SUGGEST NO DIFFERENCE BETWEEN LIVE AND
TAPED LECTURE, A SIGNIFICANT ADVANTAGE OF READ
MATERIAL OVER HEARD MATERIAL, A SIGNIFICANT ADVANTAGE
OF SELF-PACED READING OVER CLASS-PACED READING, AND A
SIGNIFICANT ADVANTAGE OF THE PLAIN BOOK FORMAT OVER
THE SCRAMBLED BOOK FORMAT. RESULTS ALSO SUGGEST
THAT RECOGNITION FROM TESTS BASED ON NEO-ROTE
CONTENTS MIGHT BE USED IN LIEU OF RECALL FORM TESTS
IN THAT THERE IS A GENERALLY STABLE RELATIONSHIP
BETWEEN THE TWO TEST FORMS. THE RESEARCH WAS
UNDERTAKEN TO FIND A MODIFIED SCRAMBLED BOOK
TREATMENT WHICH WOULD SHOW UP AS WELL AS A PLAIN BOOK
TREATMENT. THE SEARCH WAS UNSUCCESSFUL.
(AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-632 462 5/9
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
ANALYSIS OF INSTRUCTIONAL SYSTEMS. (U)
DESCRIPTIVE NOTE: FINAL REPT. (TECHNICAL MEMO.),
APR 66 267P COGSWELL,JOHN F. ;BRATTEN,
J. E. ;EGBERT,R. E. ;ESTAVAN,D. P. ;YETT,F.
A. ;
REPT. NO. TM-1493/201/00.

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPT. ON NEW SOLUTIONS TO IMPLEMENTING INSTRUCTIONAL MEDIA THROUGH ANALYSIS AND SIMULATION OF SCHOOL ORGANIZATION. SEE ALSO AD-427 752, AD-436 528, AD-620 663, PB-167 675, PB-169 043.

DESCRIPTORS: (*EDUCATION, *TEACHING MACHINES), (*PROGRAMMED INSTRUCTION, ANALYSIS), COMPUTERS, STUDENTS, MODELS(SIMULATIONS), PROGRAMMING(COMPUTERS), DATA PROCESSING SYSTEMS, AUTOMATION, SCHEDULING, SIMULATION, LEARNING, SYSTEMS ENGINEERING (U)
IDENTIFIERS: SCHOOLS, SYSTEMS ANALYSIS, EDSIM (U)

THE MAJOR FINDINGS INCLUDE THE IDENTIFICATION OF TWO WAYS FOR USING SYSTEM ANALYSIS IN EDUCATION, THE SPECIFICATION OF PROCEDURES FOR CONDUCTING ANALYSES OF INSTRUCTIONAL SYSTEMS, AND IMPLICATIONS FOR SCHOOL ORGANIZATION. ALTHOUGH THERE IS A DEFINITE TREND IN SECONDARY EDUCATION TO SEARCH OUT AND INTRODUCE WAYS TO ALTER SCHOOL ORGANIZATIONS SO THAT THE INDIVIDUAL DIFFERENCES AMONG STUDENTS CAN BE ACCOMMODATED, NO SCHOOL HAS YET EVOLVED AN ORGANIZATION TO SUCCESSFULLY MEET THIS OBJECTIVE. SCHOOLS STRIVING IN THIS DIRECTION ARE PRESENTLY BLOCKED BECAUSE THEY LACK TWO MAJOR RESOURCES: (1) ADEQUATE SELF-STUDY INSTRUCTIONAL MATERIALS, AND (2) ADEQUATE SYSTEMS TO PROVIDE INFORMATION TO INSTRUCTORS, COUNSELORS, AND ADMINISTRATORS ABOUT THE STATUS OF STUDENTS AS INDIVIDUALS. RECOMMENDATIONS FOR ATTACKING THESE PROBLEMS GROWING OUT OF THE STUDY INCLUDE: (1) CONTINUED DEVELOPMENT OF THE COMPUTER -BASED SYSTEM TO ASSIST STUDENTS AND COUNSELORS IN ACADEMIC PLANNING THAT WAS STARTED IN THE PROJECT; (2) CONTINUED STUDY OF THE USE OF INFORMATION PROCESSING IN THE CLASSROOM TO DESIGN SYSTEMS THAT WILL COLLECT, STORE, AND DISPLAY STUDENT INFORMATION SO THAT IT CAN BE USED IN THE IMMEDIATE INSTRUCTIONAL PROCESS; (3) IN-SERVICE TRAINING OF INFLUENTIAL SCHOOL PERSONNEL IN THE SKILLS OF DESIGNING INDIVIDUALIZED COURSE MATERIALS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-632 568 5/9
HUMAN RESOURCES RESEARCH OFFICE GEORGE WASHINGTON UNIV
ALEXANDRIA VA
PROGRAMMED INSTRUCTION: A PLAN OF RESEARCH. (U)
DESCRIPTIVE NOTE: RESEARCH MEMO.,
MAY 61 51P MCCRYSTAL,THOMAS J. ;

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, SCIENTIFIC RESEARCH), STUDENTS, TRAINING DEVICES, DISPLAY SYSTEMS, TEACHING MACHINES (U)

CONTENTS: ELEMENTS OF PROGRAMMED INSTRUCTION, SUMMARY OF PREVIOUS INVESTIGATIONS: INVESTIGATIONS OF PROGRAM STEP SIZE, INVESTIGATIONS OF PACING, INVESTIGATIONS OF PROMPTING, INVESTIGATIONS OF RESPONSE MODES, INVESTIGATIONS OF FEEDBACK, INVESTIGATIONS OF EXPLANATIONS, PROGRAM VARIABLES AVAILABLE FOR STUDY: STEP-ASSOCIATED VARIABLES, PROMPTING AND CUEING VARIABLES, RESPONSE - RELATED VARIABLES, FEEDBACK AND REINFORCEMENT VARIABLES, PROGRAM CONFIGURATION VARIABLES, PROGRAMMED INSTRUCTION RESEARCH APPARATUS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-632 576 9/2
WASHINGTON UNIV SEATTLE DEPT OF ELECTRICAL ENGINEERING
MACHINE LEARNING FOR GENERAL PROBLEM SOLVING. (U)
DESCRIPTIVE NOTE: REPT. FOR 1964-65.
65 95P JOHNSON,DAVID L. ;
CONTRACT: AF-AFOSR-939-65.
MONITOR: AFOSR . 66-0835

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*LEARNING MACHINES, *PROBLEM SOLVING), (*ARTIFICIAL INTELLIGENCE, *DIGITAL COMPUTERS), TRIGONOMETRY, EQUATIONS, GAME THEORY, LEARNING, ADAPTIVE SYSTEMS, ALGEBRAS, COMPUTER LOGIC (U)

PART I DESCRIBES PROGRESS IN RESEARCH RELEVANT TO PROBLEM SOLVING AND LEARNING USING TRIGONOMETRIC IDENTITIES AND LOGICAL EQUATIONS. THE WORK PREVIOUSLY DESCRIBED (AD-608 544) DEALING WITH TRIGONOMETRIC PROOF LEARNING HAS BEEN ANALYZED AND EXTENDED WITH THE GENERAL SOLUTION AND LEARNING APPROACH APPLIED TO PROOFS OF LOGICAL EQUATIONS. ALSO INCLUDED IS A BRIEF DESCRIPTION OF WORK WHICH INVESTIGATES CONCEPT FORMATION MODELED IN ONE SENSE AFTER THE WORK OF PIAGET. PART II RELATES THE RESEARCH IN TREE PRUNING AS RELATED TO COMPUTERS AND GAME PLAYING. RECENT WORK HAS EMPHASIZED LEARNING PROCESSES INDEPENDENT OF SCORING FUNCTIONS. COMPARISON IS MADE BETWEEN HUMAN PLAY AND MACHINE PLAY IN SPECIFIC GAME ENVIRONMENTS. PART II OF THE REPORT DESCRIBES EVALUATION OF THE RESEARCH GOAL OF EXTENDING THE PROBLEM SOLVING AND LEARNING PROCESSES INTO THE FIELD OF INTEGRAL CALCULUS. IT WAS DETERMINED, AFTER CONSIDERABLE EXPERIMENTATION AND RESEARCH, THAT MORE USEFUL RESEARCH EXPENDITURE COULD BE MADE IN INVESTIGATIONS OF OTHER LEARNING AREAS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-632 609 5/9
ELECTRONIC SYSTEMS DIV L G HANSCOM FIELD MASS DECISION SCIENCES LAB
DIRECT VS INDIRECT ASSESSMENT OF SIMPLE KNOWLEDGE STRUCTURES. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT. MAY 64-JAN 65,
MAR 66 55P MASSENGILL,H. EDWARD ;SHUFORD, EMIR H. ,JR.;
PROJ: AF-2806,
TASK: 280609,
MONITOR: ESD , TR-65-542

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*EDUCATION, TEST METHODS), DECISION MAKING, PERFORMANCE(HUMAN), PROGRAMMED INSTRUCTION, COST EFFECTIVENESS, PROBABILITY, INSTRUCTORS, MATHEMATICAL ANALYSIS (U)

THE REPORT COMPARES TWO TYPES OF CLASSROOM TESTING IN TERMS OF EFFICACY IN GUIDING INSTRUCTION. ONE TYPE OF TESTING IS THE TRADITIONAL INDIRECT METHOD BASED ON THE OBSERVATION OF CHOICES. THE OTHER TYPE IS THE DIRECT METHOD BASED ON ADMISSIBLE PROBABILITY MEASUREMENT. THE GENERAL FINDING IS THAT THE DIRECT METHODS ALWAYS PERFORM AS WELL AS AND IN MOST CASES BETTER THAN THE INDIRECT METHODS. THIS DEFICIENCY IN THE INDIRECT METHOD CAN BE ALLEVIATED IN THEORY BY INTRODUCING REDUNDANCY INTO THE TEST AND ASKING THE SAME QUESTION OVER AND OVER AGAIN. THE PERFORMANCE OF INDIRECT METHODS DEPENDS IN A VERY CRITICAL MANNER UPON THE INFORMATION AVAILABLE TO THE INSTRUCTOR FROM OTHER SOURCES ABOUT THE CURRENT STATE OF KNOWLEDGE OF EACH STUDENT. THE PERFORMANCE OF THE DIRECT METHODS IS UNAFFECTED BY THIS. THE GAIN IN EFFECTIVENESS ACHIEVED BY USING DIRECT METHODS MUST BE BALANCED OFF AGAINST THE COST OF USING THESE NEW METHODS. A DIRECT METHOD MAY REQUIRE MORE STUDENT TIME PER ITEM THAN DOES AN INDIRECT METHOD. THIS, HOWEVER, MAY BE MORE THAN COMPENSATED FOR BY THE REQUIREMENT FOR REDUNDANCY WHEN USING THE INDIRECT METHOD. IN ADDITION, SINCE A DIRECT METHOD DOES NOT REQUIRE ADDITIONAL INFORMATION FROM THE INSTRUCTOR AS TO THE CURRENT STATE OF KNOWLEDGE OF EACH STUDENT, THE POSSIBILITY EXISTS THAT MUCH LARGER CLASSES MAY BE TAUGHT WITH NO LOSS IN EFFECTIVENESS THUS IMPLYING EVEN FURTHER ECONOMIC BENEFITS FROM THE USE OF DIRECT METHODS TO GUIDE CLASSROOM INSTRUCTION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-632 943 5/9
SYSTEM RESEARCH LTD RICHMOND (ENGLAND)
RESEARCH ON THE DESIGN OF ADAPTIVE TEACHING SYSTEMS WITH A CAPABILITY FOR SELECTING AND ALTERING CRITERIA FOR ADAPTATION. (U)
DESCRIPTIVE NOTE: ANNUAL SUMMARY REPT. NO. 4, 1 APR 63-31 MAR 64.
APR 64 305P PASK,GORDON I
CONTRACT: AF 61(052)-402.

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-633 001.

DESCRIPTORS: (*TEACHING MACHINES, DESIGN), CYBERNETICS, TEACHING METHODS, MAN-MACHINE SYSTEMS, LEARNING, TRAINING, REACTION(PSYCHOLOGY), REFLEXES, GREAT BRITAIN (U)

PART 1 OPENS WITH A BRIEF RESUME OF THE DYNAMIC AND STRUCTURAL ASSUMPTIONS UNDERLYING THE CYBERNETIC MODEL, AND IT CONTINUES WITH A SURVEY OF THE CONDITIONS THAT NEED TO BE SATISFIED IN ORDER TO DESIGN (RATHER THAN 'INTUIT') A MACHINE CAPABLE OF MAINTAINING STABLE INTERACTION WITH A HUMAN OPERATOR. THE REMAINDER IS CONCERNED WITH DESCRIBING AND INTERPRETING THE EXPERIMENTS ACTUALLY CONDUCTED. PART 2 CONSIDERS THE IMPLICATIONS OF THESE FINDINGS IN GREATER DETAIL, AND WITH SPECIAL REFERENCE TO THE PROBLEM OF DESIGNING A PRACTICABLE GROUP TUITION SYSTEM. BECAUSE OF THE NEED FOR DYNAMIC INTERACTION, SPECIAL EMPHASIS IS GIVEN TO THE POSSIBILITY OF DEVISING A GROUP SYSTEM IN WHICH STUDENTS AND TEACHERS ALIKE CAN ALL BE PROVIDED WITH THIS FACILITY IN CONTROLLED FORM. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-632 944 5/9
SYSTEM RESEARCH LTD RICHMOND (ENGLAND)
AN ADAPTIVE AUTOMATION FOR TEACHING SMALL GROUPS. (U)

61 14p PASK,G. ;LEWIS,B. N. ;
CONTRACT: AF 61(052)-402.

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TEACHING MACHINES, GROUP DYNAMICS), (*GROUP DYNAMICS, TEACHING METHODS), (*TEACHING METHODS, TEACHING MACHINES), SOCIAL COMMUNICATION, CYBERNETICS, LEARNING, FEASIBILITY STUDIES, GREAT BRITAIN, AUTOMATA (U)

IT WAS FIRST ARGUED THAT THE AUTOMATED TEACHING OF SMALL GROUPS REQUIRES, FOR MOST SKILLS, A RATHER SPECIAL KIND OF ADAPTIVE AUTOMATION WHICH CAN ORGANISE THE GROUP MEMBERS BY MANIPULATING THEIR CHANNELS OF COMMUNICATION. AN EXAMPLE OF SUCH AN AUTOMATON WAS THEN DESCRIBED AND ITS POTENTIALITIES POINTED OUT. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-633 000 5/9
SYSTEM RESEARCH LTD RICHMOND (ENGLAND)
RESEARCH ON THE DESIGN OF ADAPTIVE TEACHING SYSTEMS WITH A CAPABILITY FOR SELECTING AND ALTERING CRITERIA FOR ADAPTATION. (U)
DESCRIPTIVE NOTE: ANNUAL TECHNICAL SUMMARY REPT. NO. 2, 1 APR 61-31 MAR 62,
APR 62 142P PASK,GORDON ;
CONTRACT: AF 61(052)-402,

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-262 972.

DESCRIPTORS: (*TEACHING MACHINES, DESIGN), (*TEACHING METHODS, THEORY), GROUP DYNAMICS, TRAINING, CYBERNETICS, LEARNING, DECISION MAKING, SOCIAL COMMUNICATION, GREAT BRITAIN (U)

TOPICS INCLUDE: THE DISTRIBUTION OF CONTROL IN DECISION-MAKING GROUPS, INTERACTION BETWEEN A GROUP OF SUBJECTS AND AN ADAPTIVE AUTOMATON TO PRODUCE A SELF-ORGANISING SYSTEM FOR DECISION-MAKING, REVIEW OF EXPERIMENTAL PROCEDURE, COMMENTS ON AN INDETERMINACY THAT CHARACTERISES A SELF-ORGANISING SYSTEM, STRATEGIES OF COMMUNICATION, A SIMPLE ADAPTIVE TEACHING MACHINE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-633 001 5/9
SYSTEM RESEARCH LTD RICHMOND (ENGLAND)
RESEARCH ON THE DESIGN OF ADAPTIVE TEACHING SYSTEMS WITH A CAPABILITY FOR SELECTING AND ALTERING CRITERIA FOR ADAPTATION. (U)
DESCRIPTIVE NOTE: ANNUAL TECHNICAL SUMMARY REPT. NO. 3, 1 APR 62-31 MAR 63.
APR 63 99P PASK,GORDON ;
CONTRACT: AF 61(052)-402.

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-633 000.

DESCRIPTORS: (*TEACHING MACHINES, DESIGN), (*TEACHING METHODS, THEORY), LEARNING, CYBERNETICS, ANALYSIS, GREAT BRITAIN, GROUP DYNAMICS (U)

PART I DESCRIBES SOME RESULTS OBTAINED FROM THE FURTHER ANALYSIS OF DATA FROM THE ADAPTIVELY STABILIZED GROUP INSTRUCTION SYSTEM THAT SUGGESTS A NUMBER OF ALGORITHMS FOR THE CONTROL OF GROUP TEACHING SYSTEMS WHETHER OR NOT THEY ARE ADAPTIVELY STABILIZED. PART II DESCRIBES THE BACKGROUND PHILOSOPHY OF THE INDIVIDUAL ADAPTIVE TEACHING SYSTEMS. A PAIR OF SYSTEMS ARE CONSIDERED IN DETAIL. ONE OF THESE WAS REALIZED AS A PHYSICAL DEVICE AND IS IN USE. THE OTHER HAS BEEN BUILT BUT ITS DESIGN IS BEING MODIFIED. FINALLY THERE IS A BRIEF DISCUSSION OF THE RESEARCH IN PROGRESS, USING THESE MACHINES, AND OF VARIOUS HYPOTHESES THAT HAVE BEEN ADVANCED CONCERNING THE STRUCTURE OF DIFFERENT SKILLS AND ITS INFLUENCE UPON THEIR ACQUISITION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-634 301 5/9 16/1
HUMAN RESOURCES RESEARCH OFFICE GEORGE WASHINGTON UNIV
ALEXANDRIA VA
DEVELOPMENT OF TECHNICAL TRAINING MATERIALS FOR NIKE
HERCULES JUNIOR OFFICERS. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 66 46P HAVERLAND, EDGAR M. ;
REPT. NO. HUMRRO-TR-66-6
CONTRACT: DA-44-188-ARO-2,
PROJ: DA-2J024701A712-01,

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE;

DESCRIPTORS: (*GUIDED MISSILE PERSONNEL, TRAINING),
(*PROGRAMMED INSTRUCTION, CHECKOUT PROCEDURES),
GUIDED MISSILES(SURFACE-TO-AIR), TRAINING DEVICES,
EFFECTIVENESS, OFFICE PERSONNEL, LEARNING (U)
IDENTIFIERS: NIKE-HERCULES (U)

THE CHECKS AND PROCEDURES NECESSARY TO DETERMINE WHETHER THE MAJOR FUNCTIONS OF THE NIKE HERCULES FIRE CONTROL SYSTEM COULD BE SATISFACTORILY ACCOMPLISHED WERE CHOSEN, AND PROGRAMED INSTRUCTIONAL MATERIALS WERE WRITTEN TO TEACH JUNIOR OFFICERS THE RELEVANT TECHNICAL INFORMATION. EVALUATION OF THESE MATERIALS INDICATED (1) THAT THEY TAUGHT A SUBSTANTIAL AMOUNT OF TECHNICAL INFORMATION ADDITIONAL TO THAT TAUGHT IN THE OFFICER BASIC COURSE (44-A-C20) AT THE U.S. ARMY AIR DEFENSE SCHOOL, AND (2) THAT MORE TECHNICAL INFORMATION WAS LEARNED FROM THE SAMOFF IV PROGRAMED INSTRUCTION THAN WAS LEARNED FROM DIRECTED STUDY OF EXISTING ARMY REFERENCE MATERIAL. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-634 483 6/4 5/10 9/2
WESTERN MANAGEMENT SCIENCE INST UNIV OF CALIFORNIA LOS ANGELES
UTILIZATION OF MEMORY IN CONCEPT LEARNING SYSTEMS. (U)

APR 66 51P HUNT, EARL ;
REPT. NO. WMSI WORKING PAPER-99.
CONTRACT: NONR-233(75).
PROJ: NR-047-041.

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TEXT OF PAPER PRESENTED AT THE ANNUAL CARNEGIE INST. OF TECH. SYMPOSIUM ON COGNITION(2), APRIL 7-8, 1966.

DESCRIPTORS: (*ARTIFICIAL INTELLIGENCE, MEMORY), (*MEMORY, *LEARNING MACHINES), LEARNING, PROGRAMMING(COMPUTERS), PATTERN RECOGNITION (U)

AS PART OF A SERIES IN ARTIFICIAL INTELLIGENCE EXPERIMENTS, FOUR DIFFERENT COMPUTER PROGRAMS FOR CONCEPT LEARNING WERE TESTED ON FIVE PROBLEMS OF VARYING COMPLEXITY. THE AMOUNT OF INFORMATION WHICH A PROGRAM COULD STORE WHILE SOLVING THE PROBLEM WAS VARIED INDEPENDENTLY. PROGRAM PERFORMANCE COULD BE DESCRIBED AS A FUNCTION OF THE LOCATION OF A GIVEN STUDY IN AN ABSTRACT SPACE DEFINED BY PROBLEM COMPLEXITY AND THE AMOUNT OF MEMORY AVAILABLE. THE RESULTS WERE DISCUSSED IN TERMS OF PREVIOUS WORK ON CONCEPT LEARNING AND FOR THEIR IMPLICATIONS IN THE GENERAL FIELDS OF ARTIFICIAL INTELLIGENCE AND THE PSYCHOLOGY OF HUMAN LEARNING. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-635 001 5/9
CINCINNATI UNIV OHIO
AN EXPERIMENTAL COMPARISON OF AN INTRINSICALLY PROGRAMMED TEXT AND A NARRATIVE TEXT. (U)
DESCRIPTIVE NOTE: FINAL REPT., SEP 64-SEP 65, MAR 66 32P SENTER, R. J. ;ABMA,JOHN S. ; JOHNSON,KIRK A. ;MORGAN,ROSS L. ;
CONTRACT: AF 33(615)-1046,
PROJ: AF-1710,
TASK: 171007,
MONITOR: AMRL TR-65-227

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, TRAINING DEVICES), TEACHING METHODS, PERFORMANCE TESTS, MATHEMATICS, READING, PERFORMANCE(HUMAN), LEARNING, STUDENTS, TIME STUDIES, ANALYSIS OF VARIANCE (U)
IDENTIFIERS: BRANCHING TESTS (U)

THE STUDY COMPARED THREE METHODS OF INSTRUCTION IN BINARY AND OCTAL ARITHMETIC, I.E., (1) NORMAN CROWDER'S BRANCHED PROGRAMED TEXT, THE ARITHMETIC OF COMPUTERS, (2) ANOTHER VERSION OF THIS TEXT MODIFIED SO THAT SUBJECTS COULD NOT SEE THE INSTRUCTIONAL MATERIAL WHILE ANSWERING 'BRANCHING' QUESTIONS, AND (3) A NARRATIVE TEXT VERSION PRESENTING THE SAME CONTENT MATERIAL. THE PRINCIPAL BEHAVIORAL MEASURE WAS RELATIVE PERFORMANCE ON A PRE- AND POSTTRAINING CRITERION TEST. THE RESULTS INDICATED THAT PROHIBITING VISUAL CONTACT WITH INSTRUCTIONAL MATERIAL WHILE ANSWERING QUESTIONS SIGNIFICANTLY INCREASED THE NUMBER OF ERRONEOUS ALTERNATIVES SELECTED BY THE SUBJECTS, BUT DID NOT SIGNIFICANTLY ALTER THE AMOUNT OF LEARNING MANIFESTED NOR THE TIME NECESSARY TO COMPLETE TRAINING. THE PROGRAMED INSTRUCTIONAL METHODS RESULTED IN SIGNIFICANTLY GREATER IMPROVEMENT ON THE CRITERION TEST THAN WAS ATTAINED BY USING THE NARRATIVE TEXT. THE TIME TO COMPLETE INSTRUCTION WAS SIGNIFICANTLY LESS WITH THE NARRATIVE TEXT VERSION OF THE MATERIAL, ALTHOUGH, IN GENERAL, LESS INFORMATIONAL CONTENT WAS IMPARTED WITH THE NARRATIVE TEXT. THE STUDY TIME NECESSARY PER UNIT IMPROVEMENT WAS SIGNIFICANTLY LESS WITH THAT VERSION. RECORDS WERE KEPT OF THE NUMBER OF 'WRONG ANSWER' BRANCHES TAKEN BY THE SUBJECTS RECEIVING INSTRUCTION VIA THE BRANCHED PROGRAMS. ONLY ABOUT 6% OF THE TOTAL POSSIBLE 'WRONG' BRANCHES WERE ACTUALLY TAKEN. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-635 213 5/9
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
A STUDY OF TWO METHODS FOR ADAPTING SELF-INSTRUCTIONAL MATERIALS TO INDIVIDUAL DIFFERENCES. (U)
DESCRIPTIVE NOTE: TECHNICAL MEMO.
JUN 66 53P MELARAGNO, RALPH J. ;
REPT. NO. TM-2932/000/01.
CONTRACT: N00014-66-C0081.

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, *TEACHING METHODS), TRAINING DEVICES, LEARNING, STUDENTS, EDUCATION, TEACHING MACHINES, TESTS, LINEAR SYSTEMS, ANALYSIS OF VARIANCE (U)
IDENTIFIERS: BRANCHING TESTS, PREDICTION (U)

THE TWO-PHASE STUDY COMPARED TWO METHODS OF ADAPTING SELF-INSTRUCTIONAL MATERIALS TO INDIVIDUAL DIFFERENCES AMONG LEARNERS: THESE WERE COMPARED WITH EACH OTHER AND WITH A CONTROL CONDITION INVOLVING ONLY MINIMAL ADAPTATION. RESULTS OF THE EXPERIMENT SUPPORT THREE CONCLUSIONS: (1) TRAINING TIMES CAN BE REDUCED BY VARYING INSTRUCTION ON THE BASIS OF LEARNERS' ABILITIES: (2) A BRANCHING STRATEGY CAN REDUCE TRAINING TIME FURTHER THAN EITHER PREDICTION OR LINAR STRATEGIES: AND (3) WHEN BOTH AMOUNT LEARNED AND TRAINING TIME ARE OF INTEREST, BRANCHING IS SUPERIOR TO A LINEAR PRESENTATION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-635 361 5/9
HARVARD UNIV CAMBRIDGE MASS
BLACKOUT RATIO AND OVERT RESPONSES IN PROGRAMED INSTRUCTION: RESOLUTION OF DISPARATE RESULTS. (U)
AUG 65 6P KEMP, FREDERICK D. ;HOLLAND, JAMES G. ;
CONTRACT: AF 19(628)-2404,
MONITOR: ESD TDR-65-355

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN JOURNAL OF EDUCATIONAL PSYCHOLOGY V57 N2 P109-14 1966.
SUPPLEMENTARY NOTE:

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, TEACHING METHODS), RESPONSE, TEACHING MACHINES, TRAINING DEVICES, LEARNING, TESTS (U)

THE BLACKOUT MEASURE, FOR THE DEGREE TO WHICH MATERIAL IS PROGRAMED, WAS APPLIED TO 12 SETS OF MATERIAL USED IN PREVIOUS STUDIES OF OVERT VS. COVERT RESPONDING IN TEACHING-MACHINE PROGRAMS. BLACKOUT RATIOS (% TOTAL WORDS WHICH COULD BE REMOVED WITHOUT AFFECTING ERROR RATE) RANGED FROM 11.1%-74.6%. THE LOWEST 4 RATIOS (11.1%-25.4%) WERE FOR PROGRAMS WHICH PREVIOUSLY DEMONSTRATED AS ADVANTAGE FOR OVERT RESPONDING. THE REMAINING 8 RATIOS (31.0%-74.6%) WERE FOR PROGRAMS WHICH PREVIOUSLY YIELDED NO RESPONSE-MODE DIFFERENCE. MANY STUDIES HAVE FAILED TO FIND AN ADVANTAGE FOR OVERT RESPONDING BECAUSE THE MATERIAL USED WAS LARGELY UNPROGRAMED IN THAT ANSWERS WERE NOT DEPENDENT UPON MUCH OF THE CONTENT OF THE MATERIAL. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-636 314 9/2 6/4
SYSTEM RESEARCH LTD RICHMOND (ENGLAND)
LEARNING MACHINES. (U)
63 20P PASK, GORDON ;
CONTRACT: AF 61(052)-640.

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED FOR PRESENTATION AT CONGRESS OF THE INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL (2ND), BASLE, SWITZERLAND, 1963.

DESCRIPTORS: (*LEARNING MACHINES, THEORY), BIONICS, PROBABILITY, GREAT BRITAIN (U)

CONTENTS: MACHINE ORGANIZATION; THE MECHANISM IN WHICH LEARNING MACHINES ARE REALIZED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OMKOB

AD-636 406 5/9
ILLINOIS UNIV URBANA COORDINATED SCIENCE LAB
THE USE OF PROGRAMMED LEARNING AND COMPUTER BASED INSTRUCTION TECHNIQUES TO TEACH ELECTRICAL ENGINEERING NETWORK ANALYSIS, (U)
JUL 66 85P JOHNSON, ROGER L. ;
REPT. NO. R-297.
CONTRACT: DA-28-043-AMC-00073(E),NONR-3985(08)
PROJ: DA-20014501831F.

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, *ELECTRICAL ENGINEERING), COMPUTERS, LEARNING, STUDENTS, EFFECTIVENESS, TEACHING METHODS, TRAINING, PERFORMANCE(HUMAN), CIRCUITS, EFFECTIVENESS, TEACHING MACHINES (U)
IDENTIFIERS: PLATO TEACHING SYSTEM (U)

TWO TYPES OF PROGRAMMED INSTRUCTION SEQUENCES (INQUIRY AND TUTORIAL) WERE USED ON THE PLATO SYSTEM TO TEACH ELECTRICAL NETWORK ANALYSIS (EE 322, UNIVERSITY OF ILLINOIS). TWO GROUPS OF STUDENTS WERE SELECTED TO USE EACH OF THE TWO TYPES OF INSTRUCTION. BOTH OF THE INSTRUCTION SEQUENCES WERE TO PROVIDE THE SAME PERFORMANCE OBJECTIVES. THE REPORT DESCRIBES THE DESIGN AND USE OF THE INSTRUCTION ON THE PLATO TEACHING SYSTEM AND SUMMARIZES THE PERFORMANCE OF THE STUDENTS WITH RESPECT TO THE TWO METHODS OF TEACHING. THE STUDY INDICATED THAT THE DESIRED PERFORMANCE OBJECTIVES WERE OBTAINED SATISFACTORILY IN BOTH CASES, ALTHOUGH IN CERTAIN ASPECTS THE INQUIRY TEACHING PROGRAM EXHIBITED SOME ADVANTAGES. A TEACHING PROGRAM WHICH COULD MAKE AVAILABLE ALL OF THE FACILITIES CONTAINED IN THE PRESENT PROGRAMS WOULD BE MORE DESIRABLE. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-637 111 6/4 9/2
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
TRAINING PATTERN-RECOGNITION MACHINES. (U)
MAR 66 117P ARKADEV,A. G. ;BRAVERMAN,E. M. ;
REPT. NO. FTD-TT-65-1699.
MONITOR: TT 66-62054

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. OF MONO. OBUCHENIE MASHINY RASPOZNAVANIYU OBRAZOV, MOSKVA 1964. 110P.

DESCRIPTORS: (*PATTERN RECOGNITION, *LEARNING MACHINES), (*ARTIFICIAL INTELLIGENCE, LEARNING MACHINES), BIONICS, USSR (U)

TRANSLATION OF RUSSIAN RESEARCH: TRAINING PATTERN-RECOGNITION MACHINES.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-637 656 5/9 9/2
ILLINOIS UNIV URBANA TRAINING RESEARCH LAB
SOCRATES, A COMPUTER-BASED INSTRUCTIONAL SYSTEM IN THEORY AND RESEARCH. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.
JUN 66 55P STOLUROW,LAWRENCE M. ;
REPT. NO. TR-12.
CONTRACT: NONR 3985(04).

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, *CYBERNETICS), DIGITAL COMPUTERS, TEACHING METHODS, THEORY, LEARNING (U)
IDENTIFIERS: SOCRATES (U)

THE PAPER DESCRIBES A CYBERNETIC COMPUTER-BASED INSTRUCTIONAL SYSTEM, SOCRATES. THE TEACHING MODEL WHICH LED TO ITS DEVELOPMENT, AND SOME OF THE RESEARCH ACCOMPLISHED WITH IT. THE ACRONYM, SOCRATES, IS SYSTEM FOR ORGANIZING CONTENT TO REVIEW AND TEACH EDUCATIONAL SUBJECTS. IT CONSISTS OF A GROUP OF STUDENT INPUT-OUTPUT (I/O) STATIONS WIRED TO A DIGITAL COMPUTER THROUGH A RELAY RACK. IT IS A COMPUTER-BASED TUTORIAL SYSTEM DESIGNED TO MEET THE REQUIREMENTS OF AN IDIOGRAPHIC CONTINGENCY MODEL OF THE INSTRUCTIONAL PROCESS, WHICH, THEREFORE, MAKES IT POSSIBLE TO PROVIDE HIGHLY ADAPTIVE INDIVIDUALIZED INSTRUCTION TO SEVERAL STUDENTS SIMULTANEOUSLY. THE MODEL DEFINES THE PRESUMABLY CRITICAL DIMENSIONS OF INSTRUCTION AND TREATS THESE AS SYSTEM FUNCTIONS. THE SYSTEM PERMITS CONTROLLED IMPLEMENTATION OF THE MODEL AS WELL AS THE COLLECTION OF DATA WHICH COULD LEAD TO ITS FURTHER DEVELOPMENT. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-637 894 9/2 5/5
LOCKHEED MISSILES AND SPACE CO SUNNYVALE CALIF
HUMAN FACTORS ASPECTS OF DIGITAL COMPUTER PROGRAMMING
FOR SIMULATOR CONTROL. (U)
65 10P SPESOCK,GILBERT J. ;LINCOLN,
ROBERT S. ;

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN HUMAN FACTORS P473-82
OCT 1965.
SUPPLEMENTARY NOTE:

DESCRIPTORS: (*COMPILERS, HUMAN ENGINEERING),
(*PROGRAMMING(COMPUTERS), *HUMAN ENGINEERING),
DIGITAL COMPUTERS, SIMULATORS, CONTROL, DISPLAY
SYSTEMS, REAL TIME, PROGRAMMERS (U)

BECAUSE OF THE ENORMOUS PRESENT DAY EFFORT DEVOTED TO THE PREPARATION OF DIGITAL COMPUTER PROGRAMS, SPECIAL ATTENTION SHOULD BE GIVEN TO THE HUMAN FACTORS ASPECTS OF PROGRAM DEVELOPMENT. CURRENTLY AVAILABLE PROGRAM COMPILERS REPRESENT A SIGNIFICANT APPLICATION OF CERTAIN HUMAN FACTORS PRINCIPLES, BUT ARE NOT GENERALLY APPLICABLE TO PROBLEMS OF 'REAL TIME' PROGRAMMING. SINCE THE CREATION OF APPROPRIATE COMPILERS IS IMPORTANT TO SIMULATION METHODOLOGY, THE REPORT INCLUDES A DETAILED DESCRIPTION OF A 'REAL TIME' COMPILER DEVELOPED FOR DISPLAY/CONTROL SIMULATION ON A SMALL COMPUTER IN A HUMAN FACTORS LABORATORY. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-638 676 5/9 9/2
ILLINOIS UNIV URBANA TRAINING RESEARCH LAB
PROJECT SOCRATES: A FLEXIBLE RESEARCH FACILITY TO BE USED IN STUDIES OF PREPROGRAMED SELF-INSTRUCTION (PSI) AND SELF-PROGRAMED INDIVIDUALIZED EDUCATION (SPIE). (U)
DESCRIPTIVE NOTE: FINAL REPT.
SEP 66 31P STOLUROW,LAWRENCE M. ;
CONTRACT: NONR-3985(04).
PROJ: NR-154-239.

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, SCIENTIFIC RESEARCH), (*EDUCATION, SCIENTIFIC RESEARCH), (*TEACHING MACHINES, LEARNING), PSYCHOLOGY, CYBERNETICS, TEACHING METHODS, STUDENTS, COMPUTERS, BIBLIOGRAPHIES (U)
IDENTIFIERS: SOCRATES (U)

THIS IS THE FINAL REPORT OF WORK ACCOMPLISHED ON PROJECT SOCRATES (SYSTEM FOR ORGANIZING CONTENT TO REVIEW AND TEACH EDUCATIONAL SUBJECTS). THE PROJECT CONTRIBUTED TO THE DEVELOPMENT AND OPERATION OF A COMPUTER-BASED FACILITY FOR PSYCHOLOGICAL RESEARCH ON VARIABLES ASSOCIATED WITH PRE-PROGRAMED SELF-INSTRUCTION (PSI) AND SELF-PROGRAMED INDIVUALIZED EDUCATION (SPIE). THE RESEARCH WAS CONCERNED WITH THE DEVELOPMENT OF PSYCHOLOGICAL THEORY AND RESEARCH RELATING TO THE DESIGN AND USE OF A COMPUTER-BASED INSTRUCTIONAL SYSTEM. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-639 714 5/9 9/2
VIRGINIA POLYTECHNIC INST BLACKSBURG
ANALYSIS OF COMPUTER SCIENCE CURRICULA IN AMERICAN COLLEGES AND UNIVERSITIES. (U)
AUG 66 51P ARRET,BRUCE JAY ;HAHN, BRUCE NORMAN ;

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH MARYLAND UNIV., COLLEGE PARK.

DESCRIPTORS: (*COMPUTERS, *EDUCATION), UNIVERSITIES, ANALYSIS, PROGRAMMING(COMPUTERS), ARTIFICIAL INTELLIGENCE, CYBERNETICS, MATHEMATICAL PROGRAMMING (U)

REACTIONS FROM MANY COLLEGES AND UNIVERSITIES THROUGHOUT THE UNITED STATES INDICATE THAT THE COMPUTER SCIENCE FIELD, AS A PROGRAM OF GUIDED INSTITUTIONAL STUDY, IS IN ITS EARLIEST INFANCY. MANY SCHOOLS NOT NOW OFFERING DEGREES HAVE PLANS FOR PROGRAMS. SCHOOLS ALREADY OFFERING DEGREES ARE CONSTANTLY CHANGING, ADDING AND DROPPING COURSES, AND SHIFTING SCOPE. COMPARISON IS DIFFICULT BECAUSE OF A LACK OF UNIFORMITY DUE TO THE NEWNESS OF THE SCIENCE, DIFFERENCES IN CONCEPT OF THE FIELD AND ITS OBJECTIVES, COMMUNICATIONS DIFFICULTIES CREATED BY THE VAGUENESS OF THE LANGUAGE, AND STRUCTURAL PROBLEMS CONFRONTING NEW OR PROPOSED DEPARTMENTS MAKING THEIR FUTURE STATUS UNPREDICTABLE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-640 188 9/2 6/4
PURDUE UNIV LAFAYETTE IND CONTROL AND INFORMATION SYSTEMS LAB
A HEURISTIC APPROACH TO REINFORCEMENT LEARNING CONTROL SYSTEMS. (U)
DESCRIPTIVE NOTE: REVISED ED.,
APR 65 12P WALTZ,M. D. ;FU,K. S. ;
CONTRACT: AF-AFOSR-62-351,NSF-GP-2183
MONITOR: AFOSR 66-1509

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN IEEE TRANSACTIONS ON AUTOMATIC CONTROL VAC10 N4 P390-8 OCT 1965.
SUPPLEMENTARY NOTE: REVISION OF MANUSCRIPT SUBMITTED 3 NOV 64. SEE ALSO AD-611 935.

DESCRIPTORS: (*LEARNING MACHINES, *CONTROL SYSTEMS), ARTIFICIAL INTELLIGENCE, BIONICS, ANALOG-DIGITAL COMPUTERS, SET THEORY, PROBABILITY (U)
IDENTIFIERS: REINFORCEMENT(PSYCHOLOGY) (U)

THE PAPER DESCRIBES A LEARNING CONTROL SYSTEM USING A REINFORCEMENT TECHNIQUE. THE CONTROLLER IS CAPABLE OF CONTROLLING A PLANT THAT MAY BE NONLINEAR AND NONSTATIONARY. THE ONLY A PRIORI INFORMATION REQUIRED BY THE CONTROLLER IS THE ORDER OF THE PLANT. THE APPROACH IS TO DESIGN A CONTROLLER WHICH PARTITIONS THE CONTROL MEASUREMENT SPACE INTO SETS CALLED CONTROL SITUATIONS AND THEN LEARNS THE BEST CONTROL CHOICE FOR EACH CONTROL SITUATION. THE CONTROL MEASUREMENTS ARE THOSE INDICATING THE STATE OF THE PLANT AND ENVIRONMENT. THE LEARNING IS ACCOMPLISHED BY REINFORCEMENT OF THE PROBABILITY OF CHOOSING A PARTICULAR CONTROL CHOICE FOR A GIVEN CONTROL SITUATION. THE SYSTEM WAS STIMULATED ON AN IBM 1710-GEDA HYBRID COMPUTER FACILITY. EXPERIMENTAL RESULTS OBTAINED FROM THE SIMULATION ARE PRESENTED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-640 883 5/9
PENNSYLVANIA STATE UNIV UNIVERSITY PARK
THE CLASSROOM COMMUNICATOR (RAPID MASS
LEARNING). (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
OCT 50 33P CARPENTER ,C. R. ;EGGLETON ,
R. C. ;JOHN ,F. T. ;CANNON,J. B. , JR;

CONTRACT: N6ONR-269(07);
PROJ: NR-781-005, SDC-20-E-4
MONITOR: SPECDEVCEN 269-7-14

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE;

DESCRIPTORS: (*TEACHING MACHINES, EFFECTIVENESS),
(*TEACHING METHODS, TEACHING MACHINES), DESIGN,
LEARNING (U)

A REPORT IS PRESENTED OF THE PLANNING, DESIGN AND CONSTRUCTION OF EXPERIMENTAL EQUIPMENT APPROPRIATE FOR RESEARCH ON THE LEARNING PROCESS AND THE EVALUATION OF COMPLEX INSTRUCTIONAL AND INFORMATIONAL PROGRAMS. THE CLASSROOM COMMUNICATOR MAKES POSSIBLE THE ADMINISTRATION OF MULTIPLE-CHOICE OBJECTIVE TESTS, OR ATTITUDE SCALES, IN SUCH A WAY THAT THE RESULTS ARE AVAILABLE DIRECTLY AFTER THE CONCLUSION OF THE TEST. IN ADDITION, THE INSTRUCTOR OR EXPERIMENTER CAN SEE IMMEDIATELY HOW EACH INDIVIDUAL RESPONDS TO EACH ITEM IN THE TEST. OTHER FEATURES OF THE SYSTEM WILL MAKE POSSIBLE NEW KINDS OF EXPERIMENTATION IN THE LEARNING PROCESS. THE PRE-DESIGN FUNCTIONAL REQUIREMENTS FOR THE EQUIPMENT ARE GIVEN IN DETAIL. THE EQUIPMENT WHICH HAS BEEN DESIGNED AND CONSTRUCTED TO MEET THESE REQUIREMENTS IS DESCRIBED AND ILLUSTRATED. AN EXPLANATION IS GIVEN OF HOW THE COMPONENTS OF THE CLASSROOM COMMUNICATOR OPERATE. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-644 054 5/9
GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES RESEARCH OFFICE
THE DESIGN OF INSTRUCTIONAL SYSTEMS. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
NOV 66 92P SMITH,ROBERT G. ;
REPT. NO. HUMRRO-TR-66-18
CONTRACT: DA-44-188-ARO-2
PROJ: DA-2J024701A712-01

UNCLASSIFIED REPORT

DESCRIPTORS: (*TRAINING, COST EFFECTIVENESS), PROGRAMMED INSTRUCTION, TRAINING DEVICES, TRANSFER OF TRAINING, SYSTEMS ENGINEERING, LEARNING, STUDENTS, PERFORMANCE(HUMAN), TEACHING METHODS, EFFICIENCY (U)

THE REPORT, BASED ON AN EXTENSIVE SURVEY OF CURRENT LITERATURE, DESCRIBES AND DISCUSSES A SYSTEM APPROACH TO DESIGNING TRAINING AND CONSIDERS FACTORS BEARING ON TRAINING EFFECTIVENESS. AN EFFICIENT INSTRUCTIONAL SYSTEM IS CONCEIVED AS ONE IN WHICH THE COMPONENTS FORM AN INTEGRATED WHOLE, ACHIEVING MAXIMUM EFFECTIVENESS AT THE LEAST POSSIBLE COST. COMPONENTS CONSIDERED IN THIS REPORT INCLUDE PRESENTATION MEDIA, STUDENT MANAGEMENT, TECHNIQUES FOR PRACTICING KNOWLEDGE AND PERFORMANCE, KNOWLEDGE OF RESULTS, DIRECTING STUDENT ACTIVITIES TOWARD THE GOALS OF THE TRAINING PROGRAM, AND TESTING AND EVALUATING THE SYSTEM IN TERMS OF EFFICIENCY AND COST. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-644 223 5/9 5/10 9/2
GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES RESEARCH OFFICE
EFFECTS OF WRITTEN VERBALIZATION AND TIMING OF INFORMATION ON PROBLEM SOLVING IN PROGRAMED LEARNING. (U)

NOV 66 11P SEIDEL,ROBERT J. ;ROTBERG, IRIS C. ;
REPT. NO. HUMRRO PROFESSIONAL PAPER-6-66
CONTRACT: DA-44-188-ARO-2

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN JOURNAL OF EDUCATIONAL PSYCHOLOGY V57 N3 P151-8 1966.

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, EFFECTIVENESS), (*LEARNING, PROGRAMMING(COMPUTERS)), PERFORMANCE(HUMAN), ACHIEVEMENT TESTS, PROBLEM SOLVING, SCHEDULING (U)
IDENTIFIERS: VERBALIZATION (U)

TRAINING ON COMPUTER-PROGRAM (CP) WRITING WAS GIVEN TO 60 HIGH SCHOOL STUDENTS IN A 3 X 2 FACTORIAL DESIGN CONCERNED WITH EFFECTS OF (A) WRITING EXPLICITLY THE RULES USED IN CONSTRUCTING THE CPS (B) WRITING THE NAMES OF THESE RULES IN CONJUNCTION WITH WRITING CPS, OR (C) WRITING ONLY THE CPS. THE OTHER FACTOR WAS PROMPTING VS. CONFIRMATION. RESULTS INDICATED THAT: (A) DURING LEARNING, PROMPTING WAS SIGNIFICANTLY SUPERIOR TO CONFIRMATION, BUT A REVERSE TENDENCY APPEARED IN THE CRITERION TESTS; (B) NAMING THE RULES IN ADDITION TO WRITING CPS DURING TRAINING AIDED LATER PERFORMANCE WHEN WRITING MORE COMPLEX CPS ON THE CRITERION TESTS; (C) WRITING RULES DURING TRAINING ACTUALLY HINDERED SS IN WRITING CPS LATER ON THE CRITERION TESTS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-644 534 5/2 9/2
NATIONAL SCIENCE FOUNDATION WASHINGTON D C
PROCEEDINGS OF THE 1965 CONGRESS INTERNATIONAL
FEDERATION FOR DOCUMENTATION, VOLUME II. (U)
OCT 65 248P

UNCLASSIFIED REPORT
AVAILABILITY: AVAILABLE FROM SPARTAN BOOKS, 1250
CONN. AVE., N. W., WASHINGTON, D. C. 20036.
SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH THE
AMERICAN DOCUMENTATION INSTITUTE. PREPARED FOR
PRESENTATION AT MEETING AND CONGRESS (31ST)
WASHINGTON, D. C., U.S.A. OCTOBER 7-16, 1965. RESEARCH
SUPPORTED IN PART BY FEDERATION OF AMERICAN SOCIETIES
FOR EXPERIMENTAL BIOLOGY, WASHINGTON, D. C.
CONTRACT AF 49(638)-1561. REPORT AFOSR-67-0003.

DESCRIPTORS: (*DOCUMENTATION, SYMPOSIA),
EDUCATION, TRAINING, INFORMATION RETRIEVAL,
MANAGEMENT ENGINEERING (U)

CONTENTS: EDUCATION AND TRAINING OF
DOCUMENTALISTS; ORGANIZATION OF INFORMATION FOR
DOCUMENTATION; INFORMATION NEEDS OF SCIENCE AND
TECHNOLOGY; INFORMATION NEEDS OF SOCIETY;
PRINCIPLES OF DOCUMENTATION AND SYSTEMS DESIGN;
DOCUMENTATION AND THE FUTURE. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-644 601 5/2 9/2
OFFICE OF NAVAL RESEARCH WASHINGTON D C
INFORMATION SYSTEMS SUMMARIES. (U)
DESCRIPTIVE NOTE: EDITION NO. 4.
SEP 64 93P
REPT. NO. ONR-ACR-123

UNCLASSIFIED REPORT

DESCRIPTORS: (*DATA PROCESSING SYSTEMS, REVIEWS), (*COMPUTERS, DOCUMENTATION), INFORMATION THEORY, LINGUISTICS, PATTERN RECOGNITION, BIONICS, AUTOMATA, INFORMATION RETRIEVAL, MAN-MACHINE SYSTEMS, ABSTRACTS, PROCESSING, LEARNING MACHINES (U)

CONTENTS: (A) GENERAL INFORMATION SCIENCES: INFORMATION THEORY, REDUNDANCY, SYSTEM THEORY, FUNCTION MODELING, AUTOMATA THEORY. (B) MACHINE INTERACTION WITH HUMANS: MACHINE AIDED COGNITION AND DISPLAY TECHNIQUES, INDEXING AND ABSTRACTING, LINGUISTIC ANALYSIS, PATTERN RECOGNITION. (C) IMPROVED MACHINES: GENERAL SYSTEMS AND COMPONENTS, HYBRID SYSTEMS, MULTIPROCESSING, IMPROVING MACHINES, AUTOMATIC CONTROL, TECHNIQUES AND DEVICES. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-645 121 5/9
GENERAL ELECTRIC CO SANTA BARBARA CALIF TEMPO
COMPUTER AUGMENTED LEARNING. (U)
NOV 66 29P KINDRED,J. ;
REPT. NO. 66TMP-55

UNCLASSIFIED REPORT

DESCRIPTORS: (*LEARNING, TRAINING DEVICES), (*TRAINING DEVICES, COMPUTERS), (*TEACHING MACHINES, COMPUTERS), (*PROGRAMMED INSTRUCTION, LEARNING), EDUCATION, STUDENTS (U)

THE REPORT CONTAINS A DESCRIPTION AND SUMMARY OF COMPUTER AUGMENTED LEARNING DEVICES AND SYSTEMS. THE DEVICES ARE OF TWO GENERAL TYPES; PROGRAMMED INSTRUCTION SYSTEMS BASED ON THE TEACHING MACHINES PIONEERED BY PRESSEY AND DEVELOPED BY SKINNER, AND THE SO-CALLED 'DOCILE' SYSTEMS THAT PERMIT GREATER USER-DIRECTION WITH THE COMPUTER UNDER STUDENT CONTROL. EVEN SYMPATHETIC CRITICISMS BY PRACTITIONERS REVEAL LIMITED UNDERSTANDING OF THE PSYCHOLOGY OF LEARNING AND KNOWING, EXPOSE POTENTIAL RESTRICTIONS TO ADEQUATE SELECTION OF COMPUTER-BASED CURRICULA, AND RECOGNIZE TECHNICAL HAZARDS THAT IMPEDE THE DEVELOPMENT OF EFFECTIVE COMPUTERIZED EDUCATIONAL TOOLS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-645 384 5/10 5/9
UNIVERSITY OF SOUTHERN CALIFORNIA LOS ANGELES
BASIC PROBLEMS IN TEACHING FOR CREATIVITY. (U)
66 34P GUILFORD, J. P. ;
CONTRACT: NONR-228(20)

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN INSTRUCTIONAL MEDIA AND CREATIVITY CHAP3 P71-103 1966.

DESCRIPTORS: (*CREATIVITY, TEACHING METHODS), (*STUDENTS, CREATIVITY), ATTITUDES, TEACHING MACHINES, TRAINING DEVICES, EDUCATION, REASONING, LEARNING, MEMORY, MOTIVATION, BEHAVIOR, PROGRAMMED INSTRUCTION (U)

THE AUTHOR POINTS OUT THAT FROM VERY DIFFERENT APPROACHES TO EDUCATIONAL PHILOSOPHY AND EDUCATIONAL OPERATIONS, WE ARE AWARE OF THE GREAT NEED OF MORE EMPHASIS UPON STUDENT INITIATIVE AND THE FULFILLMENT OF THE STUDENT'S INTELLECTUAL NEEDS. UNDER THE HEADING OF THE GOAL OF TEACHING FOR CREATIVITY, THIS MEANS NOT ONLY TEACHING MORE IMAGINATIVELY BUT ALSO PROMOTING BY TEACHING THE DEVELOPMENT OF CREATIVE SKILLS AND CREATIVE ATTITUDES IN STUDENTS. SINCE AN ARRAY OF TEACHING MEDIA ARE AVAILABLE AND ARE PROBABLY HERE TO STAY, IT IS WELL THAT WE CONSIDER HOW THEY MAY BE USED MORE CONSTRUCTIVELY INSOFAR AS STUDENTS ARE CONCERNED, BOTH IN TERMS OF TEACHING ORDINARY SUBJECT MATTER AND IN DEVELOPING CREATIVE-THINKING SKILLS AND CREATIVE ATTITUDES. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-645 422 5/8 5/10 9/2
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
EXPERIMENTS IN COMPUTER-AIDED INDUCTIVE
REASONING. (U)
DESCRIPTIVE NOTE: TECHNICAL MEMO.,
DEC 66 80P NEWMAN,J. R. ;ROGERS,M. S. ;
REPT. NO. TM-3227

UNCLASSIFIED REPORT

DESCRIPTORS: (*MAN-MACHINE SYSTEMS, PROBLEM SOLVING), (*PROBLEM SOLVING, PERFORMANCE(HUMAN)), (*COMPUTERS, PROBLEM SOLVING), REASONING, BEHAVIOR, SYMBOLS, LEARNING, EXPERIMENTAL DESIGN, PSYCHOMETRICS (U)

THE DOCUMENT REPORTS ON A PROGRAM OF RESEARCH ON HUMAN PROBLEM-SOLVING BEHAVIOR WHEN THAT BEHAVIOR IS BEING ASSISTED BY CERTAIN COMPUTER AND DISPLAY AIDS. THE RESEARCH IS PARTICULARLY CONCERNED WITH PROBLEM SOLVING THAT INVOLVES INDUCTIVE REASONING OR CONCEPT FORMATION. PREVIOUS INVESTIGATIONS HAVE INDICATED THAT HUMAN SUBJECTS USE A VARIETY OF SYSTEMATIC OPERATIONS WHEN THEY ARE SOLVING SUCH PROBLEMS; ONE PURPOSE OF THIS PROJECT IS TO CARRY OUT AN EXPERIMENTAL ANALYSIS OF SOME OF THESE OPERATIONS AND THEIR EXPLICIT USES. TO ACCOMPLISH THIS PURPOSE, THE OPERATIONS ARE MADE AVAILABLE TO THE PROBLEM SOLVER IN THE FORM OF COMPUTER AND DISPLAY AIDS SO THAT WE CAN CALL FOR THEIR IMPLEMENTATION QUITE EASILY. THE PROBLEM SOLVER IS THUS RELIEVED OF THE BURDEN OF ACTUALLY CARRYING OUT THE DETAILS OF THE OPERATIONS. FURTHERMORE, THROUGH THE COMPLETE RECORDING OF THE USE OF THESE COMPUTER AIDS, SOME ASPECTS OF THE PROBLEM-SOLVING PROCESS ARE EXTERNALIZED FOR EXAMINATION BY THE RESEARCHER. THE FIRST PART OF THIS REPORT OUTLINES THE GENERAL METHOD AND RATIONALE OF THIS WORK AND ITS RELATION TO OTHER RESEARCH. THE SECOND PART DESCRIBES FOUR SPECIFIC EXPERIMENTS WITHIN THAT GENERAL FRAMEWORK. GROUPS OF SUBJECTS WERE EXPOSED TO TWO MAJOR TYPES OF CONCEPT PROBLEMS; CLASSIFICATION AND RELATIONAL. THOSE SUBJECTS WHO WERE ALLOWED TO USE THE COMPUTER AND DISPLAY AIDS (CALLED SYMBOL MANIPULATION FUNCTIONS) IN SOLVING THE PROBLEMS ACHIEVED SIGNIFICANTLY HIGHER PERFORMANCE THAN NON-AIDED SUBJECTS. THE AIDS INCREASED IN USEFULNESS WITH PROBLEM DIFFICULTY AND HAD THEIR GREATEST UTILITY FOR THE RELATIONAL PROBLEMS, WHICH PROVED TO BE CONSIDERABLY MORE DIFFICULT THAN CLASSIFICATION PROBLEMS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-645 435 5/8 5/10 9/2
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
EXTENSION OF HUMAN CAPABILITY THROUGH INFORMATION PROCESSING AND DISPLAY SYSTEMS. (U)
DESCRIPTIVE NOTE: PROFESSIONAL PAPER,
DEC 66 14P NEWMAN,J. ROBERT ;
REPT. NO. SP-2560/000/00

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED FOR PRESENTATION AT THE DIVISION 14 SYMPOSIUM: CONSTRUCTS CONCERNING HUMAN PERFORMANCE IN THE WORLD OF WORK II: PERSONNEL-WORK EQUIPMENT INTERACTIONS, AMERICAN PSYCHOLOGICAL ASSOCIATION CONVENTION, NEW YORK CITY, SEPT 1966.

DESCRIPTORS: (*MAN-MACHINE SYSTEMS, PROBLEM SOLVING), (*PROBLEM SOLVING, PERFORMANCE(HUMAN)), (*COMPUTERS, PROBLEM SOLVING), INDUSTRIAL PSYCHOLOGY, DISPLAY SYSTEMS, SYMPOSIA (U)

THE PAPER DISCUSSES SOME OF THE BASIC PRINCIPLES AND TECHNIQUES OF MAN-MACHINE INTERACTION AND GIVES SEVERAL ILLUSTRATIONS OF INSTANCES IN WHICH HUMAN CAPABILITY HAS BEEN ENHANCED BY COMPUTER AND DISPLAY SYSTEMS. IT ALSO DISCUSSES THE IMPLICATIONS OF THESE PRINCIPLES FOR THE BUSINESS AND INDUSTRIAL COMMUNITY. THE PAPER WAS ONE OF FOUR GIVEN AT A SYMPOSIUM ON CONSTRUCTS CONCERNING HUMAN PERFORMANCE IN THE WORLD OF WORK, HELD AT THE AMERICAN PSYCHOLOGICAL ASSOCIATION CONVENTION, NEW YORK CITY, SEPTEMBER 1966. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-645 740 5/10
ILLINOIS UNIV URBANA COORDINATED SCIENCE LAB
THE EFFECT OF COMPLEXITY OF NATURAL LANGUAGE MEDIATORS AND THE ASSOCIABILITY OF PAIRS ON PAIRED-ASSOCIATE LEARNING. (U)
JAN 67 19P WEARING,ALEXANDER J. ;
MONTAGUE,WILLIAM E. ;
REPT. NO. R-333
CONTRACT: DA-28-043-AMC-00073(E) ,NONR-3985(08)
PROJ: DA-20001450183IF

UNCLASSIFIED REPORT

DESCRIPTORS: (*LEARNING, *WORD ASSOCIATION), VERBAL BEHAVIOR, LANGUAGE, VOCABULARY, ERRORS, RECALL, TEACHING MACHINES (U)
IDENTIFIERS: PLATO TEACHING SYSTEM (U)

NATURAL LANGUAGE MEDIATORS (NLM) ARE WIDELY USED BY SS IN PAIRED-ASSOCIATE LEARNING. EXPERIMENTS WHICH HAVE DOCUMENTED THEIR EFFECT ON LEARNING HAVE, HOWEVER, LARGELY IGNORED QUALITATIVE DIFFERENCES BETWEEN THEM. TWO LARGE GROUPS EACH LEARNED A DIFFERENT CVC-WORD LIST AFTER WHICH THEY REPORTED ANY NLMS THEY HAD USED. JUDGES RATED THE COMPLEXITY OF NLMS USING A SCALE DEVELOPED BY MARTIN, BOERSMA AND COX (1965) WITH DIFFERENT MATERIALS. THE RESULTS AGREE WITH THEIRS IN THAT COMPLEX NLMS PRODUCED FEWER ERRORS IN LEARNING. HOWEVER, SOME CATEGORIES ON THE SCALE WERE USED INFREQUENTLY WHICH MAY INDICATE THAT, AT LEAST WITH HIGHLY MEANINGFUL MATERIAL, A SIMPLER DICHOTOMOUS CATEGORIZATION (NLM OR ROTE) MAY BE PREFERABLE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-645 821 9/2
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
INVESTIGATION OF LEARNING PROCESSES IN A COGNITIVE SYSTEM WITH ONE POSITIVE FEEDBACK. (U)
JUL 66 20P PARRA, I. K. ;
REPT. NO. FTD-TT-65-1850
MONITOR: TT 67-60496

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. OF AVTOMATYKA (USSR) V8 N5 P58-68 1963.

DESCRIPTORS: (*LEARNING MACHINES, CHARACTER RECOGNITION), RUSSIAN LANGUAGE, FEEDBACK, INPUT-OUTPUT DEVICES, ARTIFICIAL INTELLIGENCE, USSR (U)

A DESCRIPTION OF A SELF-ORGANIZED SYSTEM WITH POSITIVE FEEDBACK IS PRESENTED. RESULTS ARE GIVEN OF INVESTIGATING CONTROL METHODS BY THE ORDER OF SELF-TEACHING GROUPS IN THE 'ALFA' SYSTEM WITH ONE POSITIVE FEEDBACK. METHODS OF LEARNING AND SELF-TEACHING OF GROUPS OF ASSOCIATION CELLS OF THE SYSTEM ARE DISCUSSED. IT IS SHOWN THAT FOR A SYSTEM WITH ONE POSITIVE FEEDBACK, THE SELECTION OF SIGNS FOR RECOGNITION OF THE GIVEN GROUP OF FORMS SHOULD BE REALIZED NOT ONLY FOR USEFULNESS AND STABILITY, BUT ALSO FOR THE SEQUENCE OF SIGNS OR FOR THE RESOLVING POWER OF THE SYSTEM FOR EACH TWO FORMS. IN ORDER THAT THE GROUP OF ASSOCIATION CELLS OF THE 'ALFA' SYSTEM COULD RELEARN ON ANY OF THE GIVEN FORMS, IT IS NECESSARY THAT THE MINIMUM RESOLVING POWER OF THE SYSTEM BE NO LESS THAN UNITY AT ANY GIVEN INDICATOR ADJUSTMENT OF MAXIMUM VOLTAGE (IBN). FURTHERMORE, IT IS NECESSARY THAT THE RESOLVING POWER OF EACH TWO FORMS DIFFER AT LEAST BY UNITY. THE NECESSARY MINIMUM NUMBER OF SIGNS FOR THE POSSIBILITY OF TEACHING AND RETEACHING IN THE SYSTEM IS DETERMINED AND IT IS SHOWN THAT AN INCREASE IN THE NUMBER OF POSITIVE FEEDBACKS IMPROVES THE SELFORGANIZING PROCESS IN THE SYSTEM. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-645 996 9/2 6/4
STANFORD RESEARCH INST MENLO PARK CALIF
GRAPHICAL-DATA-PROCESSING RESEARCH STUDY AND
EXPERIMENTAL INVESTIGATION. (U)
DESCRIPTIVE NOTE: QUARTERLY REPT. NO. 3, 1 AUG-31 OCT
66.
OCT 66 33P BRAIN,ALFRED E. ;HART,PETER
E. ;MUNSON,JOHN H. ;
CONTRACT: DA-28-043-AMC-01901(E)
PROJ: SRI-5864
MONITOR: ECOM 01901-25

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: CONTINUATION OF CONTRACT DA-36-
039-AMC-03247(E). SEE ALSO AD-641 647.

DESCRIPTORS: (*GRAPHICS, *DATA PROCESSING SYSTEMS),
(*CHARACTER RECOGNITION, GRAPHICS), (*LEARNING
MACHINES, CHARACTER RECOGNITION), PATTERN
RECOGNITION, FOURIER ANALYSIS, ANALOG-TO-DIGITAL
CONVERTERS, ADAPTIVE SYSTEMS (U)

THE RESULTS OF EXPERIMENTS ON PIECEWISE-LINEAR
LEARNING MACHINES WITH HANDPRINTED CHARACTERS ARE
REPORTED. THE DATA, AS BEFORE, CONSISTED OF THREE
46-CHARACTER FORTRAN ALPHABETS FROM EACH OF 16
WRITERS. THE RESULTS OF EXPERIMENT 3, A NINE-
VIEW EXPERIMENT, WERE COMPARED WITH SEVEN, FIVE,
THREE, AND ONE-VIEW RESULTS ON THE SAME TRAINING AND
TESTING SET. THE TEST ERROR RATE ON CHARACTERS NOT
INCLUDED IN THE TRAINING SET FELL STEADILY FROM 42
PERCENT WITH THE SINGLE VIEW TO 24 PERCENT WHEN THE
CATEGORY OF THE CHARACTER WAS DETERMINED FROM NINE
VIEWS. RESULTS ARE REPORTED ON THE PROGRAM, WHICH
INCLUDES BOTH PREPROCESSING AND CLASSIFICATION. IT
IS BASED ON CONTOUR FOLLOWING AND THE DETERMINATION
OF FEATURES INCLUDING CONNECTED SUBFIGURES, STROKES
CONCAVITIES, AND ENCLOSURES. THE PARTICULAR
PROBLEM TREATED IS THE SEPARATION OF '65' FOR 'GS'.
A METHOD OF USING THE 1024-IMAGE OPTICAL
PREPROCESSOR FOR THE PROPROCESSING OF SPEECH
WAVEFORMS IS DESCRIBED AND SOME OF THE CONSIDERATIONS
THAT GOVERN ITS PRACTICAL IMPLEMENTATION ARE
DISCUSSED. THE METHOD IS BASED ON THE
DETERMINATION OF THE AMPLITUDE COEFFICIENTS OF A
FOURIER SERIES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-646 347 5/9 5/10
GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES RESEARCH OFFICE
THE EFFECT OF PROGRAMED INSTRUCTION RESPONSE CONDITIONS ON ACQUISITION AND RETENTION. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
DEC 66 41P MCCRYSTAL,THOMAS J. ;
JACOBS,T. O. ;
REPT. NO. HUMRRO-TR-66-20
CONTRACT: DA-44-188-ARO-2
PROJ: DA-2J024701A712-01

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, MILITARY PERSONNEL), (*MILITARY TRAINING, PROGRAMMED INSTRUCTION), LEARNING, LEADERSHIP, INFANTRY, REACTION(PSYCHOLOGY), ATTITUDES, TEACHING MACHINES, PSYCHOMETRICS (U)

THE OBJECTIVE WAS TO EVALUATE THE EFFECT ON CRITERION SCORES OF PROGRAMED INSTRUCTION REQUIRING SUBJECTS EITHER TO WRITE OR NOT TO WRITE THEIR RESPONSES, UNDER EITHER CONSTRUCTED OR PROMPTED CONDITIONS, WITH MILITARY TACTICS AS THE CONTENT. ONE HUNDRED AND TWENTY INFANTRY LIEUTENANTS IN GROUPS OF 30 USED THE PROGRAMED BOOKLET INSTRUCTION WITH THE FOUR RESPONSE CONDITIONS: CONSTRUCTED-OVERT, CONSTRUCTED-COVERT, PROMPTED-OVERT, AND PROMPTED-COVERT. TWO CONTROL GROUPS WERE ALSO TESTED. ALTHOUGH TEST SCORES FROM CONVENTIONAL LECTURE AND PROGRAMED INSTRUCTION METHODS DID NOT DIFFER SIGNIFICANTLY, THE LECTURE METHOD REQUIRED TWICE THE AVERAGE TRAINING TIME OF THE FASTEST PROGRAMED METHOD. THE SIMILARITY IN EFFECTIVENESS RESULTING FROM THE DISPARATE RESPONSE CONDITIONS SUGGESTS THAT, FOR CONTENT OF THIS NATURE AND LENGTH, CONSTRUCTED RESPONSES (EITHER OVERT OR COVERT) MAY BE DISPENSED WITH IN FAVOR OF PROMPTED-COVERT RESPONSES, WHICH REQUIRE LESS LEARNING TIME WITHOUT COMPROMISING THE TRAINING EFFECTIVENESS OF PROGRAMED INSTRUCTION. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-646 598 5/7
RAND CORP SANTA MONICA CALIF
STEPS TOWARD A MODEL OF LINGUISTIC PERFORMANCE: A PRELIMINARY SKETCH, (U)
JAN 67 41P SCHWARCZ,R. M. ;
REPT. NO. RM-5214-PR
CONTRACT: F44620-67-C-0045

UNCLASSIFIED REPORT

DESCRIPTORS: (*LINGUISTICS, MODELS(SIMULATIONS)), LANGUAGE, INFORMATION RETRIEVAL, DATA STORAGE SYSTEMS, DATA PROCESSING SYSTEMS, LEARNING, DIGITAL COMPUTERS, SYNTAX, SEMANTICS, TRANSFORMATIONAL GRAMMARS, COMPUTER PROGRAMS, BEHAVIOR, PERFORMANCE(HUMAN), COMPUTATIONAL LINGUISTICS (U)

THE REPORT DISCUSSES THE TASK OF FORMULATING A MODEL OF LINGUISTIC PERFORMANCE AND PROPOSES AN APPROACH TOWARD THIS GOAL THAT IS ORIENTED TOWARD AN EMBODIMENT OF THE MODEL AS A DIGITAL COMPUTER PROGRAM. THE METHODOLOGY OF CURRENT LINGUISTIC THEORY IS CRITICIZED FOR SEVERAL OF ITS FEATURES THAT RENDER IT INAPPLICABLE TO A REALISTIC MODEL OF PERFORMANCE, AND REMEDIES FOR THESE DEFICIENCIES ARE PROPOSED. THE SYNTACTIC AND CONCEPTUAL DATA STRUCTURES, INFERENCE RULES, GENERATION AND UNDERSTANDING MECHANISMS, AND LEARNING MECHANISMS PROPOSED FOR THE MODEL ARE ALL DESCRIBED. THE LEARNING PROCESS IS FORMULATED AS A SERIES OF FIVE STAGES, AND THE ROLES OF NONLINGUISTIC FEEDBACK AND INDUCTIVE GENERALIZATION RELATIVE TO THESE STAGES ARE DESCRIBED. FINALLY, THE IMPLICATIONS OF A SUCCESSFUL PERFORMANCE MODEL FOR LINGUISTIC THEORY, LINGUISTIC APPLICATIONS OF COMPUTERS, AND PSYCHOLOGICAL THEORY ARE DISCUSSED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-646 651 5/9
UNIVERSITY OF SOUTHERN CALIFORNIA LOS ANGELES DEPT OF PSYCHOLOGY
TRAINING CORRECTIVE MAINTENANCE PERFORMANCE ON ELECTRONIC EQUIPMENT WITH CAI TERMINALS: I. A FEASIBILITY STUDY. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
DEC 66 41P RIGNEY,JOSEPH W. I
REPT. NO. TR-51
CONTRACT: NONR-22A(22)
PROJ: NR-153-093

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, ELECTRONIC TECHNICIANS), FEASIBILITY STUDIES, PROGRAMMING LANGUAGES, COMPUTERS, TESTS, LEARNING, PERFORMANCE(HUMAN), ELECTRONIC EQUIPMENT (U)
IDENTIFIERS: COMPUTER-AIDED INSTRUCTION (U)

A REPORT IS GIVEN OF A FEASIBILITY STUDY IN WHICH SEVERAL POSSIBLE RELATIONSHIPS BETWEEN STUDENT, COMPUTER TERMINAL, AND ELECTRONIC EQUIPMENT WERE CONSIDERED. THE SIMPLEST OF THESE CONFIGURATIONS WAS SET UP AND EXAMINED IN TERMS OF ITS FEASIBILITY FOR TEACHING THE PERFORMANCE OF FAULT LOCALIZATION ON A NAVY TRANSCEIVER. AN INSTRUCTIONAL PROGRAM WAS WRITTEN IN THE COURSEWRITER LANGUAGE. THE PROGRAM GUIDES A STUDENT THROUGH A FAULT LOCALIZATION STRATEGY DURING SEVERAL PRACTICE PROBLEMS, PROVIDING KNOWLEDGE OF RESULTS AND REMEDIAL INSTRUCTION. IT THEN RECORDS KEY STUDENT RESPONSES DURING THE ADMINISTRATION OF TEST PROBLEMS. CONCLUSIONS OF THE STUDY ARE: (1) SIMPLE CAI PROGRAMMING LANGUAGES CAN BE QUICKLY LEARNED BY ELECTRONICS INSTRUCTORS WHO ARE NOT TRAINED PROGRAMMERS; THESE LANGUAGES MUST BE SUPPLEMENTED BY MORE POWERFUL LANGUAGES IF THE FULL POTENTIAL OF CAI FOR PERFORMANCE TRAINING IS TO BE REALIZED. (2) COMPUTER-GUIDED PRACTICE IN FOLLOWING TROUBLE-ISOLATION SEQUENCES CAN FACILITATE EFFECTIVE TROUBLESHOOTING PERFORMANCE. EVEN A FEW HOURS OF SUCH PRACTICE CAN SHOW INTERESTING RESULTS. (3) THERE ARE SEVERAL ATTRACTIVE POSSIBILITIES FOR COMBINING THE COMPUTER TERMINAL WITH ELECTRONIC EQUIPMENT TO PROVIDE FOR ON-LINE SENSING OF STUDENT ACTIONS ON THE EQUIPMENT. TWO MAJOR APPROACHES EMERGE: CONSOLE-EQUIPMENT COMBINATIONS TO TEACH PERFORMANCE ON SPECIFIC EQUIPMENT, AND CONSOLE-EQUIPMENT COMBINATIONS TO TEACH GENERALIZABLE SKILLS, SUCH AS ALIGNMENT PROCEDURES AND BRACKETING LOGIC. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-646 671 5/9 9/1
RCA SERVICE CO CAMDEN N J
DEVELOPMENT AND EXPERIMENTAL EVALUATION OF AN AUTOMATED MULTI-MEDIA COURSE ON TRANSISTORS. (U)
DESCRIPTIVE NOTE: FINAL REPT., APR 65-JUN 66, SEP 66 114P WHITTED,J. H. ;WEAVER,EDWARD E. ;FOLEY,JOHN P. ;
CONTRACT: AF 33(615)-2880
PROJ: AF-1710
TASK: 171007
MONITOR: AMRL TR-66-142

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, *TRANSISTORS), TEACHING MACHINES, EDUCATION, TRAINING DEVICES, SOLID STATE PHYSICS, ELECTRONICS, AUTOMATION, TRANSISTOR AMPLIFIERS, MATHEMATICAL ANALYSIS (U)

A COMPLETELY AUTOMATED MULTI-MEDIA SELF-STUDY PROGRAM FOR TEACHING A PORTION OF ELECTRONIC SOLID-STATE FUNDAMENTALS WAS DEVELOPED. THE SUBJECT MATTER AREAS INCLUDED WERE FUNDAMENTAL THEORY OF TRANSISTORS, TRANSISTOR AMPLIFIER FUNDAMENTALS, AND SIMPLE MATHEMATICAL ANALYSIS OF TRANSISTORS INCLUDING EQUIVALENT CIRCUITS, PARAMETERS, AND CHARACTERISTIC CURVES. THE MEDIA INCLUDED A TAPE SLIDE AUDIO-VISUAL PRESENTATIONS, A PROGRAMMED TEXT, A CUED TEXT, A SOUND MOVIE, A WORKBOOK, AN A RCA TRANSISTOR TRAINER. A CONTROLLED EXPERIMENT WAS CONDUCTED, COMPARING THE EFFECTIVENESS OF THE SELF-SUFFICIENT MULTI-MEDIA MATERIALS, WITH A CONVENTIONAL INSTRUCTOR/CLASSROOM PRESENTATION AND EXISTING SELF-STUDY MATERIALS FROM AIR FORCE EXTENSION COURSE INSTITUTE. EVEN THOUGH THE INSTRUCTOR/CLASSROOM SUBJECTS RECEIVED SOMEWHAT HIGHER RATIO GAIN SCORES, ON THE AVERAGE, THAN THE MULTI-MEDIA SUBJECTS, THIS DIFFERENCE WAS NOT SIGNIFICANT. BOTH OF THESE MODES WERE SUPERIOR IN EFFECTIVENESS TO THE EXTENSION COURSE MATERIALS. THE PRINCIPAL MEASURES OF THIS EFFECTIVENESS WERE A PRE-TEST AND A POST-TEST MADE UP OF MULTIPLE CHOICE ITEMS CONCERNING THE SOLID STATE THEORY COVERED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-646 771 5/9
GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES RESEARCH OFFICE
AUTOMATION OF A PORTION OF NCO LEADERSHIP PREPARATION TRAINING. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
DEC 66 42P SHOWEL,MORRIS ;TAYLOR,ELAINE ;HOOD,PAUL D. ;
REPT. NO. HUMRRO-TR-66-21
CONTRACT: DA-44-188-ARO-2
PROJ: DA-2J024701A71201

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, LEADERSHIP), (*ARMY PERSONNEL, LEADERSHIP), (*LEADERSHIP, TRAINING), (*ARMY TRAINING, LEADERSHIP), TEACHING METHODS, LEARNING, RETENTION, AUTOMATION, PERFORMANCE(HUMAN), TRAINING DEVICES (U)

A METHOD OF PRESENTING ROUGHLY ONE-SEVENTH OF THE ARMY'S TWO-WEEK LEADER PREPARATION COURSE (LPC) THROUGH AUTOMATED INSTRUCTION WAS DEVELOPED. THE AUTOMATED INSTRUCTION METHOD INCLUDED THE USE OF TAPE-RECORDED LECTURES, SUPPORTED BY VISUAL AID FRAMES, AND PROGRAMED WORKBOOKS. AUTOMATED PRESENTATION PROVED TO BE AT LEAST AS EFFECTIVE AS CONVENTIONAL INSTRUCTION IN IMPARTING THE LEADERSHIP KNOWLEDGE COVERED BY AUTOMATION. IN ADDITION, THOSE STUDENTS WHO LEARNED THROUGH THE AUTOMATED METHOD APPEARED TO RETAIN THEIR KNOWLEDGE BETTER THAN THE CONVENTIONALLY TRAINED STUDENTS. THE AUTOMATED METHOD ALSO EXHIBITED PRACTICALITY IN REDUCTION OF INSTRUCTOR REQUIREMENTS, FLEXIBILITY OF SCHEDULING, AND CONSISTENCY OF LEVEL OF PRESENTATION. THE AUTOMATED PROGRAM WAS ADOPTED FOR USE AT ARMY TRAINING CENTERS PRESENTING THE LPC. (U)
(AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OMKOA

AD-647 273 5/9 5/10
ARIZONA STATE UNIV TEMPE
THE EFFECT OF INTRINSIC AND EXTRINSIC REINFORCEMENT CONTINGENCIES ON LEARNER PERFORMANCE. (U)
DESCRIPTIVE NOTE: FINAL REPT., FEB 64-FEB 66.
SEP 66 14P SULLIVAN,HOWARD J. ;BAKER, ROBERT L. ;SCHUTZ,RICHARD E. ;
REPT. NO. 66-138
CONTRACT: AF 33(615)-1507
PROJ: AF-1710
TASK: 171007
MONITOR: AMRL TR-66-138

UNCLASSIFIED REPORT

DESCRIPTORS: (*LEARNING, MOTIVATION), PERFORMANCE(HUMAN), TEST CONSTRUCTION(PSYCHOLOGY), TRAINING, PROGRAMMED INSTRUCTION, TRAINING DEVICES, EFFECTIVENESS, ANALYSIS OF VARIANCE, EDUCATION (U)
IDENTIFIERS: REINFORCEMENT(PSYCHOLOGY) (U)

SEVENTY-SIX AFROTC CADETS STUDIED A REVISED VERSION OF THE TEXT, THE MILITARY JUSTICE SYSTEM, FOR FOUR 50-MINUTE CLASS PERIODS DISTRIBUTED OVER 2 WEEKS. UNIT-MASTERY TESTS OF ABOUT 12 MULTIPLE-CHOICE ITEMS EACH WERE ADMINISTERED AT 11 POINTS THROUGHOUT THE TEXT. HALF OF THE SUBJECTS (CADETS) RECEIVED NO KNOWLEDGE OF THE CORRECTNESS OF THEIR RESPONSES ON THE UNIT-MASTERY TEST. THE OTHER HALF OF THE SUBJECTS USED CHEMICALLY TREATED ANSWER SHEETS WHICH IMMEDIATELY INDICATED WHETHER OR NOT THE SUBJECT'S ANSWER WAS CORRECT. A 100-ITEM MULTIPLE-CHOICE TEST OVER THE TEXT WAS ADMINISTERED TO ALL SUBJECTS 2 DAYS AFTER THE FINAL INSTRUCTION PERIOD. ALL SUBJECTS HAD BEEN INFORMED OF THE FINAL TEST. HALF OF THE SUBJECTS IN EACH OF THE ABOVE GROUPS HAD BEEN ASSURED PAYMENT OF $2.50 FOR PARTICIPATION IN THE STUDY. EACH STUDENT IN THE OTHER HALF HAD BEEN TOLD THAT HE WOULD RECEIVE $4.00 IF HE SCORED 80% OR HIGHER ON THE FINAL TEST, $2.00 IF HE SCORED FROM 50 TO 79% AND NOTHING IF HE SCORED BELOW 50%. COMPARED WITH OTHER SUBJECTS USING THE CHEMICALLY TREATED ANSWER SHEETS COMPLETED THE STUDY OF THE TEXT IN LESS TIME AND APPEARED TO DEPEND ON THE MASTERY TEST FOR ADDITIONAL INSTRUCTION. THEY PERFORMED SIGNIFICANTLY POORER ON THE UNIT-MASTERY TESTS. ON THE FINAL CRITERION TEST, HOWEVER, NONE OF THE GROUPS DIFFERED SIGNIFICANTLY.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-647 407 S/9
RESEARCH ANALYSIS CORP MCLEAN VA
PROGRAMMED INSTRUCTION AND TEACHING MACHINES IN THE FIELD OF MEDICAL EDUCATION: AN ANNOTATED BIBLIOGRAPHY. (U)
DESCRIPTIVE NOTE: TECHNICAL PAPER,
NOV 66 20P REYNOLDS,LAURA A. I
REPT. NO. RAC-TP-235

UNCLASSIFIED REPORT

DESCRIPTORS: (*MEDICAL PERSONNEL, EDUCATION), (*MEDICINE, *PROGRAMMED INSTRUCTION), TEACHING MACHINES, TEACHING METHODS, ABSTRACTS, BIBLIOGRAPHIES, COMPUTERS, LEARNING (U)

THE BIBLIOGRAPHY CONTAINS A SELECTED LIST OF ARTICLES AND REPORTS, WITH ANNOTATIONS, REGARDING PROGRAMMED INSTRUCTION AND TEACHING MACHINES IN THE FIELD OF MEDICINE. AUTHORS' ABSTRACTS, WITH OCCASIONAL MINOR CHANGES, ARE GIVEN WHERE AVAILABLE. PAPERS THAT HAVE BEEN WRITTEN CONCERNING THE USE OF COMPUTERS AS TEACHING MACHINES ARE INCLUDED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-647 460 3/9
GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES RESEARCH OFFICE
PROGRAMMED LEARNING IN VIETNAMESE: CONSTRUCTION AND EVALUATION OF A SHORT PRACTICAL LANGUAGE COURSE. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
JAN 67 51P FIKS,ALFRED I, IVAN BAN,
DINH I
REPT. NO. HUMRRO-TR-67-1
CONTRACT: DA-44-188-ARO-2
PROJ: DA-2J024701A712-01

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, MILITARY PERSONNEL), (*LEARNING, PROGRAMMED INSTRUCTION), LANGUAGE, VIETNAM, TEACHING METHODS, MILITARY TRAINING, ATTITUDES, MOTIVATION (U)

LANGUAGE SKILL IS AN ESPECIALLY IMPORTANT ELEMENT IN THE PERFORMANCE OF OVERSEAS MILITARY OPERATIONS THAT ARE PRIMARILY ADVISORY IN NATURE. THIS RESEARCH PROJECT SOUGHT TO DEVELOP AND ASSESS THE VALUE OF A SHORT, SELF-INSTRUCTIONAL, JOB-ORIENTED VIETNAMESE LANGUAGE PROGRAM. A FIFTY-LESSON TAPED COURSE WAS CONSTRUCTED. THE PROGRAM WAS EVALUATED ON MILITARY ASSISTANCE TRAINING ADVISOR STUDENTS. LEARNING ACHIEVEMENT WAS SATISFACTORY, AND TRAINEES IN GENERAL REPORTED LIKING THE COURSE. LANGUAGE APTITUDE WAS RELATED TO PERFORMANCE IN THE COURSE, WHICH WAS IN TURN RELATED TO PERFORMANCE IN SUBSEQUENT MORE ADVANCED LANGUAGE TRAINING. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-647 505 5/9
GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES RESEARCH OFFICE
FOREIGN LANGUAGE PROGRAMMED MATERIALS: 1966. (U)
67 11P FIKS,ALFRED I. ;
REPT. NO. HUMRRO PROFESSIONAL PAPER-1-67
CONTRACT: DA-44-188-ARO-2

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN MODERN LANGUAGE JOURNAL V51 N1 P7-14 JAN 1967.

DESCRIPTORS: (*LANGUAGE, *PROGRAMMED INSTRUCTION), LEARNING, MOTIVATION, EFFECTIVENESS (U)

THE ESSENCE OF THE NEW EDUCATIONAL TECHNOLOGY IS THAT: (1) COURSE OBJECTIVES ARE SPECIFIED IN ADVANCE, IN DETAIL, AND IN BEHAVIORAL TERMS; (2) THE MATERIAL IS PRESENTED AS A GRADUATED SEQUENCE OF SMALL ITEMS (CALLED FRAMES) LEADING TO THE DESIRED TERMINAL BEHAVIOR; (3) THE INDIVIDUAL STUDENT ACTIVELY RESPONDS AT HIS OWN PACE TO EACH FRAME (WITH LOW PROBABILITY OF ERROR); (4) THE STUDENT RECEIVES IMMEDIATE REINFORCEMENT AFTER EACH RESPONSE (PRINCIPALLY BY FINDING OUT WHETHER HIS PREVIOUS RESPONSE WAS CORRECT). THIS ARTICLE'S MAIN INTENT IS TO LIST AVAILABLE PROGRAMMED MATERIALS ALONG WITH CERTAIN ITEMS OF INFORMATION ABOUT EACH. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-647 519 5/9 5/10
INSTITUTE FOR BEHAVIORAL RESEARCH INC SILVER SPRING MD
THE PSYCHOBIOLOGICAL INVESTIGATION OF THE DEVELOPMENT OF NEW VERBAL BEHAVIOR. PART I. AN EXPERIMENT IN TEACHING A SECOND LANGUAGE; PART II. THE EFFECTS OF LISTENING DISCRIMINATION TRAINING UPON ECHOIC ACCURACY; PART III. SOME EFFECTS OF VARIOUS REINFORCEMENT CONTINGENCIES ON PERFORMANCES DURING A COURSE IN PROGRAMMED VIETNAMESE. (U)
DESCRIPTIVE NOTE: FINAL TECHNICAL REPT., 1 MAR 60-1 MAR 66.
JUL 66 91P FERSTER,C. B. ;ROCHA E SILVA,M. I. ;SHERMAN,JAMES ;
CONTRACT: DA-49-193-MD-2577

UNCLASSIFIED REPORT

DESCRIPTORS: (*LANGUAGE, *PROGRAMMED INSTRUCTION), LEARNING, VERBAL BEHAVIOR, PHONETICS, MOTIVATION, TEACHING METHODS, PERFORMANCE(HUMAN), TEACHING MACHINES, HEARING, READING, EFFECTIVENESS (U)
IDENTIFIERS: REINFORCEMENT(PSYCHOLOGY) (U)

EXPERIMENTS WERE CARRIED OUT WITH VERBAL BEHAVIOR WHICH ARE EXTENSIONS AND ADAPTATIONS OF GENERAL LABORATORY PRINCIPLES DEVELOPED WITH ANIMALS. THE EXPERIMENTS HAVE BEEN IN THREE AREAS. THE FIRST WAS AN APPLICATION OF GENERAL PRINCIPLES OF VERBAL BEHAVIOR, LARGELY BASED ON SKINNER'S ANALYSIS OF VERBAL BEHAVIOR, TO THE PROBLEMS OF TEACHING A SECOND LANGUAGE. ACTUAL TEACHING PROGRAMS WERE DEVELOPED IN GERMAN AND VIETNAMESE. THE SECOND AREA OF RESEARCH WAS A PROGRAM OF EXPERIMENTS DESIGNED TO TEST THE HYPOTHESIS THAT TRAINING AS A LISTENER AND A READER WOULD ENHANCE THE DEVELOPMENT OF SPEAKING AND WRITING. THE EXPERIMENTS WERE CARRIED OUT, USING A SINGLE VIETNAMESE PHONEME, TO TRACE THE INFLUENCE ON PRONUNCIATION OF THE SUBJECT'S SKILL AS A LISTENER. A THIRD CLASS OF EXPERIMENTS CONCERNED MOTIVATIONAL VARIABLES. THE AUTOMATIC PROGRAMMING OF THE TEACHING MACHINE MATERIALS MADE IT POSSIBLE TO MANIPULATE MANY OF THE RELEVANT REINFORCERS. THE EXPERIMENTS DEALT PARTICULARLY WITH THE ASPECT OF THE TEACHING MACHINE PERFORMANCES THAT WAS REINFORCED. IN SOME EXPERIMENTS REINFORCEMENT OCCURRED AT THE END OF THE SESSION WHEN THE STUDENT DEMONSTRATED THE NEW PERFORMANCE IN THE SECOND LANGUAGE. IN OTHER EXPERIMENTS THE REINFORCEMENT OCCURRED CARD BY CARD AS THE STUDENT WENT THROUGH THE PROGRAM. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-647 667 5/9 9/2 5/10
NAVAL PERSONNEL RESEARCH ACTIVITY SAN DIEGO CALIF NAVY TRAINING RESEARCH LAB
TRAINING IN COMPUTER FLOW CHARTING USING PROGRAMMED INSTRUCTION: ELIMINATING THE EFFECTS OF MATHEMATICS APTITUDE UPON ACHIEVEMENT. (U)
NOV 66 32P FORD, JOHN D. , JR.; MEYER, JOHN K. ;
PROJ: PF017032003
MONITOR: NPRA-STB 67-10

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, LEARNING), (*FLOW CHARTING, TRAINING), NAVAL PERSONNEL, TEACHING METHODS, MATHEMATICS, APTITUDE TESTS, ACHIEVEMENT TESTS, PERFORMANCE(HUMAN), COMPUTER PROGRAMS, ANALYSIS OF VARIANCE (U)

THREE STUDIES HAVE BEEN CONDUCTED TO DISCOVER INSTRUCTIONAL METHODS WHICH WOULD ASSIST THOSE WHO HAVE DIFFICULTY IN LEARNING TO FLOW CHART FOR COMPUTER PROGRAMMING PURPOSES. IN ALL OF THESE STUDIES MATHEMATICS APTITUDE WAS FOUND TO BE A POWERFUL FACTOR IN INFLUENCING ACHIEVEMENT. DURING THESE THREE STUDIES AN INSTRUCTIONAL PROGRAM HAD BEEN CONSTRUCTED AND SUCCESSIVELY MODIFIED WITHOUT CHANGING THE RELATIONSHIP BETWEEN MATHEMATICS APTITUDE AND LEARNING. SUBSTANTIAL REVISIONS IN THE INSTRUCTIONAL PROGRAM WERE MADE FOR THE PRESENT STUDY. THESE WERE ESSENTIALLY THE PROVISION OF A STRATEGY TO GET THE STUDENTS STARTED AND A MEANS OF LEARNING THE SUBORDINATE SKILLS NEEDED FOR SUCCESS IN COMPUTER FLOW CHARTING. THIS PROGRAM PRODUCED A HIGHER DEGREE OF LEARNING AND VIRTUALLY ELIMINATED THE DIFFERENCES BETWEEN COLLEGE STUDENTS OF HIGHER AND LOWER MATHEMATICS APTITUDE. THE LEARNING PROGRAM CAN BE ADAPTED TO TEACHING COMPUTER FLOW CHARTING TO THOSE WHO ARE NOW FAILING TO MEET NAVY PROGRAMMING STANDARDS. THERE IS A COST, HOWEVER. IT TOOK THE LOW MATHEMATICS STUDENTS MORE THAN 50 PER CENT LONGER (13 COMPARED TO 8 HOURS) TO COMPLETE THE LEARNING PROGRAM. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-647 839 5/9
GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES RESEARCH OFFICE
LANGUAGE PROGRAMING FOR THE FOREIGN STUDENT. (U)
FEB 67 9P ROCKLYN,EUGENE H. ;
REPT. NO. HUMRRO PROFESSIONAL PAPER-5-67
CONTRACT: DA-44-188-ARO-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT CONVENTION OF THE SPEECH ASSOCIATION OF AMERICA, NEW YORK CITY, DEC 1961.

DESCRIPTORS: (*LANGUAGE, *PROGRAMMED INSTRUCTION), ENGLISH LANGUAGE, RUSSIAN LANGUAGE, LEARNING, MOTIVATION, AUTOMATION (U)

IT IS BELIEVED THAT BY EXTENDING THE SCOPE OF CONTENT AND MAKING ENGLISH THE TARGET LANGUAGE, IT MIGHT BE POSSIBLE TO CONSTRUCT AUTOMATED COURSES FOR TEACHING THE SPEAKING AND UNDERSTANDING SKILLS OF THE ENGLISH LANGUAGE TO STUDENTS OF VARIED NATIVE TONGUES. SUCH COURSES WOULD BE VALUABLE TO THE MILITARY AND USEFUL TO ACADEMIC AND COMMERCIAL INSTITUTIONS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-647 840 5/9
GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES RESEARCH OFFICE
MILITARY APPLICATIONS OF PROGRAMED INSTRUCTION AND MANAGEMENT CONSIDERATIONS IN PROGRAMED INSTRUCTION. (U)
FEB 67 17p SMITH,ROBERT G. , JR;
REPT. NO. HUMRRO PROFESSIONAL PAPER-7-67
CONTRACT: DA-44-188-ARO-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT NATO CONFERENCE ON THE MILITARY APPLICATIONS OF PROGRAMMED INSTRUCTION, NAPLES, ITALY, APRIL 1965.

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, *MILITARY TRAINING), EFFECTIVENESS, TRAINING DEVICES, MILITARY PERSONNEL, LEARNING, COSTS (U)

THE PURPOSE OF THIS PRESENTATION IS TWOFOLD: (1) TO INDICATE THE INFLUENCE OF MILITARY APPLICATIONS OF PROGRAMED INSTRUCTION ON THE DEVELOPMENT OF MODERN CONCEPTS OF PROGRAMING; (2) TO DESCRIBE SOME SPECIFIC APPLICATIONS THAT MIGHT SUGGEST WAYS IN WHICH PROGRAMED INSTRUCTION CAN BE USED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-647 841 5/9
GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES RESEARCH OFFICE
THE APPLICATION OF PROGRAMED INSTRUCTION TO FOREIGN LANGUAGE AND LITERACY TRAINING. (U)
FEB 67 13P ROCKLYN,EUGENE H. ;
REPT. NO. HUMRRO PROFESSIONAL PAPER-8-67
CONTRACT: DA-44-188-ARO-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT NATO CONFERENCE ON THE MILITARY APPLICATIONS OF PROGRAMMED INSTRUCTION, NAPLES, ITALY, APRIL 1965.

DESCRIPTORS: (*LANGUAGE, *PROGRAMMED INSTRUCTION), EDUCATION, TRAINING DEVICES, LEARNING, EFFECTIVENESS, MILITARY TRAINING, TEACHING METHODS (U)

A DESCRIPTION IS GIVEN OF SOME SELF-INSTRUCTIONAL FOREIGN LANGUAGE TRAINING PROGRAMS DEVELOPED FOR MILITARY USAGE. EXAMPLES ARE GIVEN SHOWING HOW PROGRAMED INSTRUCTION TECHNIQUES WERE APPLIED TO THE PEDAGOGICAL AND LINGUISTIC PRINCIPLES UNDERLYING FOREIGN LANGUAGE INSTRUCTION IN THESE PROGRAMS. A BRIEF OVERVIEW OF SELF-INSTRUCTIONAL FOREIGN LANGUAGE TRAINING AND SOME OF THE PROGRAMED LANGUAGE MATERIALS AVAILABLE GIVE AN INDICATION OF THE EXTENT TO WHICH PROGRAMED INSTRUCTION HAS BEEN AND IS BEING APPLIED TO FOREIGN LANGUAGE TRAINING IN THE UNITED STATES. THE MAJOR PROBLEM IN APPLYING PROGRAMED INSTRUCTION TECHNIQUES TO LITERACY TRAINING IS ALSO BRIEFLY DISCUSSED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-648 267 9/2 6/4
GRAFIX INC ALBUQUERQUE N MEX
COMPUTER PROCEDURES AND PROGRAMS FOR THE AUTOMATION OF CONATIVE PROCESSES. (U)
DESCRIPTIVE NOTE: FINAL TECHNICAL REPT.,
DEC 66 136P BUSSEY,GENE R. ;
CONTRACT: AF 49(638)-1476
PROJ: AF-9769
TASK: 976904
MONITOR: AFOSR 67-0703

UNCLASSIFIED REPORT

DESCRIPTORS: (*ARTIFICIAL INTELLIGENCE, *COMPUTER PROGRAMS), AUTOMATION, PROGRAMMING(COMPUTERS), BEHAVIOR, SUBROUTINES, LINGUISTICS, LEARNING MACHINES (U)
IDENTIFIERS: PUPIL PROGRAM (U)

PUPIL II, A GENERAL ADAPTIVE MOTOR LEARNING PROGRAM FOR AN IBM 360/40F COMPUTER, IS DESCRIBED AND LISTED. THE PROGRAM IS WRITTEN IN BPS FORTRAN IV AND IS A SUCCESSOR TO AN EARLIER OPERATIVE PROGRAM, PUPIL I. NEW AND PLANNED ADDITIONS TO THE PROGRAM ARE DISCUSSED AND DESCRIBED, MAINLY THOSE WHICH PERMIT A SUB-GOAL OR GOAL SETTING MODE OF OPERATION, LINGUISTIC LEVEL BEHAVIORAL CONTROL, AND VERBAL SKILLS. VARIOUS PSYCHOLOGICAL AND EXPERIMENTAL TOPICS BEARING ON THE PROGRAM ARE DISCUSSED AND ANALYZED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-648 534 9/2 6/4
GRAFIX INC ALBUQUERQUE N MEX
COMPUTER EXPERIMENTS IN MOTOR LEARNING. (U)
DESCRIPTIVE NOTE: INTERIM REPT.,
66 25P BUSSEY,GENE R. ;
CONTRACT: AF 49(638)-1476, AF 49(638)-1203
PROJ: AF-9769
TASK: 976904
MONITOR: AFOSR 67-0702

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN PROCEEDINGS OF FALL JOINT COMPUTER CONFERENCE, LAS VAGAS, NEVADA V29 PT1 P753 74 1965.
SUPPLEMENTARY NOTE: SEE ALSO AD-648 267.

DESCRIPTORS: (*ARTIFICIAL INTELLIGENCE, *COMPUTER PROGRAMS), CYBERNETICS, CONTROL SEQUENCES, LEARNING MACHINES, EXPERIMENTAL DATA, SUBROUTINES, PROGRAMMING(COMPUTERS) (U)
IDENTIFIERS: PUPIL PROGRAM, TUTOR PROGRAM (U)

THE PAPER DESCRIBES A METHOD OF ACHIEVING MOTOR LEARNING IN A COMPUTER ENVIRONMENT. TWO INTERACTIVE COMPUTER PROGRAMS ARE PRESENTED AND DESCRIBED. PUPIL IS A CODED-INPUT/CODED-OUTPUT GENERAL LEARNING PROGRAM WHICH INTERACTS WITH TUTOR, AN ENVIRONMENT SIMULATING PROGRAM. TEST RESULTS OF EXPERIMENTS INVOLVING ELEMENTARY SPOTIAL ORIENTATION, LOCOMOTION, ACCOMMODATION AND MANIPULATION ARE DISCUSSED. THE PRIMARY RESULTS PRESENTED IN THIS REPORT CONCERN AN OBJECTIVE MEASURE OF PERFORMANCE, KNOWN AS EFFECTIVE RELATIVE INTELLIGENCE, WHICH WAS USED TO EVALUATE SIX ELEMENTARY CREATIVE MEANS OF RESPONSE GENERATION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-648 745 5/2 9/2
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
SDC RESEARCH AND TECHNOLOGY DIVISION EXTERNAL
PUBLICATIONS 1961-1966. (U)
DESCRIPTIVE NOTE: TECHNICAL MEMO.,
MAR 67 29P BEAM,C. ;WILHELM,L. D. ;
REPT. NO. TM-698/066/00

UNCLASSIFIED REPORT

DESCRIPTORS: (*DOCUMENTATION, REPORTS),
(*REPORTS, CLASSIFICATION), PROGRAMMING
LANGUAGES, ARTIFICIAL INTELLIGENCE, DATA PROCESSING
SYSTEMS, INFORMATION RETRIEVAL, MATHEMATICS,
OPERATIONS RESEARCH, EDUCATION, BIBLIOGRAPHIES (U)

THIS DOCUMENT PRESENTS A COMPLETE LISTING OF
EXTERNAL PUBLICATIONS BY SDC'S RESEARCH AND
TECHNOLOGY DIVISION STAFF MEMBERS AND
CONSULTANTS. THE PRESENT ISSUE LISTS JOURNAL
PUBLICATIONS, PAPERS IN CONFERENCE PROCEEDINGS,
BOOKS, AND BOOK CHAPTERS FOR THE YEARS 1961-1966
INCLUSIVE, GROUPED IN GENERAL ACCORDING TO AREA OF
RESEARCH. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OMK08

AD-649 335 5/9 9/2
ENTELEK INC NEWBURYPORT MASS
COMPUTER-ASSISTED INSTRUCTION, A SURVEY OF THE LITERATURE, SECOND EDITION, (U)
JAN 67 78P HICKEY,ALBERT E. ;NEWTON, JOHN M. ;
CONTRACT: NONR-4757(00)
PROJ: NR-154-254

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, *COMPUTERS), TRAINING DEVICES, EDUCATION, INFORMATION RETRIEVAL, LIBRARIES, SPECIAL PURPOSE COMPUTERS, TIME SHARING, SYSTEMS ENGINEERING, ARTIFICIAL INTELLIGENCE, LANGUAGE, LEARNING, ADAPTIVE SYSTEMS, BIBLIOGRAPHIES, REVIEWS (U)

A SELECTIVE REVIEW OF 242 DOCUMENTS RELATED TO COMPUTER-ASSISTED INSTRUCTION (CAI). PRINCIPAL HEADINGS: CAI REVIEWS AND BIBLIOGRAPHIES, APPLICATIONS OF CAI, MAJOR CAI CENTERS, CAI SYSTEMS STUDIES, CAI LANGUAGES, INSTRUCTIONAL THEORY, AND PROGRAM PREPARATION AND EVALUATION. AN APPENDIX LISTS 140 CAI PROGRAMS. THE REVIEW WILL BE UPDATED SEMIANNUALLY. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-651 052 5/9
GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES RESEARCH OFFICE
PROGRAMMED LEARNING: PROLOGUE TO INSTRUCTION. (U)
JAN 66 13P SEIDEL,ROBERT J. ;
REPT. NO. HUMRRO PROFESSIONAL PAPER-17-67
CONTRACT: DA-44-188-ARO-2

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN PSYCHOLOGICAL REPORTS V20 N1 P307-16 FEB 1967.

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, *LEARNING), REVIEWS, COMPUTERS, PSYCHOLOGY, PROBLEM SOLVING (U)

THE PAPER INDICATES SOME PERTINENT ISSUES IN THE FIELD OF PROGRAMMED INSTRUCTION (PI) AND SUGGESTS PROMISING DIRECTIONS FOR FUTURE GROWTH OF PI, BOTH AS A MEDIUM FOR THE APPLICATION OF PRINCIPLES OF LEARNING AND AS A MEANS OF FURTHERING OUR UNDERSTANDING OF LEARNING PROCESSES. PRACTICAL AND THEORETICAL IMPLICATIONS ARE TOUCHED UPON AND COMBINED TO GIVE A POSITION STATEMENT ON PI AS A PEDAGOGICAL AND PSYCHOLOGICAL RESEARCH TOOL. IN THIS VEIN THE UTILITY AND INEVITABILITY OF COMPUTER-AIDED INSTRUCTION ARE DISCUSSED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-653 128 5/9
GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES
RESEARCH OFFICE
AN ANNOTATED BIBLIOGRAPHY ON THE DESIGN OF
INSTRUCTIONAL SYSTEMS. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAY 67 140P SMITH,ROBERT G. , JR;
REPT. NO. HUMRRO-TR-67-5
CONTRACT: DA-44-188-ARO-2
PROJ: DA-2J024701A71201

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-644 054.

DESCRIPTORS: (*TEACHING METHODS, BIBLIOGRAPHIES),
STUDENTS, LEARNING, PERFORMANCE(HUMAN),
PROGRAMMED INSTRUCTION, SYSTEMS ENGINEERING,
TRAINING, TRAINING DEVICES, INDEXES (U)

THE BIBLIOGRAPHY IS DIVIDED INTO SEVEN MAJOR AREAS,
EACH DEALING WITH A DIFFERENT ASPECT OF INSTRUCTIONAL
SYSTEM DESIGN: (1) SYSTEMS--GENERAL; (2)
TRAINING SYSTEMS; (3) PRESENTATION OF
KNOWLEDGE; (4) PRACTICE OF KNOWLEDGE;
(5) PRACTICE OF PERFORMANCE; (6)
MANAGEMENT OF STUDENTS; AND (7) ADDITIONAL
MATERIAL. THE MAJOR AREAS ARE FURTHER DIVIDED
INTO SUBTOPICS WHERE APPROPRIATE. THERE ARE 449
ANNOTATED ENTRIES IN THE BIBLIOGRAPHY, DATING FROM
1950 TO 1965. KEY-WORD-IN-CONTEXT (KWIC) AND
AUTHOR INDEXES ARE INCLUDED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-653 258 9/2 5/10
BATTELLE MEMORIAL INST COLUMBUS OHIO
DESIGN PRINCIPLES FOR LEARNING SYSTEMS. (U)
65 16P TOU, J. T. ;

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN PROCEEDINGS OF IFAC TOKYO SYMPOSIUM ON SYSTEMS ENGINEERING FOR CONTROL SYSTEM DESIGN P171-85 1965.
SUPPLEMENTARY NOTE: RESEARCH SUPPORTED IN PART BY ONR.

DESCRIPTORS: (*LEARNING, HUMANS), (*LEARNING MACHINES, SYSTEMS ENGINEERING), DESIGN, CONTROL SYSTEMS, INFORMATION RETRIEVAL, DATA STORAGE SYSTEMS, DIGITAL COMPUTERS, DECISION MAKING, COMPUTER LOGIC, DECISION THEORY, PROGRAMMING(COMPUTERS), SWITCHING CIRCUITS, AUTOMATION, ARTIFICIAL INTELLIGENCE (U)

THE PAPER REVIEWS THE MAJOR ASPECTS OF HUMAN LEARNING, AND DISCUSSES SEVERAL LEARNING MECHANISMS AND SOME OF THE DESIGN PRINCIPLES FOR LEARNING SYSTEMS. A COMPARISON IS MADE BETWEEN HUMAN LEARNING AND MACHINE LEARNING. SOME ASPECTS OF HUMAN LEARNING ARE CONSIDERED IN THE DESIGN OF LEARNING SYSTEM. FOR THE PURPOSE OF ENGINEERING DESIGN, LEARNING IS REFERRED TO AS THE ACQUISITION OF SKILL TO PERFORM MEANINGFUL SELF-MODIFICATION AND TO IMPROVE PERFORMANCE ON THE BASIS OF PAST EXPERIENCE. THE THREE BASIC LEARNING MECHANISMS ARE LEARNING BY ROTE (ZEROTH-ORDER LEARNING), LEARNING BY SELECTIVE REINFORCEMENT (FIRST-ORDER LEARNING), AND LEARNING BY GENERALIZATION (SECOND-ORDER LEARNING). THE STORAGE AND RETRIEVAL OF PAST DATA AND INFORMATION PATTERN IN A DIGITAL COMPUTER, THE REWARD AND PUNISHMENT SCHEME, AND THE STATISTICAL INFERENCE AND BAYESIAN DECISION PROCESS ARE CONSIDERED AS THE ENGINEERING COUNTERPARTS OF THESE LEARNING MECHANISMS. THE FOUNDATIONS FOR THE DESIGN OF LEARNING SYSTEMS ARE THRESHOLD LOGIC, SWITCHING THEORY, DECISION THEORY, BAYESIAN STATISTICS, STOCHASTIC AUTOMATA, AND HEURISTIC PROGRAMMING. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-654 621 5/9
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
AN INSTRUCTIONAL MANAGEMENT SYSTEM FOR THE PUBLIC SCHOOLS. (U)
DESCRIPTIVE NOTE: TECHNICAL MEMO.,
JUN 67 20P COULSON,JOHN E. ;
REPT. NO. TM-3298/002/00

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE ABINGTON CONFERENCE '67 ON NEW DIRECTIONS IN INDIVIDUALIZING INSTRUCTION, WILLOW GROVE, PA., APRIL 23-25, 1967.

DESCRIPTORS: (*EDUCATION, COMPUTERS), (*TEACHING METHODS, COMPUTERS), STUDENTS, MANAGEMENT ENGINEERING, INSTRUCTORS, DATA PROCESSING SYSTEMS, PROGRAMMED INSTRUCTION (U)

AN INSTRUCTIONAL MANAGEMENT SYSTEM IS DESCRIBED AS AN INTERIM APPROACH TOWARD WIDESPREAD ADOPTION OF COMPUTER-BASED INSTRUCTION. AN EXPERIMENTAL PROTOTYPE OF THE INSTRUCTIONAL MANAGEMENT SYSTEM IS BEING DEVELOPED BY SYSTEM DEVELOPMENT CORPORATION UNDER A CONTRACT FROM THE SOUTHWEST REGIONAL LABORATORY FOR EDUCATIONAL RESEARCH AND DEVELOPMENT. IT IS A COMPUTER-BASED INFORMATION SYSTEM DESIGNED TO AID SCHOOL PERSONNEL IN THE INDIVIDUAL MONITORING AND MANAGEMENT OF STUDENT PROGRESS. INPUTS TO THE INSTRUCTIONAL MANAGEMENT SYSTEM INCLUDE THE RESULT OF DIAGNOSTIC TESTS, AND INFORMATION ABOUT THE PUPILS AND THE INSTRUCTIONAL RESOURCE MATERIALS. MACHINE-PREPARED OUTPUTS SHOW INDIVIDUAL AND GROUP PERFORMANCE ON THE DIAGNOSTIC TESTS, AND SUGGEST ALTERNATIVE INSTRUCTIONAL MATERIALS OR TEACHING TECHNIQUES THAT THE TEACHER MIGHT USE FOR PUPILS WITH SPECIFIC WEAKNESSES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-656 613 5/9 4/1
GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES RESEARCH OFFICE
COMPUTER-ADMINISTERED INSTRUCTION VERSUS TRADITIONALLY ADMINISTERED INSTRUCTION: ECONOMICS. (U)

JUN 67 43P KOPSTEIN,FELIX F. ;SEIDEL, ROBERT J. ;
REPT. NO. HUMRRO PROFESSIONAL PAPER-31-67
CONTRACT: DA-44-188-ARO-2
PROJ: DA-2-J-024701-A-712
TASK: 2-J-024701-A-71201

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE NATIONAL SOCIETY FOR PROGRAMMED INSTRUCTION, BOSTON, MASS., APRIL 1967.

DESCRIPTORS: (-TEACHING METHODS, COST EFFECTIVENESS), COMPUTERS, INSTRUCTORS, PROGRAMMED INSTRUCTION, ECONOMICS, EDUCATION, MILITARY TRAINING, PROGRAMMING(COMPUTERS) (U)

AN ATTEMPT IS MADE TO ASSAY THE ECONOMICS OF COMPUTER-ADMINISTERED INSTRUCTION (CAI) VERSUS TRADITIONALLY ADMINISTERED INSTRUCTION (TAI) IN CONTROLLING THE STRUCTURE OF THE LEARNER'S STIMULUS ENVIRONMENT IN TEACHING AND TRAINING SITUATIONS. THERE IS A DISCUSSION OF THE NEED FOR A SOUND, OBJECTIVE ECONOMIC APPRAISAL OF THE VALUE TO SOCIETY AS A WHOLE OF INCREMENTS IN THE BREADTH AND DEPTH OF EDUCATION IN THE POPULATION, AND OF THE INFLUENCE OF VARYING RATES WITH WHICH THESE INCREMENTS ARE BROUGHT ABOUT. THE NECESSITY FOR RELIABLE, OBJECTIVE INFORMATION CONCERNING COST DATA IS EMPHASIZED. PROJECTED COST/EFFECTIVENESS COMPARISONS BASED ON THE ASSUMPTION OF EQUAL EFFECTIVENESS FOR CAI AND TAI ARE DISCUSSED FOR BOTH CIVILIAN AND MILITARY INSTRUCTION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-657 190 5/9 12/2
STANFORD UNIV CALIF INST IN ENGINEERING-ECONOMIC SYSTEMS
QUANTITATIVE METHODS IN COMPUTER-DIRECTED TEACHING SYSTEMS. (U)
DESCRIPTIVE NOTE: FINAL REPT.,
MAR 67 171P SMALLWOOD,RICHARD D. ;
WEINSTEIN,IRAM J. ;ECKLES,JAMES E. ;
CONTRACT: NONR-225(84)

UNCLASSIFIED REPORT

DESCRIPTORS: (*EDUCATION, SYSTEMS ENGINEERING), (*TEACHING METHODS, SYSTEMS ENGINEERING), PROGRAMMED INSTRUCTION, MATHEMATICAL MODELS, LEARNING, DECISION MAKING, DYNAMIC PROGRAMMING, DECISION THEORY, OPTIMIZATION, TIME SHARING, COMPUTERS, OPERATIONS RESEARCH (U)

THE REPORT FORMULATES IN QUANTITATIVE TERMS THE DECISION PROBLEM ASSOCIATED WITH THE DESIGN OF A COMPUTER-DIRECTED TEACHING SYSTEM. THIS FORMULATION IS THEN USED TO DIRECT A THEORETICAL INQUIRY INTO SOME OF THE ASPECTS OF THIS PROBLEM THAT ARE RELEVANT TO THE DESIGN OF A QUANTITATIVE DECISION PROCESS WITHIN A PRACTICAL TEACHING SYSTEM. SOME OF THE PROBLEMS ATTACKED INCLUDE: THE DEVELOPMENT OF A CLASS OF MODELS FOR CONCEPTUAL LEARNING, THE STUDY OF A DECISION THEORETIC PROCEDURE FOR THE SELECTION OF THE MODEL FROM A CLASS OF MODELS, THE INVESTIGATION OF OPTIMUM TEACHING STRATEGIES (IN AN ECONOMIC SENSE) FOR A SIMPLE LEARNING MODEL, THE DERIVATION OF THE OPTIMUM QUANTIZATION OF A PAST HISTORY PARAMETER FOR A SIMPLE TEACHING SYSTEM, A CONSIDERATION OF THE INFORMATION-REWARD TRADE OFF IN COMPUTER-DIRECTED TEACHING SYSTEMS, AND A PRELIMINARY FORMULATION OF THE OPTIMUM DESIGN PROBLEM FOR A TIME-SHARED TEACHING SYSTEM. THE REPORT CONCLUDES WITH A DISCUSSION OF DIRECTIONS FOR FUTURE RESEARCH. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-657 216 5/9 5/2
ILLINOIS UNIV URBANA COORDINATED SCIENCE LAB
TEACHING THE USE OF THE LIBRARY TO UNDERGRADUATES:
AN EXPERIMENTAL COMPARISON OF COMPUTER-BASED
INSTRUCTION AND THE CONVENTIONAL LECTURE METHOD. (U)
AUG 67 208P AXEEN, MARINA E. ;
REPT. NO. R-361
CONTRACT: DA-28-043-AMC-00073(E), NONR-3985(08)
PROJ: DA-20014501B31F

UNCLASSIFIED REPORT

DESCRIPTORS: (*TEACHING METHODS, *LIBRARIES),
(*PROGRAMMED INSTRUCTION, LIBRARIES),
EFFECTIVENESS, COMPUTER PROGRAMS, INDEXES,
TRAINING DEVICES, STUDENTS, LEARNING,
PERFORMANCE(HUMAN), TEACHING MACHINES (U)
IDENTIFIERS: PLATO TEACHING SYSTEM (U)

THE OVERALL OBJECTIVES OF THE PRESENT STUDY WERE (1) TO PROVIDE SPECIFIC INFORMATION CONCERNING THE EFFECTIVENESS OF COMPUTER-BASED INSTRUCTION IN TEACHING THE USE OF THE LIBRARY; (2) TO COMPARE THE EFFECTIVENESS OF AN AUTOMATED PROGRAMED INSTRUCTION WITH THE CONVENTIONAL LECTURE METHOD AS THESE RELATE TO THE KNOWLEDGE STUDENTS OBTAINED; (3) TO COMPARE THE AMOUNT OF INSTRUCTOR'S TIME NECESSARY TO PREPARE AND TEACH BY COMPUTER-BASED INSTRUCTION WITH THE TIME SPENT IN PREPARATION AND DELIVERY OF LECTURES IN THE CLASSROOM; (4) TO COMPARE THE AMOUNT OF TIME IT TOOK TO COVER THE CONTENT OF THE COURSE. SPECIFICALLY THE WRITER TESTED THE FOLLOWING HYPOTHESIS: UNDERGRADUATE STUDENTS TAUGHT HOW TO USE AN ACADEMIC LIBRARY BY PROGRAMED INSTRUCTION WOULD LEARN AS MUCH, IN LESS TIME WITH LESS INSTRUCTIONAL ASSISTANCE, THAN WOULD UNDERGRADUATES TAUGHT BY THE CONVENTIONAL LECTURE METHOD. THIS PAPER PRESENTS A DETAILED DESCRIPTION OF THE STUDY, AND A DISCUSSION OF THE RESULTS OF THE STUDY IN THE LIGHT OF THE OBJECTIVES OUTLINED ABOVE. THIS PAPER ALSO INCLUDES A GENERAL OUTLINE OF THE PLATO TEACHING SYSTEM. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OMK08

AD-657 347 9/2 5/2 5/7 6/4
BATTELLE MEMORIAL INST COLUMBUS OHIO COLUMBUS LABS
COMPUTER AND INFORMATION SCIENCES-II, (U)
67 382P TOU,JULIUS T. ;

UNCLASSIFIED REPORT
AVAILABILITY: HARD COPY AVAILABLE FROM ACADEMIC PRESS, INC., 111 FIFTH AVENUE, NEW YORK, N. Y., $16.00.
SUPPLEMENTARY NOTE: PROCEEDINGS OF THE SYMPOSIUM ON COMPUTER AND INFORMATION SCIENCES (2ND), HELD AT BATTELLE MEMORIAL INSTITUTE, AUGUST 22-24, 1966.

DESCRIPTORS: (*COMPUTERS, SYMPOSIA), STOCHASTIC PROCESSES, OPTIMIZATION, LEARNING MACHINES, ADAPTIVE SYSTEMS, MATHEMATICAL MODELS, PATTERN RECOGNITION, DECISION THEORY, AUTOMATA, CONTROL SYSTEMS, DATA STORAGE SYSTEMS, INDEXES, MAN-MACHINE SYSTEMS, SYNTAX, ALGORITHMS (U)
IDENTIFIERS: ON-LINE SYSTEMS, INFORMATION SCIENCES (U)

CONTENTS: INTERACTIVE INFORMATION PROCESSING; OPTIMIZATION, ADAPTATION, AND LEARNING IN AUTOMATIC SYSTEMS; RECENT WORK ON THEORETICAL MODELS OF BIOLOGICAL MEMORY; SOME APPROACHES TO OPTIMUM FEATURE EXTRACTION; EVALUATION AND SELECTION OF VARIABLES IN PATTERN RECOGNITION; SOME TOPICS ON NONSUPERVISED ADAPTIVE DETECTION FOR MULTIVARIATE NORMAL DISTRIBUTIONS; NONLINEAR ENVIRONMENTS PERMITTING EFFICIENT ADAPTATION; RECOGNITION OF ORDER AND EVOLUTIONARY SYSTEMS; STOCHASTIC AUTOMATA AS MODELS OF LEARNING SYSTEMS; ADAPTIVE SYSTEMS WITH A VARIABLE STRUCTURE; FUNDAMENTAL PRINCIPLE AND BEHAVIOR OF LEARNTROLS; PRELIMINARY DESIGN OF AN INTELLIGENT ROBOT; ITERATIVE STORAGE OF MULTIDIMENSIONAL FUNCTIONS IN DISCRETE DISTRIBUTED MEMORIES; A COMMAND LANGUAGE FOR VISUALIZATION OF ARTICULATED MOVEMENTS; SOME APPROACHES TO AUTOMATIC INDEXING; THE NATURE OF SYNTACTIC REDUNDANCY; ON COMMUNICATING WITH MACHINES IN NATURAL LANGUAGE; A GENERALIZATION OF THE LINEAR THRESHOLD DECISION ALGORITHM TO MULTIPLE CLASSES. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-657 348 5/9 9/2
GENERAL LEARNING CORP WASHINGTON D C*
A PLAN FOR THE ESTABLISHMENT OF A COMPUTER-AIDED
INSTRUCTION RESEARCH AND DEVELOPMENT CENTER. (U)
DESCRIPTIVE NOTE: FINAL REPT. 17 OCT 66-16 JUL 67.
JUL 67 200P TORR,DONALD V. IMOLELLO.
SAM IPREVEL,JAMES J. I
CONTRACT: N00014-67-C-0219
PROJ: R4303

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMED INSTRUCTION,
*COMPUTERS), FEASIBILITY STUDIES, COMPUTER
PERSONNEL, LEARNING, PERFORMANCE(HUMAN),
COSTS, TIME SHARING, INPUT-OUTPUT DEVICES,
PERSONNEL MANAGEMENT (U)
IDENTIFIERS: COMPUTER-AIDED INSTRUCTION, COMPUTER
SOFTWARE, COMPUTER HARDWARE (U)

THE REPORT PRESENTS A PLAN FOR THE ESTABLISHMENT OF
A COMPUTER-AIDED RESEARCH AND DEVELOPMENT
CENTER. THE PLAN IDENTIFIES COMPUTER SYSTEMS,
PERSONNEL, AND FACILITY REQUIREMENTS. A FIVE-YEAR
IMPLEMENTATION SCHEDULE AND A FIVE-YEAR COST ESTIMATE
ARE PROVIDED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-657 759 9/2 9/4 6/4
TEXAS UNIV AUSTIN LABS FOR ELECTRONICS AND RELATED SCIENCE RESEARCH
UNSUPERVISED LEARNING, MINIMUM RISK ADAPTIVE PATTERN CLASSIFICATION. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
AUG 67 63P HILBORN,CHARLES G. , JR.;
LAINIOTIS,DEMETRIOS G. ;
REPT. NO. TR-37
CONTRACT: AF-AFOSR-766-66, AF-AFOSR-766-67
PROJ: AF-4751
MONITOR: AFOSR 67-1889

UNCLASSIFIED REPORT

DESCRIPTORS: (*PATTERN RECOGNITION, ADAPTIVE SYSTEMS), (*LEARNING MACHINES, ADAPTIVE SYSTEMS), (*DECISION THEORY, STATISTICAL PROCESSES), (*INFORMATION THEORY, MATHEMATICAL MODELS), RANDOM VARIABLES, OPTIMIZATION, STABILITY, LEARNING (U)
IDENTIFIERS: SEQUENTIAL PATTERN RECOGNITION (U)

A RECURSIVE BAYES OPTIMAL SOLUTION IS FOUND FOR THE PROBLEM OF SEQUENTIAL, MULTICATEGORY PATTERN RECOGNITION, WHEN UNSUPERVISED LEARNING IS REQUIRED. THE PARAMETRIC MODEL USED FOR THIS INVESTIGATION ALLOWS FOR (I) BOTH CONSTANT AND TIME-VARYING UNKNOWN PARAMETER VECTORS, (II) PARTIALLY UNKNOWN PROBABILITY LAWS OF THE HYPOTHESES AND TIME-VARYING PARAMETERS, (III) DEPENDENCE OF OBSERVATIONS OF FINITE PAST AS WELL AS PRESENT HYPOTHESES AND PARAMETERS, AND, MOST SIGNIFICANTLY, (IV) PARAMETER-CONDITIONAL DEPENDENCE OF BOTH OBSERVATIONS AND THE INFORMATION SOURCE UP TO ANY FINITE MARKOV ORDERS. FOR FINITE OR QUANTIZED PARAMETER SPACES THE OPTIMAL (MINIMUM RISK) LEARNING SYSTEM IS FOUND AND SHOWN TO BE REALIZABLE IN RECURSIVE FORM WITH FINITE MEMORY REQUIREMENTS. BY A MATRIX FORMULATION, THE SYSTEM IS REPRESENTED AS A COMBINATION OF DELAY-FEEDBACK DYNAMIC SYSTEMS. THE ASYMPTOTIC PROPERTIES OF THE OPTIMAL SOLUTION ARE STUDIED, AND IT IS SHOWN THAT AS A RESULT OF THE MARTINGALE NATURE OF THE LEARNING SEQUENCES, THE OPTIMAL SYSTEM IS ASYMPTOTICALLY STABLE AND CONVERGENT. AS AN ILLUSTRATION OF THE APPLICABILITY OF THE RESULTS, THE GENERAL FORMULATION IS SHOWN TO BE DIRECTLY APPLICABLE TO THE CONSTRUCTION OF OPTIMUM UNSUPERVISED LEARNING M-ARY COMMUNICATION RECEIVERS IN THE PRESENCE OF SUCH PROBLEMS AS LACK OF SYMBOL SYNCHRONIZATION. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-657 794 5/2 5/9
AIR FORCE OFFICE OF SCIENTIFIC RESEARCH ARLINGTON VA
DIRECTORATE OF INFORMATION SCIENCES
MOVE THE INFORMATION, A KIND OF MISSIONARY SPIRIT. (U)

JUN 67 203P SWANSON,ROWENA W. ;
MONITOR: AFOSR 67-1247

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED FOR PRESENTATION AT THE ANNUAL MEETING OF THE AMERICAN SOCIETY FOR ENGINEERING EDUCATION (75TH), MICHIGAN STATE UNIV., EAST LANSING, 19-22 JUN 67.

DESCRIPTORS: (*DOCUMENTATION, *EDUCATION), TECHNICAL INFORMATION CENTERS, PROGRAMMED INSTRUCTION, LIBRARIES, COMPUTERS, DATA PROCESSING SYSTEMS, MANAGEMENT PLANNING, COMPUTER PERSONNEL (U)

THE PAPER RECORDS (A) PLANS AND ACTIVITIES IN THE DEVELOPMENT AND IMPLEMENTATION OF INFORMATION SYSTEMS IN A VARIETY OF LIBRARY AND INFORMATION CENTER ENVIRONMENTS AND (B) PLANS AND PROGRAMS FOR THE EDUCATION AND TRAINING OF PEOPLE FOR THE INFORMATION, COMPUTER, AND LIBRARY SCIENCES. THE SECTION ON SYSTEMS CONSIDERS, IN TURN, THE ACADEMIC LIBRARY, THE PUBLIC LIBRARY, THE INDUSTRY-ORIENTED LIBRARY, AND MANAGEMENT APPLICATIONS. THE DISCUSSION OF ACCOMPLISHMENTS FOR THESE ENVIRONMENTS HIGHLIGHTS NOT ONLY MECHANIZATION OF OPERATIONS, BUT ALSO USER NEEDS AND HOW THEY ARE BEING MET. THE DISCUSSION INCLUDES, FOR EXAMPLE, SUMMARY ANALYSES OF DEFENSE DOCUMENTATION CENTER OPERATIONS, CALIFORNIA'S DEPARTMENT OF MOTOR VEHICLES AUTOMATED SYSTEM, AND SEVERAL SURVEYS OF USER HABITS AND PRACTICES IN ACQUIRING INFORMATION AND INFORMATION SERVICES. CURRICULUM DEVELOPMENT IN THE COMPUTER SCIENCES IS CONSIDERED WITH RESPECT TO (A) FACTORS ARISING FROM ITS MULTIDISCIPLINARY CHARACTER AND ITS VOCATION-TYPE ASPECTS, AND (B) ITS POTENTIAL IMPACT, VIA COMPUTER-ASSISTED INSTRUCTION, ON TEACHING METHODS AND FUNDAMENTAL QUESTIONS CONCERNING EDUCATION PER SE. STEPS TOWARD CURRICULUM REFORM IN THE LIBRARY SCIENCES ARE REVIEWED. A BIBLIOGRAPHY IS INCLUDED THAT LISTS REFERENCES PRIMARILY TO THE 1966-1967 LITERATURE ON MECHANIZATION OF LIBRARY OPERATIONS, EDUCATION FOR LIBRARIANSHIP, SYSTEMS IMPLEMENTATIONS, AND WORK IN PROGRAMMED INSTRUCTION AND COMPUTER-ASSISTED INSTRUCTION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 70MK08

AD-657 806 5/9 9/2 6/4
SYSTEM RESEARCH LTD RICHMOND (ENGLAND)
CYBERNETICS AND EDUCATION. (U)
AUG 67 17P PASK,GORDON ;
CONTRACT: F61052-67-C-0010
PROJ: AF-9769
TASK: 976904
MONITOR: AFOSR 67-2001

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE CONGRESS OF THE INTERNATIONAL ASSOCIATION OF CYBERNETICS (5TH), NAMUR (BELGIUM), SEP 67.

DESCRIPTORS: (*CYBERNETICS, TEACHING METHODS), (*TEACHING MACHINES, COMPUTERS), LEARNING, ADAPTIVE SYSTEMS, PSYCHOLOGY, EDUCATION, INPUT-OUTPUT DEVICES, PERFORMANCE(HUMAN), CONTROL SYSTEMS (U)
IDENTIFIERS: COMPUTER-AIDED INSTRUCTION (U)

THIS PAPER REVIEWS THE MAIN CONTRIBUTION OF CYBERNETICS TO THE ART AND SCIENCE OF TEACHING. IT REVIEWS THE BEARING OF CYBERNETIC PRINCIPLES ON TEACHING METHODS, AND CONSIDERS TEACHING AS THE CONTROL OF LEARNING. IT DESCRIBES THE DIFFERENCE BETWEEN SEQUENTIAL AND SKILL TEACHING MACHINES AND THE VALUE OF COMPUTER ASSISTANCE IN TEACHING MACHINES. ADAPATIVE MACHINES AND ADAPTIVE METASYSTEMS ARE BRIEFLY DISCUSSED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-657 812 5/8 9/2 5/11 5/2
RAND CORP SANTA MONICA CALIF
THE COMPUTER--HERO OR VILLAIN. (U)
AUG 67 17P GREENBERGER,MARTIN ;
REPT. NO. P-3656

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN JOHNS HOPKINS MAGAZINE, FALL 1967.

DESCRIPTORS: (*MAN-MACHINE SYSTEMS, ATTITUDES), (*EDUCATION, COMPUTERS), (*INFORMATION RETRIEVAL, COMPUTERS), (*COMPUTERS, ATTITUDES), DECISION MAKING, AUTOMATION, PERFORMANCE(ENGINEERING) (U)
IDENTIFIERS: COMPUTER-AIDED INSTRUCTION, ON-LINE SYSTEMS (U)

IT IS HUMAN TO BE FEARFUL AND DISTRUSTFUL OF A STRANGER. THE COMPUTER, LESS THAN TWENTY YEARS SINCE ITS APPEARANCE UPON THE COMMERCIAL SCENE, IS STILL A RELATIVE STRANGER TO OUR TIMES. STRANGERS TEND TO LOOK GRAY TO US (AT BEST) AND OUR INCLINATION IS TO WANT TO MAKE THEM BLACK OR WHITE. PEOPLE LOOK FOR SCAPEGOATS. AND THE AWESOME COMPUTER IS A CONVENIENT ONE. WHAT IS SAD IS THAT IT HAS BECOME A SCAPEGOAT IN CERTAIN SEGMENTS OF THE SCHOLARLY COMMUNITY, INCLUDING PEOPLE WITH THE ABILITY TO APPLY THE COMPUTER TO HUMANITARIAN ENDS. THE COMPUTER'S POTENTIAL FOR GOOD IS VAST, BUT IT IS LIKE AN EMPTY TABLET THAT MUST BE FILLED IN BY MAN TO BE MADE USEFUL AND MEANINGFUL. TO FILL IT IN WELL REQUIRES UNDERSTANDING, AND THE BIAS THAT UNDERLIES SCAPEGOATING IS THE ENEMY OF UNDERSTANDING. IN THE LAST ANALYSIS, THE QUESTION WITH WHICH WE STARTED (THE COMPUTER--HERO OR VILLAIN) IS A QUESTION ABOUT MEN, NOT MACHINES. WE CAN LOOK TO OURSELVES IN ANSWERING. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-658 476 5/11 9/2 5/8
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
APPLICATIONS OF COMPUTERS IN EDUCATION. (U)
DESCRIPTIVE NOTE: PROFESSIONAL PAPER,
AUG 67 18P SILBERMAN,HARRY F. ;
REPT. NO. SP-2909/000/0;

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE AMERICAN MANAGEMENT ASSOCIATION CONFERENCE, AMERICANA HOTEL, NEW YORK, AUGUST 9, 1967.

DESCRIPTORS: (*EDUCATION, COMPUTERS), (*TIME SHARING, *MAN-MACHINE SYSTEMS), PROGRAMMING(COMPUTERS), DIGITAL COMPUTERS, COMPUTER PROGRAMS, PERFORMANCE(HUMAN), INPUT-OUTPUT DEVICES, COST EFFECTIVENESS (U)
IDENTIFIERS: COMPUTER-AIDED INSTRUCTION (U)

FOUR AREAS OF COMPUTER APPLICATIONS TO EDUCATION ARE DESCRIBED: (1) THE COMPUTER AS A SUBJECT OF INSTRUCTION; (2) AS A TOOL OF INSTRUCTION; (3) AS A RESEARCH AND DEVELOPMENT TOOL; AND (4) AS A MANAGEMENT TOOL. THESE APPLICATIONS ARE VIEWED IN THE CONTEXT OF AN OPERATIONAL TIME-SHARING SYSTEM CONNECTING MANY SCHOOLS WITH A CENTRAL COMPUTER. THREE PROBLEM AREAS IN IMPLEMENTING SUCH A SYSTEM ARE DISCUSSED: (1) MAN-MACHINE COMMUNICATION; (2) COST-EFFECTIVENESS; AND (3) USER ACCEPTANCE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-658 817 5/9
NATIONAL ACADEMY OF SCIENCES-NATIONAL RESEARCH COUNCIL
WASHINGTON D C COMMITTEE ON MILITARY PSYCHOLOGY
EDUCATIONAL AND TRAINING MEDIA: A SYMPOSIUM. (U)
AUG 59 210P FINCH,GLEN ;
MONITOR: NAS-NRC PUB-789

UNCLASSIFIED REPORT
AVAILABILITY: HARD COPY AVAILABLE FROM NATIONAL ACADEMY OF SCIENCES-NATIONAL RESEARCH COUNCIL, WASHINGTON, D. C., $2.00.

DESCRIPTORS: (*EDUCATION, SYMPOSIA), (*TRAINING, SYMPOSIA), INSTRUCTORS, TEXTBOOKS, TEACHING METHODS, GRAPHICS, TRAINING FILMS, TELEVISION COMMUNICATION SYSTEMS, TEACHING MACHINES, TRAINING DEVICES (U)

CONTENTS: THE ROLE OF MEDIA IN EDUCATION AND TRAINING; THE INSTRUCTOR; TEXTBOOKS AND METHODOLOGY; THE JOB AS A MEDIUM FOR TRAINING; GRAPHIC AIDS, MODELS AND MOCKUPS; THE INSTRUCTIONAL FILM; TEACHING BY TELEVISION; PART TRAINERS; TEACHING MACHINES. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-658 869 5/9 9/2
HARVARD COMPUTING CENTER CAMBRIDGE MASS
COMPUTER-ASSISTED INSTRUCTION (CAI). (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 67 86P STOLUROW,LAWRENCE M. ;
REPT. NO. TR-2
CONTRACT: N00014-67-A-0298

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, *COMPUTERS), PROBLEM SOLVING, TEACHING METHODS, THEORY, MULTIPLE OPERATION, STUDENTS, EDUCATION (U)
IDENTIFIERS: COMPUTER-AIDED INSTRUCTION (U)

THE PURPOSES OF CAI ARE DESCRIBED. FIVE MODES OF USE ARE DESCRIBED: PROBLEM SOLVING: DRILL AND PRACTICE: SIMULATION AND GAMING: TUTORIAL INSTRUCTION: AND AUTHOR. THE MULTI-MEDIA CHARACTER OF CAI IS DESCRIBED. A MODEL OF CAI IS DEVELOPED: IT IS THE IDIOGRAPHIC CONTINGENCY MODEL (ICM). THE MODEL TREATS INSTRUCTION AS A MULTIPLE DECISION PROCESS. THE FIRST IS THE PRETUTORIAL: THE SECOND IS THE TUTORIAL PROCESS: THE THIRD PROCESS IS CONCERNED WITH MAINTAINING OR CHANGING THE TEACHING PROGRAM BY ALTERING THE TEACHING STRATEGY (LOGIC). IMPLICATIONS FOR CURRICULUM PLANNING, MAN-MACHINE RELATIONS, OPERATION AND ASSESSMENT AND EVALUATION ARE DISCUSSED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-658 873 5/9 9/2
HARVARD COMPUTING CENTER CAMBRIDGE MASS
THE HARVARD UNIVERSITY COMPUTER-ASSISTED INSTRUCTION LABORATORY. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT..
MAY 67 24P STOLUROW,LAWRENCE M. ;
REPT. NO. TR-1
CONTRACT: N00014-67-A-0298

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, *COMPUTERS), TIME SHARING, EDUCATION, PROBLEM SOLVING, LABORATORIES, COMPUTER PERSONNEL, FEASIBILITY STUDIES, MANAGEMENT PLANNING (U)
IDENTIFIERS: COMPUTER-AIDED INSTRUCTION (U)

THE REPORT DESCRIBES THE PURPOSE, ORGANIZATION AND PLAN OF THE HARVARD CAI LABORATORY.
(AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-659 987 5/9 9/2
NAVAL WEAPONS LAB DAHLGREN VA
COMPUTER ASSISTED INSTRUCTION: A SELECTED
BIBLIOGRAPHY AND KWIC INDEX. (U)
DESCRIPTIVE NOTE: TECHNICAL MEMO.,
AUG 67 144P ENGEL,GERALD L. ;
REPT. NO. NWL-TM-K-49/67

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SUPERSEDES AD-645 654.

DESCRIPTORS: (*PROGRAMMED INSTRUCTION,
BIBLIOGRAPHIES), COMPUTERS, TEACHING MACHINES,
COMPUTER PROGRAMS, INDEXES, EDUCATION (U)
IDENTIFIERS: KWIC INDEX, COMPUTER-AIDED
INSTRUCTION (U)

THE TECHNICAL MEMORANDUM SUPERSEDES AD-645 654.
ALL ENTRIES FOUND IN AD-645 654 ARE IN THIS
MEMORANDUM TOGETHER WITH REFERENCES TO ONE HUNDRED
FIFTY ADDITIONAL ARTICLES AND REPORTS. THIS
TECHNICAL MEMORANDUM PROVIDES AN ANNOTATED
BIBLIOGRAPHY, REFERENCED BY A KEY WORD IN
CONTEXT (KWIC) INDEX TO SELECTED ARTICLES ON
COMPUTER ASSISTED INSTRUCTION (CAI).
(AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-660 740 5/9
GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES RESEARCH OFFICE
DEVELOPMENT OF A SHORT, PRACTICAL, PROGRAMED VIETNAMESE COURSE. (U)
SEP 67 12P FIKS,ALFRED I. ;
REPT. NO. HUMRRO PROFESSIONAL PAPER-41-67
CONTRACT: DA-44-188-ARO-2
PROJ: DA2J024701A712
TASK: 2J024701A71201

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, *LANGUAGE), VIETNAM, MILITARY TRAINING, LEARNING, TEACHING METHODS, EFFECTIVENESS (U)

THE PRESENTATION REPORTS THE GOALS, APPROACH, AND RESULTS OF DEVELOPING A VIETNAMESE LANGUAGE COURSE THAT COULD BE TAUGHT WITHOUT THE PRESENCE OF AN INSTRUCTOR. THE 50-LESSON COURSE THAT WAS DEVELOPED WAS GIVEN TO 19 MILITARY ASSISTANCE TRAINING ADVISOR STUDENTS, ALL OFFICERS AT THE SPECIAL WARFARE CENTER. THESE STUDENTS DID AS WELL AS OR BETTER THAN A TRADITIONALLY TRAINED GROUP WHEN BOTH WERE TESTED ON THE ARMY LANGUAGE PROFICIENCY TEST. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-661 276 5/10 5/9
WASHINGTON UNIV ST LOUIS MO DEPT OF PSYCHOLOGY
A LEARNING TEST APPROACH TO PREDICTING CLASSROOM PERFORMANCE. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
SEP 67 48P WARDROP,JAMES L. ;
REPT. NO. TR-13
CONTRACT: NONR-816(14)

UNCLASSIFIED REPORT

DESCRIPTORS: (*LEARNING, PSYCHOMETRICS), PERFORMANCE(HUMAN), PROGRAMMED INSTRUCTION, INTELLIGENCE TESTS, ACHIEVEMENT TESTS, APTITUDE TESTS, EDUCATION, PREDICTIONS, VERBAL BEHAVIOR (U)

MINIATURE LEARNING SITUATIONS CAN BE USED TO PREDICT CLASSROOM PERFORMANCE. WHEN A SINGLE PROGRAM IS USED TO OBTAIN A MEASURE OF LEARNING ABILITY, THE COMBINATION OF THE RESULTING GAIN MEASURE OF LEARNING ABILITY WITH A MEASURE OF VERBAL INTELLIGENCE LEADS TO AN APPRECIABLY HIGHER VALIDITY THAN CAN BE OBTAINED WHEN EITHER MEASURE IS USED SINGLY. SINCE PROGRAMMED INSTRUCTION PROVIDES AN EFFECTIVE MINIATURE LEARNING SITUATION, SUGGESTIONS ARE MADE FOR FURTHER RESEARCH DEALING WITH THE POSSIBILITY OF USING OTHER COMPLEX LEARNING TASKS AS MINIATURE LEARNING SITUATIONS AND WITH THE RELATIONSHIPS AMONG THE VARIOUS GAIN MEASURES OF LEARNING WHICH WOULD BE DEVELOPED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-661 671 5/9 5/8 9/2 5/10
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
LEVIATHAN TEACHING MACHINE: SIXTH BRIEFING. (U)
DESCRIPTIVE NOTE: TECHNICAL MEMO.,
JUN 67 42P ROME,BEATRICE K. ;ROME,
SYDNEY C. ;
REPT. NO. TM-1923/006/00

UNCLASSIFIED REPORT

DESCRIPTORS: (*TEACHING MACHINES, DESIGN),
SOCIAL COMMUNICATION, SIMULATION, MAN-MACHINE
SYSTEMS, COMPUTER PROGRAMS, ORGANIZATIONS, DISPLAY
SYSTEMS, CONTROL (U)
IDENTIFIERS: LEVIATHAN (U)

THE TEACHING MACHINE IS USED, AS PART OF THE EXPERIMENTAL DESIGN, TO INDOCTRINATE SUBJECTS FOR LEVIATHAN EXPERIMENTS. IT IS THE SIXTH IN A SERIES OF BRIEFINGS--THE OTHER FIVE, AS WELL AS A SET OF CHARTS, HAVE BEEN PUBLISHED AS: TM-1923/001/00 - AD-446807, TM-1923/002/00 - AD-446810, TM-1923/003/00 - AD-443758, TM-1923/004/00 - AD-446797, TM-1923/005/00 - AD-446812. THE TEACHING MACHINE IS OPERATED THROUGH A COMPUTER IN CONJUNCTION WITH DISPLAY AND PUSHBUTTON EQUIPMENT REGULARLY USED IN LEVIATHAN EXPERIMENTS. AT EACH BRIEFING, THE FIRST DISPLAY, WHICH PRESENTS THE TITLE AND CONTENTS OF THE BRIEFING, IS CONTROLLED BY THE EXPERIMENTERS. THEREAFTER, EACH SUBJECT CONTROLS THE SEQUENCE AND TIMING AND HIS SUCCESSIVE INSTRUCTIONAL DISPLAYS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-663 702 9/4 12/2
TEXAS UNIV AUSTIN COMMUNICATION SYSTEMS RESEARCH GROUP
LEARNING SYSTEMS FOR MINIMUM RISK ADAPTIVE PATTERN CLASSIFICATION AND OPTIMAL ADAPTIVE ESTIMATION. (U)
DESCRIPTIVE NOTE: PART 1 OF FINAL REPT.,
NOV 67 119P HILBORN,CHARLES G. ;
LAINIOTIS,DEMETRIOS G. ;
REPT. NO. CSRG-TR-9
CONTRACT: N00123-67-C-0383, NGR-44-012-066

UNCLASSIFIED REPORT

DESCRIPTORS: (*INFORMATION THEORY, ADAPTIVE COMMUNICATION SYSTEMS), PATTERN RECOGNITION, ADAPTIVE SYSTEMS, CLASSIFICATION, DIGITAL SYSTEMS, LEARNING MACHINES, OPTIMIZATION, PROBABILITY, OPERATIONS RESEARCH (U)
IDENTIFIERS: DIGITAL COMMUNICATION SYSTEMS (U)

THE TWO PROBLEMS OF UNSUPERVISED LEARNING, SEQUENTIAL MULTI-CATEGORY PATTERN CLASSIFICATION AND ADAPTIVE ESTIMATION OF A SAMPLED STOCHASTIC PROCESS ARE JOINTLY INVESTIGATED. AN UNKNOWN PARAMETER MODEL IS DEVELOPED WHICH, FOR THE PATTERN CLASSIFICATION PROBLEM, ALLOWS FOR (I) BOTH CONSTANT AND TIME-VARYING UNKNOWN PARAMETERS, (II) PARTIALLY UNKNOWN PROBABILITY LAWS OF THE HYPOTHESES AND TIME-VARYING PARAMETER SEQUENCES, (III) DEPENDENCE OF THE OBSERVATIONS ON PAST AS WELL AS PRESENT HYPOTHESES AND PARAMETERS, AND MOST SIGNIFICANTLY (IV) SEQUENTIAL DEPENDENCIES IN THE OBSERVATIONS ARISING FROM EITHER (OR BOTH) DEPENDENCY IN THE PATTERN OR INFORMATION SOURCE (CONTEXT INDEPENDENCE) OR IN THE OBSERVATION MEDIUM (MEASUREMENT CORRELATION). THESE DEPENDENCIES BEING UP TO ANY FINITE MARKOV ORDERS. FOR THE ADAPTIVE ESTIMATION PROBLEM THE SAME MODEL IS EMPLOYED WITHOUT ANY DISTINCTION BETWEEN 'HYPOTHESES' AND 'TIME-VARYING PARAMETERS.' FOR FINITE PARAMETER SPACES, THE SOLUTIONS WHICH ARE BAYES OPTIMAL (MINIMUM RISK) AT EACH STEP ARE FOUND FOR BOTH PROBLEMS AND SHOWN TO BE REALIZABLE IN RECURSIVE FORM WITH FIXED MEMORY REQUIREMENTS. THE RECURSIVE 'LEARNING' PORTION OF THE SOLUTIONS IS THE SAME FOR BOTH PROBLEMS. THE ASYMPTOTIC PROPERTIES OF THE OPTIMAL SYSTEMS ARE STUDIED AND CONDITIONS ESTABLISHED FOR THESE SYSTEMS (IN ADDITION TO MAKING BEST USE OF AVAILABLE DATA AT EACH STEP) TO CONVERGE IN PERFORMANCE TO SYSTEMS OPERATING WITH KNOWLEDGE OF THE (UNOBSERVABLE) CONSTANT UNKNOWN. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-664 235 5/9
NAVAL PERSONNEL RESEARCH ACTIVITY SAN DIEGO CALIF
PROGRAMMED INSTRUCTION FOR SELECTED CIC WATCH OFFICER TASKS: I. AN EXPERIMENTAL EVALUATION OF THE AUDIO NOTEBOOK IN THE TEACHING OF RADIOTELEPHONE. (U)
DESCRIPTIVE NOTE: FINAL REPT.,
NOV 67 20p CURRAN,THOMAS E. ;BROCK, JOHN F. ;
REPT. NO. NPRA-SRR-68-11
PROJ: PF0170301F01

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, RECORDING SYSTEMS), (*NAVAL TRAINING, COMBAT INFORMATION CENTERS), RADIOTELEPHONES, OFFICER PERSONNEL, LEARNING, TEACHING METHODS, SHIPBORNE, EFFECTIVENESS, INSTRUCTION MANUALS (U)

THE RESEARCH EVALUATES ORAL PROGRAM INSTRUCTION USED WITH A MULTITAPE RECORDER, THE AUDIO NOTEBOOK, AS A MEANS OF PROMOTING ADAPTATION TO STUDENT DIFFERENCES AND FLEXIBILITY IN INSTRUCTIONAL SCHEDULING. RADIOTELEPHONE PROCEDURES REQUIRED BY THE CIC WATCH OFFICER POSITION WERE PROGRAMMED FOR THE AUDIO NOTEBOOK IN TERMS OF THE SAME LEARNING OBJECTIVES AS CURRENTLY STATED FOR FAAWTRACENSD COURSE FOR THE WATCH OFFICER. THE ORAL LEARNING PROGRAM TOOK LESS TIME, MUCH LESS FOR THOSE WITH NAVY EXPERIENCE, AND ACHIEVED THE OBJECTIVES BETTER THAN THE CLASSROOM DRILL METHOD. THE AUDIO NOTEBOOK PROVED RESISTANT TO DOWN-TIME. THIS MAKES IT POTENTIALLY USEFUL FOR SHIPBOARD TRAINING. THE LEARNING PROGRAM DEVELOPED CAN BE USED IN ANY SCHOOL OR SHIPBOARD SITUATION WHERE THE LEARNING OBJECTIVES CORRESPOND TO THOSE OF THE WATCH OFFICER COURSE IN WHICH IT WAS EVALUATED. IT CAN BE READILY EXPANDED TO INCLUDE ADDITIONAL R/T PROCEDURE OBJECTIVES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0H208

AD-664 882 9/2 6/4 5/2 5/8
RAND CORP SANTA MONICA CALIF
ANSWERING QUESTIONS BY COMPUTER: A LOGICAL STUDY, (U)

DEC 67 138P KUHNS,J. L. I
REPT. NO. RM-5428-PR
CONTRACT: F44620-67-C-0045

UNCLASSIFIED REPORT

DESCRIPTORS: (*LEARNING MACHINES, MATHEMATICAL LOGIC), (*INFORMATION RETRIEVAL, MATHEMATICAL LOGIC), CYBERNETICS, SYMBOLS, FLOW CHARTING, COMPUTER LOGIC, MAN-MACHINE SYSTEMS, THEOREMS (U)

CONSIDER A STUDY OF THE PROCESSING OF QUESTIONS INPUT TO A COMPUTERIZED QUESTION-ANSWERING SYSTEM SUCH AS THE RAND RELATIONAL DATA FILE (SEE AD-642 120). THE PROCESS CONSISTS OF (1) TRANSFORMING THE NATURAL-LANGUAGE QUESTION INTO A SYMBOLIC QUESTION (I.E., A CERTAIN FORMULA OF PREDICATE CALCULUS) AND (2) GENERATING THE ANSWER BY CALCULATING THE VALUE SET OF THE RESULTING FORMULA. THIS STUDY IS ADDRESSED TO THE SECOND STEP. A KEY PROBLEM IS THE IDENTIFICATION OF 'REASONABLE' INPUT QUERIES. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-665 274 5/10 5/9
GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES RESEARCH OFFICE
A GENERAL SYSTEMS APPROACH TO THE DEVELOPMENT AND MAINTENANCE OF OPTIMAL LEARNING CONDITIONS, (U)
JAN 68 25P SEIDEL,ROBERT J. ;KOPSTEIN, FELIX F. ;
REPT. NO. HUMRRO PROFESSIONAL PAPER-1-68
CONTRACT: DA-44-188-ARO-2
PROJ: DA-1J024701A712
TASK: 1J024701A71201

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE AMERICAN PSYCHOLOGICAL ASSOCIATION ANNUAL CONVENTION (75TH), WASHINGTON, D. C., SEP 1967.

DESCRIPTORS: (*LEARNING, OPTIMIZATION), PROGRAMMED INSTRUCTION, SYSTEMS ENGINEERING, PROGRAMMING(COMPUTERS), THEORY (U)
IDENTIFIERS: COMPUTER-ADMINISTERED INSTRUCTION (U)

IN THE CONTEXT THAT A GENERAL SYSTEMS APPROACH TO THE DEVELOPMENT AND MAINTENANCE OF OPTIMAL LEARNING CONDITIONS IS A POINT OF VIEW RATHER THAN A DOCTRINE, TWO EMPIRICAL EXAMPLES ARE GIVEN, TO ILLUSTRATE THE DESIRABILITY OF THE SYSTEMS-LIKE APPROACH IN STUDYING THE NATURE OF LEARNING. THE ORGANISMS CHOSEN WERE REPRESENTATIVE OF TWO WIDELY SEPARATE POINTS ON THE PHYLOGENETIC SCALE. THE FIRST COMES FROM A STUDY DONE WITH THE HOODED RAT, AND THE SECOND FROM RESEARCH ON HUMAN BEHAVIOR. FINALLY, AN ILLUSTRATION OF A TOTAL SYSTEMS APPROACH IS GIVEN BY DESCRIBING THE DEVELOPMENT OF AN INSTRUCTIONAL MODEL A PRIORI TO EXPERIMENTATION. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-665 667 5/9
NAVAL PERSONNEL RESEARCH ACTIVITY SAN DIEGO CALIF
PROGRAMMED INSTRUCTION FOR COLLEGE STUDENT LEARNING
OF MANEUVERING BOARD SOLUTIONS: I. SMALL STEP
VERSUS 'CONDENSED' EXPLANATION CHAPTERS. (U)
DESCRIPTIVE NOTE: RESEARCH REPT.,
FEB 68 23P MEYER,JOHN K. ;
REPT. NO. NPRA-SRR-68-16
PROJ: PF0170301F02

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMED INSYRUCTION,
EFFECTIVENESS), (*PLOTTING BOARDS, PROGRAMMED
INSTRUCTION), TEACHING METHODS, NAVIGATION,
LEARNING, COMBAT INFORMATION CENTERS, NAVAL
TRAINING, NAVAL PERSONNEL (U)

COMPLETION TIME FOR TWO TYPES OF PROGRAMMED
INSTRUCTION IN MANEUVERING BOARD SOLUTIONS OF
RELATIVE MOTION PROBLEMS WAS COMPARED USING TWO
GROUPS OF 10 MALE COLLEGE FRESHMEN EQUATED ON
APTITUDE. LINEAR EXPLANATION CHAPTERS IN THE FIRST
TYPE ('SMALL STEP') CONSISTED OF SMALL,
REPETITIVE FRAMES, WHILE THE LINEAR EXPLANATION
CHAPTERS IN THE SECOND TYPE ('CONDENSED')
CONSISTED OF LARGE FRAMES PRESENTING THE SAME
INFORMATION. THE INSTRUCTIONAL PATTERN IN THE TWO
EQUIVALENT TEXTS CONSISTED OF AN EXPLANATION CHAPTER
FOLLOWED BY A 'PRACTICE,' OR PROBLEM-WORKING,
CHAPTER. THE CONDENSED PROGRAM WAS FOUND TO
REQUIRE OVER THREE HOURS LESS READING TIME FOR THE
EXPLANATION CHAPTERS, A STATISTICALLY SIGNIFICANT
DIFFERENCE OVER 30 PER CENT, WITH NO REDUCTION IN
FINAL EXAMINATION SCORE. IT WAS CONCLUDED THAT
SMALL STEP EXPLANATIONS OF MANEUVERING BOARD SOLUTION
METHODS ARE UNNECESSARY FOR PERSONNEL OF COLLEGE
APTITUDE. FURTHER STUDY OF VARYING TYPES OF
CONDENSED PROGRAMMED MANEUVERING BOARD INSTRUCTION
WILL BE REQUIRED TO DETERMINE THE BEST TYPE FROM THE
STANDPOINT OF TIME SAVED FOR USE WITH NAVAL OFFICER
CANDIDATES OR BEGINNERS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-665 891 5/10 6/4 9/2
RAND CORP SANTA MONICA CALIF
PERFORMANCE OF A READING TASK BY AN ELEMENTARY PERCEIVING AND MEMORIZING PROGRAM. (U)
JUL 61 15P FEIGENBAUM,EDWARD A. ;SIMON, HERBERT A. ;
REPT. NO. P-2358

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH CALIFORNIA UNIV., BERKELEY, AND CARNEGIE INST. OF TECH., PITTSBURGH, PA.

DESCRIPTORS: (*MEMORY, SIMULATION), COMPUTER PROGRAMS, READING, LEARNING, WORD ASSOCIATION, STIMULATION, RESPONSES, INFORMATION RETRIEVAL, VISUAL PERCEPTION, ARTIFICIAL INTELLIGENCE (U)
IDENTIFIERS: COMPUTER SIMULATION (U)

SOME EXPERIMENTS ARE REPORTED WHICH SHOW THAT THE MECHANISMS POSTULATED IN EPAM FOR THE ROTE MEMORY TASKS ARE ADEQUATE FOR SIMULATING, AT LEAST MACROSCOPICALLY, THE PROCESSES EMPLOYED BY HUMAN BEINGS IN ACQUIRING THE ABILITY TO READ AND UNDERSTAND PRINTED WORDS. A SUMMARY DESCRIPTION OF THE EPAM PROGRAM IS PROVIDED MENTIONING THE MAIN PROCESSES IT USES IN ROTE MEMORY TASKS. THE MANNER IN WHICH THESE PROCESSES ARE USED IN LEARNING TO READ IS DESCRIBED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-666 344 5/9 5/10
SYSTEM RESEARCH LTD RICHMOND (ENGLAND)
THE ADAPTIVELY CONTROLLED INSTRUCTION OF A TRANSFORMATION SKILL. (U)
APR 67 16P PASK,GORDON ;LEWIS,BRIAN ;
CONTRACT: AF 61(052)-640, AF 61(052)-402
PROJ: AF-9767
TASK: 976904
MONITOR: AFOSR 68-0448

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN PROGRAMMED LEARNING, P74-85 APR 1967.
SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH LONDON UNIV. (ENGLAND). INST. OF EDUCATION.

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, *TRANSFER OF TRAINING), TEACHING MACHINES, LEARNING, TEACHING METHODS, ADAPTIVE CONTROL SYSTEMS, REACTION(PSYCHOLOGY), GREAT BRITAIN (U)

A KEYBOARD SKILL IS DESCRIBED FOR WHICH TWO DIFFERENT, AND PARTLY CONFLICTING, RULES OF CORRESPONDENCE EXIST BETWEEN THE SIX STIMULUS LAMPS AND THE SIX RESPONSE KEYS. AT ANY GIVEN TRIAL, A SUBSET OF THREE STIMULUS LAMPS IS ILLUMINATED, AND AN ORIENTATION SIGNAL TELLS S WHICH RULE OF CORRESPONDENCE HE MUST APPLY. IN THE MAIN EXPERIMENTAL CONDITION, THE SKILL WAS INSTRUCTED BY AN ADAPTIVE MACHINE WHICH (A) VARIED THE RELATIVE FREQUENCY WITH WHICH THE TWO RULES WERE SELECTED, AND (B) SIMPLIFIED CERTAIN PROBLEMS BY ILLUMINATING FEWER LAMPS. IN THE FIRST CONTROL CONDITION, FACILITY (A) WAS DELETED. IN THE SECOND CONTROL CONDITION, FACILITIES (A) AND (B) WERE BOTH DELETED. THE RESULTS SHOW THAT THE FULLY ADAPTIVE CONDITION PRODUCED FASTER LEARNING THAN THE FIRST CONTROL CONDITION, AND THE LATTER PRODUCED FASTER LEARNING THAN THE SECOND CONTROL CONDITION. SOME ADDITIONAL ANALYSIS SUGGESTS THAT DIFFERENT SUBJECTS LEARNED THE SKILL IN DIFFERENT WAYS, AND THAT LEARNING IS MORE EFFICIENT IF THE CONFLICTING RULES OF CORRESPONDENCE ARE REHEARSED IN PARALLEL RATHER THAN SEQUENTIALLY. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-666 411 5/9 5/8 9/2
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
EXPLORATORY STUDY OF INFORMATION-PROCESSING
PROCEDURES AND COMPUTER-BASED TECHNOLOGY IN
VOCATIONAL COUNSELING. (U)
DESCRIPTIVE NOTE: FINAL REPT.,
OCT 67 245P COGSWELL,JOHN F. ;ESTAVAN,
DONALD P. ;DONAHOE,CLYDE P. ; JR.;ROSENQUIST,
BARBARA A. ;
REPT. NO. TM-3718

UNCLASSIFIED REPORT

DESCRIPTORS: (*EDUCATION,
PROGRAMMING(COMPUTERS)), DATA PROCESSING
SYSTEMS, STUDENTS, DECISION MAKING, MAN-MACHINE
SYSTEMS, INSTRUCTORS, DESIGN,
ADJUSTMENT(PSYCHOLOGY), PSYCHOMETRICS,
COMPUTER PROGRAMS, INFORMATION RETRIEVAL (U)
IDENTIFIERS: *COUNSELING (U)

THE PURPOSE OF THIS PHASE OF THE WORK WAS TO DESIGN
A MAN-MACHINE COUNSELING SYSTEM. BEFORE THE DESIGN
WORK BEGAN, THE COUNSELING AND GUIDANCE OPERATIONS
WERE SURVEYED IN THE THIRTEEN SCHOOLS DISTRIBUTED
OVER SEVEN STATES IN ORDER TO STUDY THE VARIATION IN
COUNSELING PRACTICE AMONG SCHOOLS. THIS VARIATION
COULD THEN BE CONSIDERED IN SYSTEM DEVELOPMENT WORK
WITH THE SCHOOLS SELECTED FOR THE MAN-MACHINE STUDY.
AFTER THE SURVEY, AN EXPERIMENTATION FIELD SITE WAS
SELECTED. THE FOCUS OF SYSTEM DEVELOPMENT AND
EXPERIMENTATION IS A LARGE SCHOOL COMPLEX IN THE
LOS ANGELES SCHOOL DISTRICT. DETAILED
SYSTEM ANALYSIS WAS PERFORMED OF ALL THE COUNSELING
PROCEDURES EMPLOYED IN THIS SCHOOL COMPLEX AND
WORKSHOPS ON INFORMATION PROCESSING TECHNOLOGY WERE
CONDUCTED FOR THE COUNSELORS. TWO DESIGN TEAMS
WERE THEN FORMED TO SPECIFY MODEL I OF THE MAN-
MACHINE SYSTEM. ONE TEAM CONSISTED OF THE SDC
RESEARCHERS AND THE HIGH SCHOOL COUNSELORS; THE
OTHER, OF THE RESEARCHERS AND THE JUNIOR HIGH SCHOOL
COUNSELORS. SOME OF THE MAJOR IDEAS WHICH EMERGED
FROM THE DESIGN SESSIONS ARE: (1) AN
INFORMATION RETRIEVAL SYSTEM FOR STUDENT INFORMATION,
(2) A TRACKING AND MONITORING SYSTEM WHICH WILL
AUTOMATICALLY ALERT THE COUNSELOR WHEN CRITICAL
SITUATIONS OCCUR, (3) AUTOMATED REPORT
GENERATION FOR PREPARING CUMULATIVE RECORDS, REPORT
CARDS, AND OTHER REPORTS OR LISTS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-666 673 9/2 12/2 6/4
CASE-WESTERN RESERVE UNIV CLEVELAND OHIO SYSTEMS RESEARCH CENTER
LEARNING THROUGH PATTERN RECOGNITION APPLIED TO A CLASS OF GAMES. (U)
DESCRIPTIVE NOTE: SCIENTIFIC INTERIM REPT.,
MAY 67 156P KOFFMAN,ELLIOT B. ;
REPT. NO. SRC-107-A-67-45
CONTRACT: AF-AFOSR-125-67, NSF-GK-185
PROJ: AF-9769
TASK: 976905
MONITOR: AFOSR 68-0514

UNCLASSIFIED REPORT

DESCRIPTORS: (*LEARNING MACHINES, PROBLEM SOLVING), (*ARTIFICIAL INTELLIGENCE, LEARNING MACHINES), PATTERN RECOGNITION, GAME THEORY, DYNAMIC PROGRAMMING, SET THEORY, COMPUTER PROGRAMS, THESES (U)

THE OBJECTIVE OF THIS RESEARCH WAS TO INVESTIGATE A TECHNIQUE FOR MACHINE LEARNING USEFUL IN SOLVING PROBLEMS INVOLVING FORCING STATES. IN GAMES OR CONTROL PROBLEMS, A FORCING STATE IS A STATE FROM WHICH THE FINAL GOAL CAN ALWAYS BE REACHED, REGARDLESS OF WHAT DISTURBANCES MAY ARISE. A PROGRAM WHICH LEARNS FORCING STATES IN A CLASS OF GAMES (IN A GAME-INDEPNDENT FORMAT) BY WORKING BACKWARDS FROM A PREVIOUS LOSS HAS BEEN WRITTEN. THE CLASS OF POSITIONS WHICH ULTIMATELY RESULTS IN THE OPPONENT'S WIN IS LEARNED BY THE PROGRAM (USING A SPECIALLY DESIGNED DESCRIPTION LANGUAGE) AND STORED IN ITS MEMORY TOGETHER WITH THE CORRECT MOVE TO BE MADE WHEN THIS PATTERN REOCCURS. DURING FUTURE PLAYS OF THE GAME, THESE PATTERNS ARE SEARCHED FOR. IF THEY ARE FORMED BY THE OPPONENT, THE LEARNING PROGRAM BLOCKS THEM BEFORE THE OPPONENT'S WIN SEQUENCE CAN BEGIN. IF THEY ARE FORMED BY THE LEARNING PROGRAM, IT INITIATES THE WIN SEQUENCE. THE CLASS OF GAMES IN WHICH THE PROGRAM IS EFFECTIVE INCLUDES QUBIC, GO-MOKU, HEX, AND THE SHANNON NETWORK GAMES INCLUDING BRIDG-IT. THE DESCRIPTION LANGUAGE ENABLES THE LEARNING PROGRAM TO GENERALIZE FROM ONE EXAMPLE OF A FORCING STATE TO ALL OTHER CONFIGURATIONS WHICH ARE STRATEGICALLY EQUIVALENT. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-667 657 5/10 5/9
PITTSBURGH UNIV PA LEARNING RESEARCH AND DEVELOPMENT CENTER
THE EFFECTS OF TASK CHARACTERISTICS ON RESPONSE LATENCY AND LATENCY TRENDS DURING LEARNING AND OVERLEARNING. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAR 68 89P JUDD,WILSON A. ;
REPT. NO. TR-7
CONTRACT: NONR-624(18)

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: RESEARCH SUPPORTED BY HEW, CONTRACT OE-3-16-043.

DESCRIPTORS: (*LEARNING, PROGRAMMED INSTRUCTION), RECALL, RETENTION, RESPONSES, WORD ASSOCIATION, DECISION MAKING, REACTION(PSYCHOLOGY), REFLEXES, EXPERIMENTAL DESIGN, VERBAL BEHAVIOR, PERFORMANCE(HUMAN) (U)
IDENTIFIERS: COMPUTER AIDED INSTRUCTION, OVERLEARNING, RESPONSE LATENCY (U)

RESPONSE LATENCY WAS STUDIED AS A MEASURE OF ASSOCIATIVE STRENGTH OR DEGREE OF LEARNING AND AS A POSSIBLE BASIS FOR INSTRUCTIONAL DECISION-MAKING IN COMPUTER-ASSISTED INSTRUCTION. LATENCY WAS INVESTIGATED IN A PAIRED-ASSOCIATE TASK AS A FUNCTION OF TRAINING PROCEDURE (A COMPARISON OF THE ANTICIPATION AND RECALL PARADIGMS) AND INFORMATION TRANSMISSION REQUIREMENTS (A COMPARISON OF TWO, FOUR, AND EIGHT RESPONSE ALTERNATIVES TO AN EIGHT ITEM STIMULUS LIST) DURING BOTH ACQUISITION AND OVERLEARNING. THE MAGNITUDE AND VARIABILITY OF LATENCY MEASUREMENTS WERE INDEPENDENT OF TRAINING METHOD DURING ACQUISITION, BUT BOTH WERE REDUCED BY THE RECALL PARADIGM DURING OVERLEARNING. LATENCY WAS AN INCREASING FUNCTION OF THE NUMBER OF RESPONSE ALTERNATIVES DURING BOTH ACQUISITION AND OVERLEARNING. DURING ACQUISITION, PRIOR TO THE TRIAL OF LAST ERROR (TLE) FOR EACH ITEM, LATENCY REMAINED RELATIVELY CONSTANT AND DID NOT DIFFER BETWEEN CORRECT AND INCORRECT RESPONSES. THERE WAS A SUBSTANTIAL DROP IN LATENCY FOLLOWING THE TLE. BOTH PRE- AND POST-TLE LATENCIES WERE AN INCREASING FUNCTION OF INTRESUBJECT DIFFERENCES IN ITEM DIFFICULTY. PRE-TLE LATENCIES WERE AN INVERSE FUNCTION OF SUBJECT LEARNING RATE. POST-TLE LATENCIES WERE INDEPENDENT OF SUBJECT LEARNING RATE. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-669 281 5/9
GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES RESEARCH OFFICE
THE APPLICATION OF THEORETICAL FACTORS IN TEACHING PROBLEM SOLVING BY PROGRAMED INSTRUCTION. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
APR 68 74P SEIDEL,ROBERT J. ;HUNTER, HAROLD G. ;
REPT. NO. HUMRRO-TR-68-4
CONTRACT: DA-44-188-ARO-2
PROJ: DA-2J024701A712-01

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROBLEM SOLVING, *PROGRAMMED INSTRUCTION), TEACHING METHODS, LEARNING, MOTIVATION, TRAINING, PROGRAMMERS, PROGRAMMING(COMPUTERS), RETENTION, TRAINING DEVICES (U)

IN CONTINUING RESEARCH INTO THE TECHNOLOGY OF TRAINING, A STUDY WAS UNDERTAKEN TO DEVISE GUIDELINES FOR APPLYING PROGRAMED INSTRUCTION TO TRAINING COURSES THAT INVOLVE THE LEARNING OF PRINCIPLES AND RULES FOR USE IN PROBLEM SOLVING. AS THE RESEARCH VEHICLE, A PORTION OF THE MATERIAL IN THE ARMY'S ADPS PROGRAMING SPECIALIST COURSE WAS PROGRAMED TO EXPLORE SEVERAL DIFFERENT FACTORS IN USING AUTOMATED INSTRUCTION TO TEACH COMPUTER PROGRAMMING. EXPERIMENTAL VERSIONS OF THE COURSE WERE ADMINISTERED TO OVER 900 SUBJECTS IN VARIOUS EXPERIMENTAL GROUPINGS. CRITERION AND RETENTION TESTS BASED ON ACTUAL JOB PROBLEMS WERE USED TO MEASURE SUBJECTS' PERFORMANCE, ALONG WITH IN-TRAINING MEASURES. RESULTS IN A SERIES OF PROMPTING/CONFIRMATION VARIATIONS INDICATED THAT GIVING SUBJECTS EXTENSIVE STIMULUS SUPPORT DURING TRAINING HELPS MOTIVATE THEM AND IMPROVES SCORES DURING TRAINING, BUT HAMPERS THEM IN USING WHAT THEY HAVE LEARNED. REQUIRING SUBJECTS TO FULLY WRITE OUT RULES DURING TRAINING HINDERED THEM IN DEVELOPING PROBLEM-SOLVING SKILLS APPLYING THESE RULES; HOWEVER, USING MNEOMONICS (WRITING ONLY THE NAMES OF RULES) DURING TRAINING AIDED SUBJECTS IN RETAINING WHAT THEY HAD LEARNED. PARTICULARLY FOR MORE COMPLEX MATERIAL, WORKING WITH A VARIETY OF PRACTICE PROBLEMS FACILITATED THE LEARNING OF PROBLEM-SOLVING SKILLS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-669 287 5/9 5/10
HARVARD COMPUTING CENTER CAMBRIDGE MASS
COMPUTER-BASED INSTRUCTION: PSYCHOLOGICAL ASPECTS AND SYSTEMS CONCEPTION OF INSTRUCTION. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
DEC 67 26p STOLUROW,LAWRENCE M. ;
REPT. NO. TR-4
CONTRACT: N00014-67-A-0298

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN UNIDENTIFIED JOURNAL, P193-215.

DESCRIPTORS: (*TEACHING METHODS, COMPUTER PROGRAMS), LEARNING, DECISION MAKING, PROGRAMMING(COMPUTERS), PROGRAMMED INSTRUCTION, TEACHING MACHINES, CYBERNETICS, REAL TIME, FLOW CHARTING (U)
IDENTIFIERS: *COMPUTER AIDED INSTRUCTION, SOCRATES (U)

THE REPORT PRESENTS A CONCEPTUALIZATION OF THE TEACHING-LEARNING PROCESS IN A WAY THAT PERMITS THE DEVELOPMENT OF A COMPUTER-BASED INSTRUCTIONAL SYSTEM. IN THE WORK DESCRIBED, THE CBI SYSTEM FUNCTIONED AS AN AID IN THE DEVELOPMENT OF REAL-TIME MODELS IN THE FORM OF COMPUTER-PROGRAMS THAT TEACH. USING THESE PROGRAMS, RESEARCH CAN BE CONDUCTED RELATING TO THE DECISION PROCESSES NECESSARY FOR TEACHING. THE PARTICULAR SYSTEM, SOCRATES, HAS BEEN USED TO: (1) CONDUCT RESEARCH RELATING TO AN IDIOGRAPHIC MODEL OF TUTORIAL INSTRUCTION; (2) STUDY BASIC VARIABLES RELATING TO LEARNING AND TRANSFER; AND (3) TO DEVELOP THE TECHNOLOGY OF USING A CBI SYSTEM TO GENERATE LEARNING MATERIALS. RESULTS FROM SEVERAL STUDIES ARE GIVEN. SOME QUESTIONS OF PROGRAMMING STRATEGIES WERE EXAMINED WITH SCIENCE MATERIALS; OTHERS USING LOGIC; OTHERS WITH CULTURE ASSIMILATORS; AND STILL OTHERS USING SOCRATES AS AN AUTHOR. THESE STUDIES SHOW HOW CBI SYSTEMS MAY BE USED IN RESEARCH AND HOW VARIED ARE THE CONTENT AREAS TO WHICH CBI SYSTEMS ARE APPLICABLE. THEY ALSO PRESENT ONE VIEW OF SOME OF THE PRINCIPLES THAT SHOULD BE CONSIDERED IN THE DEVELOPMENT OF SUCH SYSTEMS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-670 524 5/9 9/2
WASHINGTON UNIV SEATTLE COMPUTER SCIENCE GROUP
WRITEACOURSE: AN EDUCATIONAL PROGRAMMING
LANGUAGE.
DESCRIPTIVE NOTE: TECHNICAL REPT., (U)
MAY 68 23P HUNT,EARL B. ;ZOSEL,MARY ;
REPT. NO. TR-68-1-02
CONTRACT: AF-AFOSR-1311-67
MONITOR: AFOSR 68-1299

UNCLASSIFIED REPORT

DESCRIPTORS: (*EDUCATION, PROGRAMMING LANGUAGES),
DIGITAL COMPUTERS, PROGRAMMED INSTRUCTION,
TEACHING MACHINES, PROGRAMMING(COMPUTERS),
FEASIBILITY STUDIES, SYNTAX, SEMANTICS,
SUBROUTINES (U)
IDENTIFIERS: COMPUTER AIDED DESIGN, WRITEACOURSE
PROGRAMMING LANGUAGE, ALGOL (U)

A USER ORIENTED LANGUAGE FOR COMPUTER AIDED INSTRUCTION IS DESCRIBED. THE LANGUAGE IS DESIGNED FOR IMPLEMENTING PROGRAMMED INSTRUCTION COURSES ON GENERAL PURPOSE INTERACTIVE COMPUTING SYSTEMS. THE LANGUAGE CAN BE UTILIZED ON ANY INTERACTIVE COMPUTING SYSTEM WITH A PL/I COMPILER. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-671 842 5/9 5/10
AMERICAN INSTITUTES FOR RESEARCH IN THE BEHAVIORAL SCIENCES
PALO ALTO CALIF
STUDY OF TRAINING EQUIPMENT AND INDIVIDUAL
DIFFERENCES. THE EFFECTS OF SUBJECT MATTER
VARIABLES. (U)
DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 7 APR 67-6 APR
68.
MAY 68 70P TALLMADGE.G. KASTEN ;
SHEARER.JAMES W. ;GREENBERG.ANNE M. ;
CONTRACT: N61339-67-C-0114
PROJ: NAVTRADEVCEN-7690-3
MONITOR: NAVTRADEVCEN 67-C-0114-1

UNCLASSIFIED REPORT

DESCRIPTORS: (*TEACHING METHODS, EFFECTIVENESS),
(*LEARNING, PSYCHOMETRICS),
PERFORMANCE(HUMAN), APTITUDE TESTS, PROGRAMMED
INSTRUCTION, EXPERIMENTAL DESIGN, ANXIETY,
REASONING, CORRELATION TECHNIQUES, ANALYSIS OF
VARIANCE, PROBLEM SOLVING, TRAINING FILMS,
DECISION MAKING, PERSONALITY TESTS, MOTIVATION,
NAVAL PERSONNEL, REVIEWS (U)

TWO SEPARATE SUBJECT MATTER AREAS WERE SELECTED FOR
INVESTIGATION WHICH WERE FELT TO REPRESENT TWO
DISTINCT TYPES OF LEARNING SITUATIONS. THE FIRST
SUBJECT WAS A KIND OF LOGICO-MATHEMATICAL PROCEDURE -
- THE TRANSPORTATION TECHNIQUE. THE SECOND
SUBJECT WAS A VISUAL FORM DISCRIMINATION TASK --
AIRCRAFT RECOGNITION. TWO SEPARATE COURSES
WERE DEVELOPED FOR EACH SUBJECT MATTER AREA. ONE
REFLECTED AN INDUCTIVE INSTRUCTIONAL APPROACH AND THE
OTHER A DEDUCTIVE METHOD. EACH OF THE FOUR COURSES
WAS ADMINISTERED TO BETWEEN 55 AND 60 NAVY ENLISTED
MEN. TWENTY-EIGHT MEASURES OF APTITUDES,
INTERESTS, AND PERSONALITY VARIABLES WERE OBTAINED ON
EACH SUBJECT. BASED ON CORRELATION COEFFICIENTS
COMPUTED BETWEEN INDIVIDUAL DIFFERENCE MEASURES AND
EXAMINATION SCORES, AN UNWEIGHTED MEANS ANALYSIS OF
VARIANCE MODEL WAS EMPLOYED TO ASSESS THE EFFECTS OF
INSTRUCTIONAL METHODS, SUBJECT MATTER AREAS, AND
INTEREST LEVELS. THE MOST IMPORTANT FINDING
PRODUCED BY THIS ANALYSIS WAS THE SIGNIFICANT (P<
.001) SECOND ORDER INTERACTION AMONG ALL THREE
INDEPENDENT VARIABLES. THE RESULTS OF THIS STUDY
STRONGLY SUPPORTED THE EXISTENCE OF LEARNING STYLES
AND SUGGEST THAT MULTI-TRACK INSTRUCTION BASED ON
LEARNING STYLES MIGHT BE A COST-EFFECTIVE WAY OF
ENHANCING LEARNING. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-671 937 5/7 9/2 6/4
CARNEGIE-MELLON UNIV PITTSBURGH PA DEPT OF COMPUTER SCIENCE
NATURAL LANGUAGE LEARNING BY COMPUTER. (U).
DESCRIPTIVE NOTE: DOCTORAL THESIS,
MAY 68 116P SIKLOSSY,LAURENT ;
CONTRACT: SD-146
PROJ: AF-9718
MONITOR: AFOSR 68-1594

UNCLASSIFIED REPORT

DESCRIPTORS: (*LINGUISTICS, *ARTIFICIAL INTELLIGENCE), (*COMPUTER PROGRAMS, LINGUISTICS), RUSSIAN LANGUAGE, GERMAN LANGUAGE, LEARNING, LEARNING MACHINES, ERRORS, PATTERN RECOGNITION, VOCABULARY, SET THEORY, MACHINE TRANSLATION, THESES (U)

LEARNING A NATURAL LANGUAGE IS TAKEN AS AN IMPROVEMENT IN A SYSTEM'S ABILITY TO EXPRESS SITUATIONS IN A NATURAL LANGUAGE. THIS DISSERTATION DESCRIBES A COMPUTER PROGRAM, CALLED ZBIE, WRITTEN IN IPL-V, WHICH ACCEPTS THE DESCRIPTION OF SITUATIONS IN A UNIFORM, STRUCTURED FUNCTIONAL LANGUAGE AND TRIES TO EXPRESS THESE SITUATIONS IN A NATURAL LANGUAGE. EXAMPLES ARE GIVEN FOR GERMAN AND, MOSTLY, RUSSIAN. AT RUN-TIME, ZBIE BUILDS SIMPLE MEMORY STRUCTURES. PATTERNS AND SETS ARE BUILT ON THE FUNCTIONAL LANGUAGE. THE TRANSLATION RULES OF THE PATTERNS AND AN IN-CONTEXT VOCABULARY PROVIDE THE TRANSITION TO THE NATURAL LANGUAGE. ZBIE IS A CAUTIOUS LEARNER, AND AVOIDS ERRORS BY SEVERAL MECHANISMS. ZBIE IS CAPABLE OF SOME EVOLUTIONARY LEARNING. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-672 187 5/9 5/2 9/2
HARVARD COMPUTING CENTER CAMBRIDGE MASS
A COMPUTER-BASED SYSTEM INTEGRATING INSTRUCTION AND INFORMATION RETRIEVAL: A DESCRIPTION OF SOME METHODOLOGICAL CONSIDERATIONS. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
FEB 68 44P SELIG,JUDITH A. ;REINECKE, ROBERT D. ;STOLUROW,LAWRENCE M. ;
REPT. NO. TR-5
CONTRACT: N00014-67-A-0298

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, *INFORMATION RETRIEVAL), TEACHING METHODS, BIBLIOGRAPHIES, SYSTEMS ENGINEERING, DATA STORAGE SYSTEMS, TEACHING MACHINES, PROGRAMMING(COMPUTERS), OPHTHALMOLOGY (U)
IDENTIFIERS: *COMPUTER AIDED INSTRUCTION, SUBJECT INDEX TERMS, IBM 7010 COMPUTERS, IBM 1401 COMPUTERS (U)

THE WORK INCLUDES THE DEVELOPMENT OF A CONCORDANCE AND THE CONVERSION OF THE PROGRAMMED TEXTBOOK BASIC OPHTHALMOLOGY, BY ROBERT D. REINECKE, M.D. AND ROBERT J. HERM, M.D., TO COMPUTER-ASSISTED INSTRUCTION ON THE IBM 7010 AND IBM 1401 SYSTEMS. ESSENTIALLY THE REPORT DESCRIBES THE METHODOLOGY USED TO LOAD A LARGE BODY OF TEXT ONTO A COMPUTER. AN EFFORT WAS MADE TO DOCUMENT AND EXPLAIN ALL STEPS, INCLUDING THOSE WHICH WERE ABANDONED, IN ORDER TO AVOID UNNECESSARY DUPLICATION IN THE FUTURE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-672 189 5/9
UNIVERSITY OF SOUTHERN CALIFORNIA LOS ANGELES ELECTRONICS PERSONNEL RESEARCH GROUP
COMPUTER-AIDED TECHNICAL TRAINING USING ELECTRONIC EQUIPMENT ON-LINE WITH THE CAI SYSTEM. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 68 41P HUGGETT,GEOFFREY ;DAVIS, DANIEL J. ;RIGNEY,JOSEPH W. ;
REPT. NO. TR-59
CONTRACT: NONR-228(22)
PROJ: NR-153-093

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH ILLINOIS UNIV., URBANA, COMPUTER-BASED EDUCATION RESEARCH LAB.

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, MAINTENANCE PERSONNEL), TRANSMITTER-RECEIVERS, MAINTENANCE, RADIO COMMUNICATION SYSTEMS, TEACHING METHODS, STUDENTS, CORRECTIONS, COMPUTERS (U)
IDENTIFIERS: *COMPUTER AIDED INSTRUCTION, AN/URC-32, TROUBLESHOOTING, ON-LINE SYSTEMS, PLATO TEACHING SYSTEM (U)

THE REPORT DESCRIBES AN EXPERIMENTAL COURSE IN THE OPERATION AND TROUBLESHOOTING OF A COMMUNICATIONS TRANSCEIVER, THE AN/URC-32, IN WHICH THE TRANSCEIVER IS USED AS PART OF AN INSTRUCTIONAL STATION IN A CAI SYSTEM. THE TRANSCEIVER AND THE CAI SYSTEM ARE HARD-WIRED TOGETHER TO FORM A SINGLE TRAINING SYSTEM. THE SYSTEM IS PRESENTLY OPERATING IN THE COMPUTER-BASED EDUCATION RESEARCH LABORATORY OF THE UNIVERSITY OF ILLINOIS. A STUDENT'S OPERATION OF SWITCHES ON THE TRANSCEIVER FRONT PANEL IS SENSED BY THE CAI SYSTEM. THE CAI SYSTEM CAN INSERT AND REMOVE MALFUNCTIONS IN THE TRANSCEIVER UNDER PROGRAM CONTROL. THIS ALLOWS PRACTICE IN OPERATING AND TROUBLESHOOTING THE EQUIPMENT TO BE COORDINATED WITH THE PRESENTATION OF TECHNICAL INFORMATION IN THE LESSONS. THE STUDENT IS REQUIRED TO PUT HIS KNOWLEDGE OF THIS INFORMATION TO IMMEDIATE USE IN SOLVING TROUBLESHOOTING PROBLEMS. THE REPORT DESCRIBES THE INITIAL IMPLEMENTATION OF THE ABOVE FEATURES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-672 452 5/9 9/2
ENTELEK INC NEWBURYPORT MASS
COMPUTER-ASSISTED INSTRUCTION GUIDE. (U)
68 153P
CONTRACT: NONR-4767(00)

UNCLASSIFIED REPORT
AVAILABILITY: HARD COPY AVAILABLE FROM ENTELEK INC., 42 PLEASANT ST., NEWBURYPORT, MASS. 01950, $10.00.

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, *COMPUTER PROGRAMS), SPECIFICATIONS, STATE-OF-THE-ART REVIEWS, SPECIAL PURPOSE COMPUTERS, TEACHING METHODS, PROGRAMMING LANGUAGES, INPUT-OUTPUT DEVICES (U)
IDENTIFIERS: *COMPUTER AIDED INSTRUCTION (U)

THE CAI GUIDE CONTAINS THE SPECIFICATIONS OF ALL OPERATIONAL CAI PROGRAMS THAT HAVE COME UNDER ENTELEK'S SURVEILLANCE SINCE THE INCEPTION OF THE CAI INFORMATION EXCHANGE. A TOTAL OF 226 CAI PROGRAMS BY 160 AUTHORS OF 38 CAI CENTERS ARE CITED. 30 MAJOR SUBJECT MATTER AREAS ARE REPRESENTED. RESEARCH AND PRELIMINARY RESULTS FROM OVER 50 PROGRAMS CITED IN THE GUIDE CAN BE FOUND IN THE REPORT ABSTRACTS OF THE CAI INFORMATION EXCHANGE. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-672 567 5/9 5/2
NAVAL TRAINING DEVICE CENTER ORLANDO FLA
PROCEEDINGS OF THE NAVAL TRAINING DEVICE CENTER AND INDUSTRY CONFERENCE (2ND). (U)
DESCRIPTIVE NOTE: ANNUAL TECHNICAL REPT.
NOV 67 360P
REPT. NO. NAVTRADEVCEN-IH-143

UNCLASSIFIED REPORT

DESCRIPTORS: (*MILITARY TRAINING, SYMPOSIA), SIMULATION, RADAR TRAINERS, FLIGHT SIMULATORS, GUNNERY TRAINERS, TEACHING MACHINES, TRAINING FILMS, DISPLAY SYSTEMS, PROGRAMMED INSTRUCTION, OPTICAL EQUIPMENT, VALUE ENGINEERING, LOGISTICS, HUMAN ENGINEERING, AIR FORCE TRAINING, NAVAL TRAINING, ARMY TRAINING, TEACHING METHODS, MAINTAINABILITY, CONTRACTS, MANAGEMENT PLANNING, TRANSFER OF TRAINING, INDUSTRIAL TRAINING, INSTRUCTORS, STUDENTS (U)

THIS REPORT CONSISTS OF MOST OF THE PAPERS PRESENTED AND A NUMBER OF PAPERS THAT WERE SUBMITTED BUT COULD NOT BE PRESENTED DUE TO LACK OF TIME. IT CONCENTRATES ON THE TECHNICAL PROBLEMS CONFRONTING ORGANIZATIONS HAVING A PRIME INTEREST IN SIMULATION FOR TRAINING. IT STRESSES THE COOPERATION OF THE MILITARY EDUCATOR AND THE TECHNICAL COMMUNITY TO ACHIEVE A PRODUCT THAT SATISFIES THE TRAINING MISSION, IS COST EFFECTIVE, AND TRAINING-TIME EFFECTIVE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-672 748 5/10 9/2
WASHINGTON UNIV ST LOUIS MO DEPT OF PSYCHOLOGY
PSYCHOLOGICAL RESEARCH IN ADULT LEARNING. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
68 71P DUBOIS,PHILIP H. ;
REPT. NO. TR-15
CONTRACT: NONR-816(14)

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO TR-14, AD-672 747,
PRESENTED AT A CONFERENCE HELD AT THE BROMWOODS
RESIDENTIAL CENTER, WASHINGTON UNIV., ST. LOUIS,
MO.

DESCRIPTORS: (*PSYCHOMETRICS, ADULTS),
(*LEARNING, SYMPOSIA), SYSTEMS ENGINEERING,
PROGRAMMED INSTRUCTION, NAVAL RESEARCH, EDUCATION,
BEHAVIOR, CONTROL SYSTEMS,
PROGRAMMING(COMPUTERS), AUTOMATION, TRAINING (U)
IDENTIFIERS: COMPUTER AIDED DESIGN (U)

THE PRESENT REPORT INCLUDES A NUMBER OF PAPERS
CENTERED AROUND EDUCATIONAL TECHNOLOGY WHICH WERE
PRESENTED AT A CONFERENCE AT THE BROMWOODS
RESIDENTIAL CENTER OF WASHINGTON UNIVERSITY.
AMONG THE TOPICS CONSIDERED WERE THE SYSTEMS
APPROACH TO LEARNING, COMPUTER ASSISTED INSTRUCTION,
THE ROLE OF SIMULATION IN TRAINING, AND PROGRAMMED
LEARNING. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-672 788 5/9
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
COMPUTER-BASED INSTRUCTION. (U)
FEB 68 19P COULSON, JOHN E. ;
REPT. NO. SDC-SP-2859/000/00

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN INTERNATIONAL REVIEW OF EDUCATION.

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, *TEACHING MACHINES), MULTIPLE OPERATION, DISPLAY SYSTEMS, STUDENTS, MAN-MACHINE SYSTEMS, SEQUENCES, FEEDBACK, COSTS, PROGRAMMING(COMPUTERS), DESIGN, EFFECTIVENESS (U)

THE REPORT DESCRIBES THE LATEST COMPUTER-BASED INSTRUCTION (CBI) SYSTEMS THAT ARE TECHNICALLY FEASIBLE AND THAT CAN TEACH A VARIETY OF SUBJECT AREAS TO STUDENTS RANGING IN GRADE LEVEL FROM KINDERGARTEN TO COLLEGE. HOWEVER, CBI IS STILL LARGELY IN THE RESEARCH AND DEVELOPMENT STATE. THERE ARE A FEW, IF ANY, CBI SYSTEMS IN REGULAR OPERATIONAL USE. AS A CONSEQUENCE, THERE IS LITTLE EMPIRICAL EVIDENCE THAT CBI IS A PRACTICAL APPROACH FOR LONG-TERM APPLICATION IN A LARGE NUMBER OF SCHOOLS, OR THAT CBI CAN TEACH MORE EFFECTIVELY THAN 'CONVENTIONAL' METHODS. LIMITED EXPERIENCE INDICATES THAT THE EFFECTIVENESS OF CBI IS LARGELY DEPENDENT ON THE CARE TAKEN IN: (1) PREPARING AND REVISING THE CONTENT MATERIAL ITSELF; (2) DESIGNING THE TEACHING STRATEGY BY WHICH THE COMPUTER PROGRAM SELECTS SEQUENCES OF MATERIAL TO MEET INDIVIDUAL STUDENT NEEDS; AND (3) USER-ENGINEERING OF BOTH THE EQUIPMENT AND THE PROGRAM TO FACILITATE COMMUNICATION BETWEEN THE HUMAN AND THE MACHINE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-672 789 5/9 5/1
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
DESIGN OBJECTIVES OF THE INSTRUCTIONAL MANAGEMENT SYSTEM. (U)
FEB 68 9P SILBERMAN,HARRY F. ;
REPT. NO. SDC-SP-3038/001/00

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE SYMPOSIUM ON A COMPUTER-BASED-INSTRUCTIONAL MANAGEMENT SYSTEM, SPONSORED BY THE AMERICAN EDUCATIONAL RESEARCH ASSOCIATION CONFERENCE AT CHICAGO, ILL., 8 FEB 68.

DESCRIPTORS: (*MANAGEMENT PLANNING, *TEACHING METHODS), INSTRUCTORS, DECISION MAKING, STUDENTS, PERFORMANCE(HUMAN), COMPUTERS, INFORMATION RETRIEVAL, CALIFORNIA, LEARNING (U)
IDENTIFIERS: *IMS(INSTRUCTIONAL MANAGEMENT SYSTEM), *INSTRUCTIONAL MANAGEMENT SYSTEMS, CLASSROOM INFORMATION SYSTEMS, ELEMENTARY SCHOOLS, LOS ANGELES CITY SCHOOL DISTRICT, LEARNING DIFFICULTY (U)

THE INSTRUCTIONAL MANAGEMENT SYSTEM (IMS) IS A COMPUTER-BASED CLASSROOM INFORMATION SYSTEM BEING JOINTLY DEVELOPED BY SYSTEM DEVELOPMENT CORPORATION AND THE SOUTHWEST REGIONAL LABORATORY. IMS, CURRENTLY OPERATING IN TWO CALIFORNIA ELEMENTARY SCHOOLS, GIVES TEACHERS BOTH DIAGNOSTIC AND PRESCRIPTIVE INFORMATION TO AID THEM IN MAKING INSTRUCTIONAL DECISIONS ABOUT THE PACING OF THE CLASS, THE REASSIGNMENT OF STUDENTS TO DIFFERENT ABILITY GROUPS, THE ADMINISTRATION OF SUPPLEMENTARY REMEDIAL MATERIALS, ETC. THIS PAPER DESCRIBES THE DESIGN OBJECTIVES OF IMS, ITS OPERATIONAL FUNCTIONS, AND PRELIMINARY DATA CONCERNING ITS EFFECTIVENESS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHX08

AD-672 922 5/9
HARVARD COMPUTING CENTER CAMBRIDGE MASS
HARVARD UNIVERSITY COMPUTER-AIDED INSTRUCTION (CAI)
LABORATORY. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAR 68 112P STOLUROW,LAWRENCE M. ;
PETERSON,THEODORE I. ;
REPT. NO. TR-6
CONTRACT: N00014-67-A-0298

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, SCIENTIFIC RESEARCH), COMPUTERS, TEACHING METHODS, PROGRAMMING(COMPUTERS), PSYCHOLOGY, INPUT-OUTPUT DEVICES, LABORATORIES (U)
IDENTIFIERS: *COMPUTER AIDED INSTRUCTION, IBM 1400 COMPUTERS, SDS 940 COMPUTERS, S360 COMPUTERS (U)

THE REPORT IS A DETAILED DESCRIPTION OF THE HARVARD CAI LABORATORY, INCLUDING ITS HISTORY, ORGANIZATION, FUNCTIONS, STAFFING, PROGRAMS AND SUPPORT. DISCUSSED ARE MATERIALS RELATING TO CAI IN GENERAL, SUCH AS PSYCHOLOGICAL RESEARCH, MODES OF INSTRUCTION, ADVANTAGES AND IMPLEMENTATION OF CAI. REVIEWED ALSO ARE SPECIFIC PROJECTS OF THIS FACILITY. A COMPLETE ANNOTATION IS PRESENTED OF PROGRAMS DEVELOPED FOR THE IBM 1400 SERIES AND S360 AND THE SDS 940 COMPUTER SYSTEMS. DETAILED IN THESE PROGRAM ABSTRACTS IS SUCH INFORMATION AS SUBJECT MATTER, TARGET POPULATION, LENGTH OF PROGRAM, INSTRUCTIONAL LOGIC, INSTRUCTIONAL LANGUAGE, COMPUTER, INPUT/OUTPUT DEVICES AND AUXILIARY EQUIPMENT. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-673 371 5/9 5/2
AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB OHIO
MAINTENANCE TRAINING MEDIA - AN ANNOTATED BIBLIOGRAPHY. (U)
MAY 68 109P VALVERDE,HORACE H. ;
REPT. NO. AMRL-TR-67-151
PROJ: AF-1710
TASK: 171004

UNCLASSIFIED REPORT

DESCRIPTORS: (*TRAINING DEVICES, BIBLIOGRAPHIES), DEPARTMENT OF DEFENSE, AIR FORCE RESEARCH, CLASSIFICATION, TRAINING FILMS, TEACHING MACHINES, INSTRUCTORS, MAINTENANCE, AIR FORCE PERSONNEL, LEARNING (U)

THE TRAINING ANALYST MUST BE ABLE TO SPECIFY TRAINING MEDIA REQUIREMENTS DURING THE EARLY STAGES OF WEAPON SYSTEMS DEVELOPMENT. ALSO, TRAINING SPECIALISTS FREQUENTLY NEED TO MAKE TRAINING MEDIA SELECTIONS FOR CENTER OR BASE LEVEL COURSES. THIS REPORT PROVIDES SUCH PERSONNEL WITH INFORMATION TO ASSIST THEM IN THE DEVELOPMENT OF TRAINING EQUIPMENT REQUIREMENTS. THE SELECTED ANNOTATED BIBLIOGRAPHY CONTAINS 200 REFERENCES TO GOVERNMENT SPONSORED TRAINING MEDIA RESEARCH AND DEVELOPMENT REPORTS FROM 1950 THROUGH 1966. ALL OF THESE REPORTS ARE AVAILABLE THROUGH THE DEFENSE DOCUMENTATION CENTER (DDC) TO MILITARY AGENCIES AND THEIR REGISTERED CONTRACTORS. EACH REFERENCE BEARS A DDC ACCESSION DOCUMENT (AD) NUMBER. RESEARCH AND DEVELOPMENT REPORTS ON VARIOUS TECHNICAL ASPECTS OF TRAINING MEDIA (EXCEPT OPERATOR TRAINING) WHICH MAY BE GENERALIZABLE TO MAINTENANCE ARE INCLUDED; THEREFORE, THE INFORMATION SHOULD BE USEFUL IN OTHER FIELDS OF TECHNICAL TRAINING. THE REPORT DESCRIBES, CLASSIFIES, AND GRAPHICALLY PRESENTS REPRESENTATIVE TRAINING MEDIA. THE ANNOTATED BIBLIOGRAPHY CONTAINS REFERENCES TO (1) TRAINING MEDIA REQUIREMENTS, (2) TRAINING AIDS, INCLUDING GRAPHICS, MOTION PICTURES, TELEVISION, AND GENERAL TRAINING AIDS, (3) TRAINERS, AND (4) TEACHING MACHINES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OMK08

AD-673 654 5/9
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
A LEARNED MAN AT THE FACULTY (UCHENYI NA KAFEDRE), (U)

AUG 67 13P SPIVAK,S. I
REPT. NO. FTD-HT-67-322

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. FROM IZVESTIYA (USSR) P3, 29 SEP 66, BY L. MAROKUS.

DESCRIPTORS: (*EDUCATION, USSR), PROGRAMMED INSTRUCTION, INSTRUCTORS, SCIENTIFIC RESEARCH, TEACHING METHODS, LEARNING, STANDARDS (U)
IDENTIFIERS: TRANSLATIONS, LECTURES, DEFICIENCIES (U)

THE ARTICLE CALLS ATTENTION TO DEFICIENCIES IN THE EDUCATION PROCESSES AT INSTITUTIONS OF HIGHER LEARNING IN U.S.S.R. CERTAIN COURSES ARE CONSIDERED BEYOND THE SCOPE OF SOME SCHOOLS AND SHOULD BE ELIMINATED. PROFESSORS SHOULD HAVE SUFFICIENT TIME FOR RESEARCH IN ORDER TO PRESENT TIMELY LECTURES. LECTURING SHOULD BE UPGRADED TO COMMAND RESPECT EQUAL TO RESEARCH PROJECTS. TOO MANY SCHOOLS AND TEACHERS MEASURE SUCCESS BY QUANTITY OF THEIR PUBLISHED WORKS. SINCE EDUCATION IS THE GOAL, LECTURING IS JUST AS IMPORTANT AS THE RESEARCH ON THE SUBJECT MATTER FOR THE LECTURE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-673 920 5/9
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
SOME PRINCIPLES OF LEARNING AND LEARNING WITH THE AID OF MACHINES (NEKOTORYE PRINTSIPY OBUCHENIYA I OBUCHENIE S POMOSCHYU MASHIN). (U)
DEC 67 15P DOLYATOVSKII,V. A. ;
SOTNIKOV,E. M. ;
REPT. NO. FTD-HT-23-631-67

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF IZVESTIYA VYSSHIKH UCHEBNYKH ZAVEDENII. ELEKTROMEKHANIKA (USSR) NO P881-890 1965.

DESCRIPTORS: (*TEACHING MACHINES, USSR), EDUCATION, STUDENTS, WIRING DIAGRAMS, ELECTRONIC EQUIPMENT, MATRIX ALGEBRA, INPUT-OUTPUT DEVICES, INFORMATION THEORY, DECISION MAKING, DECISION THEORY (U)
IDENTIFIERS: TRANSLATIONS (U)

THE NUMBER OF STUDENTS AT THE INSTITUTIONS OF HIGHER LEARNING OF THE SOVIET UNION INCREASED IN 1963 BY 1.4 TIMES AS COMPARED WITH THE ENROLLMENT IN 1957. THIS PUTS A GREAT STRESS ON THE TEACHING STAFF AND LEADS TO THE NEED FOR THE RATIONALIZATION OF THE TEACHING PROCESS. AFTER OUTLINING THE BASIC PRINCIPLES OF THE LEARNING PROCESS, THE PRESENT AUTHORS DESCRIBE THE TEACHING PROGRAM FOR THE STUDENTS OF THE INDUSTRIAL ELECTRONICS COURSE (WHICH IS THE FOURTH IN THE AUTOMATION AND TELEMECHANICS CURRICULUM) WHICH THEN SERVED AS THE BASIS FOR THE CONSTRUCTION OF THE APPROPRIATE TABLE MODEL ELECTRONIC TEACHING MACHINE. THE ENTIRE COURSE WAS DIVIDED INTO EIGHT SECTIONS EACH OF WHICH WAS FURTHER SUBDIVIDED INTO THREE SUBSECTIONS OR INFORMATION UNITS. THE ARTICLE DESCRIBES THE PROGRAM AS WELL AS THE DESIGN AND OPERATION OF THE TEACHING MACHINES. THIS SIMPLE TEACHING MACHINE WAS USED WITH SUCCESS IN THE TEACHING PROCESS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-674 055 9/2 5/9
SYRACUSE UNIV N Y
LARGE SCALE INFORMATION PROCESSING SYSTEMS. VOLUME IV. COMPUTERS AND EDUCATION. (U)
DESCRIPTIVE NOTE: FINAL REPT. 26 MAY 66-15 JUL 67, JUL 67 168P LEPAGE,W. R. ;BABICK,A. F. ;FISHELL,K. ;OXHANDLER,E. ;
CONTRACT: AF 30(602)-4283
PROJ: AF-5581
TASK: 558102
MONITOR: RADC TR-67-498-VOL-4

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 5, AD-674 056.

DESCRIPTORS: (*EDUCATION, *COMPUTERS), (*DATA PROCESSING SYSTEMS, EDUCATION), PROGRAMMING(COMPUTERS), STUDENTS, TEACHING METHODS, SPECIFICATIONS, TIME SHARING, PROGRAMMED INSTRUCTION, CYBERNETICS, PROGRAMMING LANGUAGES (U)
IDENTIFIERS: *COMPUTER AIDED INSTRUCTION (U)

THE FIRST SECTION DEALS WITH COMPUTER PROGRAMMING TECHNIQUES FOR APPLICATION TO COMPUTED AIDED-INSTRUCTION AIMED AT EVALUATING AND SERVING THE PROBLEM STUDENT. THE SECOND SECTION SURVEYS THE FIELD AND TREATS A NUMBER OF EDUCATIONAL USES INCLUDING STUDENT SELF APPRAISED EDUCATION MANAGEMENT, LARGE GROUP INSTRUCTION, THE SPECIFICATION AND USE OF COMPUTER-AIDED INSTRUCTION LANGUAGES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-674 517 5/9 9/2
NAVAL ACADEMY ANNAPOLIS MD DEPT OF ENGINEERING
A PRELIMINARY REPORT ON THE USAGE OF TIME-SHARING
REMOTE COMPUTER TERMINALS IN ENGINEERING EDUCATION. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT. DEC 67.
DEC 67 221P MATHIEU,R. D. ;ROGERS,D.
F. ;
REPT. NO. USNA-E-68-2

UNCLASSIFIED REPORT
AVAILABILITY: MICROFICHE ONLY AFTER ORIGINAL COPIES
EXHAUSTED. PORTIONS OF THIS DOCUMENT ARE ILLEGIBLE. SEE
INTRODUCTION SECTION OF THIS ANNOUNCEMENT JOURNAL FOR CFSTI
ORDERING INSTRUCTIONS.

DESCRIPTORS: (*EDUCATION, *DIGITAL COMPUTERS),
(*INPUT-OUTPUT DEVICES, *TIME SHARING),
PROGRAMMING(COMPUTERS), COMPUTER PROGRAMS,
NAVAL TRAINING, ENGINEERING, TEACHING METHODS (U)
IDENTIFIERS: *COMPUTER AIDED INSTRUCTION (U)

THE RESULTS OF THE PRELIMINARY PHASE OF THE USE OF
TIME-SHARING REMOTE COMPUTER TERMINALS IN THE
DEPARTMENT OF ENGINEERING ARE DISCUSSED. THE
PRESENT REPORT COVERS THE PERIOD THROUGH JUNE 1967.
THE VARIOUS TYPES OF COMPUTER PROGRAMS DEVELOPED
ARE BRIEFLY DISCUSSED, AND A NUMBER OF EXAMPLE
PROGRAMS PRESENTED. MORE DETAILED INFORMATION ON
EACH PROGRAM, WITH A LISTING AND TYPICAL RUN ARE
INCLUDED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-674 706 5/9
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
EXPERIMENT IN APPLICATION OF METHODS OF PROGRAMMED INSTRUCTION (OPYT PRIMENENIYA METODOV PROGRAMMIROVANNOGO OBUCHENIYA). (U)
DEC 67 14P FRADKIN,S. L. ;
REPT. NO. FTD-MT-24-363-67

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED MACHINE TRANS. OF SREDNEE SPETSIALNOE OBRAZOVANIE (USSR) N8 P39-44 1966.

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, EFFECTIVENESS), LEARNING, TEACHING MACHINES, TEACHING METHODS, TRAINING DEVICES, STUDENTS, FEEDBACK, USSR (U)
IDENTIFIERS: TRANSLATIONS (U)

AN ANALYSIS IS MADE OF VARIOUS FORMS AND METHODS OF PROGRAMMED LEARNING. THE PRIMARY DEVELOPMENTS IN THE INTRODUCTION OF PROGRAMMED LEARNING METHODS ARE: CREATION OF PROGRAMMED TEACHING AIDS; USE OF EXISTING TEXTBOOKS FOR PROGRAMMED LEARNING; CONDUCTING PROGRAMMED LECTURES WITH FEEDBACK; AND USE OF BOTH TEACHING MACHINES AND MACHINELESS METHODS OF CHECKING KNOWLEDGE. THESE DIRECTIONS ARE DESCRIBED IN SOME DETAIL AND COMPARED. IT IS NOTED THAT THE POTENTIAL OF PROGRAMMED LEARNING FOR SAVING THE STUDENTS' TIME IS OFTEN NOT REALIZED, DUE TO THE FACT THAT THE STUDENTS ARE NOT ACCUSTOMED TO THE INCREASED AMOUNTS OF INDEPENDENT WORK WHICH PROGRAMMED LEARNING REQUIRES. SOME EXAMPLES OF PROGRAMMED METHODS USED IN THE AUTHOR'S SCHOOL ARE PRESENTED. SUBJECTS TAUGHT ARE PRIMARILY TECHNICAL. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-676 123 9/2 5/8
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
PROBLEM SOLVING AND LEARNING BY MAN-MACHINE TEAMS--
PROGRESS AND PLANNED INVESTIGATIONS. (U)
DESCRIPTIVE NOTE: TECHNICAL MEMO.
JUL 67 25P HORMANN,AIKO ;
REPT. NO. SDC-TM-2311/008/00
CONTRACT: NONR-4745(00)
PROJ: NR-348-009

UNCLASSIFIED REPORT

DESCRIPTORS: (*DATA PROCESSING SYSTEMS, *MAN-MACHINE SYSTEMS), ADAPTIVE SYSTEMS, DECISION MAKING, PROBLEM SOLVING, INTERACTIONS, LEARNING MACHINES, LEARNING, TIME SHARING, GAME THEORY, INPUT-OUTPUT DEVICES (U)
IDENTIFIERS: ON-LINE SYSTEMS, AN/FSQ-32, SHIMOKU COMPUTER PROGRAM (U)

THE PRIMARY OBJECTIVE OF THE RESEARCH DESCRIBED HERE IS TO EXPLORE WAYS IN WHICH A MAN AND AN ADAPTIVE MACHINE CAN BE TEAMED FOR DECISION-MAKING/PROBLEM-SOLVING TASKS IN SUCH A WAY AS TO AUGMENT EACH OTHER'S CAPABILITIES AS THEY LEARN. THE FIRST TWO SECTIONS SUMMARIZE THE MAIN TEXT THAT CONTAINS DESCRIPTIONS OF THE PROGRESS TO DATE AND PLANNED INVESTIGATIONS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-676 294 9/2 5/10
CASE-WESTERN RESERVE UNIV CLEVELAND OHIO SYSTEMS RESEARCH CENTER
A MODEL OF CONCEPT LEARNING. (U)
JUN 68 86P SHERMAN,RICHARD H. ;
REPT. NO. SRC-68-8
CONTRACT: AF-AFOSR-125-67, NSF-GK-1386
PROJ: AF-9769
TASK: 976905
MONITOR: AFOSR 68-2084

UNCLASSIFIED REPORT

DESCRIPTORS: (*ARTIFICIAL INTELLIGENCE, *LEARNING MACHINES), INFORMATION RETRIEVAL, INPUT-OUTPUT DEVICES, PROGRAMMING LANGUAGES, FLOW CHARTING, PATTERN RECOGNITION, MODELS(SIMULATIONS), SET THEORY, DIGITAL COMPUTERS, ALGORITHMS, ANALOG SYSTEMS, CYBERNETICS, COMPUTER STORAGE DEVICES (U)
IDENTIFIERS: *CONCEPT LEARNING, EPAM(ELEMENTARY PERCEIVER AND MEMORIZER), ELEMENTARY PERCEIVERS AND MEMORIZERS, CONCEPT EPAM COMPUTER PROGRAM (U)

A LEARNING PROGRAM DESIGNATED CE, CONCEPT-EPAM, IS DESCRIBED THAT MODIFIES EPAM THROUGH THE INTRODUCTION OF A SET MEMBERSHIP RELATION. THE EFFECTS OF THIS EXTENSION ARE CONSIDERED WITH RESPECT TO METHODS OF STORING CONCEPT DESCRIPTIONS IN MEMORY AND METHODS OF SPECIFYING LEARNING AND RETRIEVAL. THE LEARNING STRATEGIES CONSIST OF INTERACTIONS BETWEEN IMAGE ELABORATION AND TREE MODIFICATION. IMPLEMENTATIONS OF CE ARE CONSIDERED FOR A CONCEPT LEARNING TASK AND A PAIR ASSOCIATE TASK. APPLICABILITY OF CE TO A GEOMETRY ANALOGY TASK REQUIRING RELATIONAL CONCEPTS IS DISCUSSED. THE RELATIONSHIP BETWEEN THE LEARNING OF CONCEPTS OF CONCEPTS AND FEATURE EXTRACTION IS ILLUSTRATED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-676 748 9/2 5/4 5/5
MITRE CORP BEDFORD MASS
USER INPUT MODE AND COMPUTER-AIDED INSTRUCTION. (U)
68 10P MORRILL,CHARLES S. ;GOODWIN,
NANCY C. ;SMITH,SIDNEY L. ;
CONTRACT: AF 19(628)-5165
PROJ: AF-5160
MONITOR: ESD TR-68-398

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN HUMAN FACTORS. V10 N3 P225-232 JUN 68.

DESCRIPTORS: (*INPUT-OUTPUT DEVICES, HUMAN ENGINEERING), (*DIGITAL COMPUTERS, TRAINING), MAN-MACHINE SYSTEMS, TYPEWRITERS, DATA STORAGE SYSTEMS, CORRELATION TECHNIQUES, MANAGEMENT CONTROL SYSTEMS (U)
IDENTIFIERS: *COMPUTER AIDED INSTRUCTION, LIGHT PENS, ON-LINE SYSTEMS, AESOP(ADVANCED EVOLUTIONARY SYSTEM FOR ON-LINE PROCESSING), ADVANCED EVOLUTIONARY SYSTEM FOR ON-LINE PROCESSING (U)

AN EVALUATION OF ON-LINE COMPUTER-AIDED INSTRUCTION WITHIN A MANAGEMENT INFORMATION SYSTEM COMPARED TYPEWRITER AND LIGHTPEN INPUT MODES AS STUDENTS LEARNED TO USE THE SYSTEM. THE FOLLOWING CONCLUSIONS WERE SUPPORTED: (1) COMPUTER-AIDED INSTRUCTION IS FEASIBLE IN A GENERAL-PURPOSE MANAGEMENT INFORMATION SYSTEM; (2) IT IS ALSO FEASIBLE TO DEMONSTRATE RETENTION OF LEARNED MATERIAL THROUGH COMPUTER-ADMINISTERED TESTS; (3) PROFESSIONAL TYPING SKILLS ARE NOT NECESSARY TO USE THE TYPEWRITER INPUT MODE EFFECTIVELY, PROVIDED THAT THE INPUTS REQUIRED ARE SHORT AND DIRECT; (4) IN THIS PARTICULAR SETTING THERE SEEMED TO BE EVIDENCE THAT THE TYPEWRITER WAS A MORE EFFECTIVE INPUT DEVICE THAN THE LIGHTPEN DURING THE INSTRUCTIONAL SEQUENCE, BUT THIS EVIDENCE IS QUESTIONABLE IN VIEW OF CONSIDERABLE INDIVIDUAL DIFFERENCES AMONG THE STUDENTS; (5) REGARDLESS OF PERFORMANCE, STUDENTS RESPONDED FAVORABLY TO THEIR EXPERIENCE WITH COMPUTER-AIDED INSTRUCTION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-677 028 5/9 17/2 9/2
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
TRAINING AND DESIGN REQUIREMENTS FOR AN AIR FORCE
COMPUTER-AIDED TRAINING SUBSYSTEM FOR THE WORLD
WIDE MILITARY COMMAND AND CONTROL SYSTEM, (U)
SEP 68 72P BUTLER,A. K. ;COOPER,R.
J. ;COWDERY,R. S. ;CULLEN,J. W. ;PETERSON,
K. E. ;
CONTRACT: F19628-68-C-0323
PROJ: AF-6917
TASK: 691707
MONITOR: ESD TR-68-415

UNCLASSIFIED REPORT

DESCRIPTORS: (*COMMAND + CONTROL SYSTEMS,
*PROGRAMMED INSTRUCTION), AIR FORCE PERSONNEL,
PROGRAMMING(COMPUTERS), AIR FORCE TRAINING,
FEASIBILITY STUDIES, INPUT-OUTPUT DEVICES, DIGITAL
COMPUTERS (U)
IDENTIFIERS: COMPUTER AIDED INSTRUCTION, AN/FYQ-
45, WORLD WIDE MILITARY COMMAND AND CONTROL SYSTEM,
COMPUTER GRAPHICS, ON-LINE SYSTEMS, COBOL,
JOVIAL PROGRAMMING LANGUAGE, BURROUGHS 3500
COMPUTERS (U)

THIS DOCUMENT PRESENTS THE FINDINGS OF A RESEARCH
STUDY ON A COMPUTER-AIDED TRAINING SUBSYSTEM FOR
USAF COMMAND AND CONTROL PERSONNEL. IN THIS
STUDY, TWO MAJOR TASKS WERE PERFORMED, THE FIRST
WAS THE IDENTIFICATION OF CRITICAL PERSONNEL
FUNCTIONS IN CURRENT AND PROJECTED COMMAND AND
CONTROL SYSTEMS AND THE APPLICABILITY OF ADVANCED
TRAINING STRATEGIES AND METHODS FOR ON-THE-JOB
TRAINING. THE SECOND WAS TO DETERMINE THE
FEASIBILITY OF APPLYING THESE STRATEGIES AND METHODS
THROUGH A COMPUTER-DIRECTED TRAINING SUBSYSTEM WITHIN
THE ELECTRONIC SYSTEMS DIVISION (ESD)
COMMAND AND CONTROL SUPPORT FACILITY. THE
COMPUTER-DIRECTED TRAINING SUBSYSTEM (CDTS)
SERVED AS THE BASIC SYSTEM. INFORMATION WAS
DEVELOPED TO DETERMINE THE ADDITIONAL FEATURES AND
MODIFICATIONS THAT WOULD ENABLE CDTS TO OPERATE
WITHIN THE ESD ENVIRONMENT AND MAKE USE OF THE
COMMUNICATIVE CAPABILITIES OF THE AN/FYQ-45
GRAPHICS CONSOLE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-677 204 5/9 5/10
SHUFORD-MASSENGILL CORP LEXINGTON MASS
THE WORTH OF INDIVIDUALIZING INSTRUCTION. (U)
DESCRIPTIVE NOTE: SEMIANNUAL TECHNICAL REPT. NO. 1, MAY-OCT 66.
NOV 66 34P SHUFORD,EMIR H. , JR.;
MASSENGILL,H. EDWARD ;
REPT. NO. SM-R-6
CONTRACT: AF 49(638)-1744, ARPA ORDER-833
MONITOR: AFOSR 68-2156

UNCLASSIFIED REPORT

DESCRIPTORS: (*TEACHING METHODS, COST EFFECTIVENESS), PSYCHOMETRICS, EDUCATION, PROGRAMMED INSTRUCTION, RELIABILITY, STATISTICAL DISTRIBUTIONS, PROBABILITY, PREDICTIONS, MATHEMATICAL ANALYSIS (U)

IN THE WORTH OF INDIVIDUALIZING INSTRUCTION, EQUATIONS ARE DEVELOPED FOR EXPRESSING THE COST AND GAIN FOR APPLYING AN INSTRUCTIONAL SEQUENCE. THE EXPECTED RETURN FROM ASSIGNING INSTRUCTION ON THE BASIS OF (1) ADMISSIBLE PROBABILITY MEASUREMENT, (2) ADMISSIBLE CHOICE TESTING, (3) CONVENTIONAL CHOICE TESTING, (4) PRIOR INFORMATION ONLY, AND (5) MATCHING THE AVERAGE STUDENT IS COMPUTED FOR EACH OF SEVEN DISTRIBUTIONS OF STATE OF KNOWLEDGE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-677 479 5/9
TECHNOMICS INC SANTA MONICA CALIF
REQUIREMENT SPECIFICATIONS FOR A DESIGN AND
VERIFICATION UNIT. (U)
DESCRIPTIVE NOTE: FINAL REPT. 15 MAY-15 OCT 68,
OCT 68 247P PELTON,WARREN G. ;WOLIN,
BURTON R. ;MACMILLAN,MALCOLM C. ;AINSWORTH,
T. DAVID ;
REPT. NO. T-110-68
CONTRACT: N00014-68-C-0470

UNCLASSIFIED REPORT

DESCRIPTORS: (*MEDICAL PERSONNEL, *TRAINING),
(*PROGRAMMED INSTRUCTION, COMPUTERS), NAVAL
PERSONNEL, MILITARY REQUIREMENTS, SPECIFICATIONS,
DESIGN, EDUCATION, DENTAL PERSONNEL, NURSES,
MEDICAL TECHNICIANS, COSTS (U)
IDENTIFIERS: COMPUTER AIDED INSTRUCTION (U)

A RESEARCH AND DEVELOPMENT ACTIVITY TO INTRODUCE
NEW AND IMPROVED EDUCATION AND TRAINING TECHNOLOGY
INTO BUREAU OF MEDICINE AND SURGERY TRAINING IS
RECOMMENDED. THE ACTIVITY, CALLED A DESIGN AND
VERIFICATION UNIT, WOULD BE ADMINISTERED BY THE
EDUCATION AND TRAINING SCIENCES DEPARTMENT.
INITIAL RESEARCH AND DEVELOPMENT ARE CENTERED ON
THE APPLICATION OF MULTIMEDIA INSTRUCTIONAL
PACKAGES: SELF-CONTAINED LEARNING MATERIALS AND
THEIR ASSOCIATED DEVICES, DESIGNED USING PROGRAMMED
LEARNING PRINCIPLES. A SECOND STAGE OF ACTIVITIES
FOR THE UNIT INTRODUCES RESEARCH AND DEVELOPMENT IN
THE USE OF COMPUTERS FOR COMPUTER-MANAGED TRAINING
AND COMPUTER-ASSISTED LEARNING. SUGGESTED
SCHEDULES, ACTIVITIES, AND MILESTONES ARE PRESENTED.
(AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-678 578 12/1 9/2
APPLIED LOGIC CORP PRINCETON N J
CRT-AIDED SEMI-AUTOMATED MATHEMATICS. (U)
DESCRIPTIVE NOTE: FINAL REPT. 1 OCT 66-31 MAY 68,
JUL 68 41P BENNETT,JAMES H. ;GUARD,
JAMES R. ;HAYDOCK,ROGER ;OGLESBY,FRANCIS C. ;
SETTLE,WILLIAM L. ;
CONTRACT: F19628-67-C-0100. ARPA ORDER-700

UNCLASSIFIED REPORT

DESCRIPTORS: (*MATHEMATICAL LOGIC,
*PROGRAMMING(COMPUTERS)), CATHODE RAY TUBE
SCREENS, DIGITAL COMPUTERS, AUTOMATION, COMPUTER
LOGIC, LOGIC CIRCUITS (U)
IDENTIFIERS: SEMI-AUTOMATED MATHEMATICS, SAM 6
COMPUTER PROGRAM (U)

THE REPORT DESCRIBES THE STATUS OF THE SIXTH IN A SERIES OF SIX EXPERIMENTS IN SEMI-AUTOMATED MATHEMATICS. THIS EFFORT EXTENDED FROM 1 OCTOBER 1966 THROUGH 31 MAY 1968. THESE EXPERIMENTS CULMINATED IN LARGE COMPLEX COMPUTER PROGRAMS WHICH ALLOW A MATHEMATICIAN TO PROVE MATHEMATICAL THEOREMS ON A MAN-MACHINE BASIS. SAM VI, THE SIXTH PROGRAM, USES A CATHODE RAY TUBE AS THE PRINCIPAL INTERFACE BETWEEN THE MATHEMATICIAN AND A HIGH SPEED DIGITAL COMPUTER. AN ELABORATE LANGUAGE AND LOGICAL CAPABILITY HAS BEEN IMPLEMENTED IN SAM VI. THESE INCLUDE I/O LANGUAGES FOR EXPRESSING MATHEMATICAL STATEMENTS IN A FORM SUITABLE FOR BOTH THE MATHEMATICIAN AND THE MACHINE TO RECOGNIZE AND HANDLE WITH EASE AND CONVENIENCE. A LANGUAGE FOR EXPRESSING AND HANDLING SORTS AND RANGE OF SYMBOLS, AND AUTO-LOGIC ALGORITHM AND MATCHING ROUTINE. THE LATTER CONSTITUTE THE CAPABILITY FOR HANDLING, AUTOMATICALLY, LOGIC WITH EQUALITY. THIS CAPABILITY IS PARTICULARLY USEFUL AT AN INTERMEDIATE STATE OF THE PROOF WHEN IT IS DESIRED TO HAVE THE MACHINE TRY TO VERIFY AUTOMATICALLY A GIVEN PORTION OF THE PROOF. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-678 740 5/9 9/2
HARVARD COMPUTING CENTER CAMBRIDGE MASS
SOME FACTORS IN THE DESIGN OF SYSTEMS FOR COMPUTER-ASSISTED INSTRUCTION. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAY 68 49P STOLUROW,LAWRENCE M. ;
REPT. NO. TR-7
CONTRACT: N00014-67-A-0298

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT NATO CONFERENCE ON MAJOR TRENDS IN PROGRAMMED LEARNING RESEARCH, NICE, (FRANCE), 13-17 MAY 68.

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, DESIGN), DIGITAL COMPUTERS, STUDENTS, DECISION MAKING, FACTOR ANALYSIS, MODEL THEORY, PROGRAMMING(COMPUTERS) (U)
IDENTIFIERS: COMPUTER AIDED INSTRUCTION (U)

THE DIGITAL COMPUTER IS A SIGNIFICANT TOOL FOR EXPLICATING AND GUIDING THE INSTRUCTIONAL PROCESS. TODAY IT IS MOST USEFUL TO DEVELOP FORMALIZED AND TESTABLE CONCEPTIONS OF INSTRUCTION, BUT IN PRACTICE IT IS BEING USED MORE TO IMPLEMENT INSTRUCTION. THE POTENTIAL CONTRIBUTION OF A CAI SYSTEM AS A CATALYST IN THE PROCESS OF FORMALIZING INSTRUCTION AND IN TESTING THE VALIDITY OF CONCEPTIONS OF INSTRUCTION HAS BEEN UNDERESTIMATED. AN ARGUMENT IS MADE FOR THE DEVELOPMENT AND TESTING OF TEACHING MODELS THAT ARE PRESCRIPTIVE AS WELL AS DESCRIPTIVE. THE MOST USEFUL FORM OF DESCRIPTION TO BE USED FOR THE RULES OF INSTRUCTION IS THE CONTINGENCY STATEMENT. SETS OF RULES ARE COMBINED TO DEFINE TEACHING STRATEGIES. AN URGENT RESEARCH PROBLEM IS THE IDENTIFICATION OF USEFUL VARIABLES TO INCLUDE IN BOTH THE 'IF' AND 'THEN' STATEMENTS OF TEACHING RULES. BASED UPON PREVIOUS RESEARCH, THE IDIOGRAPHIC MODEL USES VARIABLES RELATING TO STUDENT CHARACTERISTICS AS ONE COMPONENT OF USEFUL 'IF' STATEMENTS. ANOTHER COMPONENT COMES FROM THE LEARNING TASK. FIVE MODES OF INSTRUCTION ARE DESCRIBED FOR THE 'THEN' STATEMENT. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-678 741 5/9 9/2
HARVARD COMPUTING CENTER CAMBRIDGE MASS
THE USE OF COMPUTERS IN HIGH SCHOOLS. (U)
AUG 68 172P CRICK, JOE E. ISTOLUROW,
LAWRENCE M. I
REPT. NO. TR-8
CONTRACT: N00014-67-A-0298

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROBLEM SOLVING, COMPUTERS), (*PROGRAMMING(COMPUTERS), *EDUCATION), TEACHING METHODS, STUDENTS, PROGRAMMING LANGUAGES, LEARNING, TIME SHARING, MATHEMATICS (U)
IDENTIFIERS: COMPUTER ANALYSIS, CAL PROGRAMMING LANGUAGE, COMPUTER AIDED INSTRUCTION, HIGH SCHOOLS (U)

THE PAPER REPORTS ON ONE HIGH SCHOOL'S EXPERIENCE WITH A PROJECT TO TEACH STUDENTS HOW TO PROGRAM AND SOLVE PROBLEMS IN MATHEMATICS USING A COMPUTER. PART I IS INTENDED AS A GENERAL GUIDE FOR ANY HIGH SCHOOL ADMINISTRATOR OR MATHEMATICS INSTRUCTOR WHO IS INTERESTED IN EXPLORING THE INSTALLATION OF A COMPUTER TERMINAL IN HIS HIGH SCHOOL AND WANTS SOME IDEA OF THE CONSIDERATIONS INVOLVED AND THE CONSEQUENCES TO EXPECT. PART II SUMMARIZES ONE STUDY TO DETERMINE THE RESULTS OF THAT PROJECT. AN EXTENSIVE APPENDIX INCLUDES COMPUTER PRINTOUT FOR A NUMBER OF PROGRAMS WRITTEN BY THE STUDENTS, A DATA PROCESSING PROGRAM TO RECORD AND TABULATE STUDENT OFF-LINE AND ON-LINE TIME, STATISTICAL CHARTS AND OTHER MATERIALS PERTAINING TO THE EVALUATION STUDY, AND COPIES OF MATERIALS GIVEN TO THE STUDENTS DURING THE COURSE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OMK08

AD-681 079 5/9 9/2
ENTELEK INC NEWBURYPORT MASS
COMPUTER-ASSISTED INSTRUCTION: A SURVEY OF THE LITERATURE. THIRD EDITION. (U)
DESCRIPTIVE NOTE: ANNUAL TECHNICAL REPT.,
OCT 68 152P HICKEY,ALBERT E. ;
REPT. NO. TR-8
CONTRACT: N00014-68-C-0236

UNCLASSIFIED REPORT
AVAILABILITY: PAPER COPY AVAILABLE FROM ENTELEK, INC., 42 PLEASANT ST., NEWBURYPORT, MASS. 01950, $8.00.
SUPPLEMENTARY NOTE: SEE ALSO SECOND EDITION DATED JAN 67, AD-649 335.

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, *COMPUTERS), PROGRAMMING LANGUAGES, INPUT-OUTPUT DEVICES, TIME SHARING, EDUCATION, TRAINING DEVICES, SYSTEMS ENGINEERING, LEARNING, INFORMATION RETRIEVAL, BIBLIOGRAPHIES, REVIEWS (U)
IDENTIFIERS: *COMPUTER AIDED INSTRUCTION (U)

A SURVEY AND SYNTHESIS OF LITERATURE PERTAINING TO COMPUTER-ASSISTED INSTRUCTION AND PUBLISHED PRIOR TO JULY 1968 ARE GIVEN. PRINCIPAL HEADINGS INCLUDE AN OVERVIEW OF CAI, APPLICATIONS OF CAI, MAJOR CAI CENTERS, SYSTEMS, PROGRAMMING LANGUAGES, THEORY OF INSTRUCTION, STIMULUS AND PERFORMANCE FACTORS, PROGRAM GENERATION AND EVALUATION, AND ADMINISTRATION OF CAI. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-681 342 9/2
MASSACHUSETTS INST OF TECH CAMBRIDGE
PROJECT MAC: PROGRESS REPORT IV, JULY 1966-
JULY 1967. (U)
JUL 67 281P
CONTRACT: NONR-4102(01)
PROJ: NR-048-189, RR-003-09-01

UNCLASSIFIED REPORT

DESCRIPTORS: (*DATA PROCESSING SYSTEMS, REPORTS), ARTIFICIAL INTELLIGENCE, BIOLOGY, CIVIL ENGINEERING, COMPILERS, MULTIPLEX, DATA STORAGE SYSTEMS, DISPLAY SYSTEMS, SIMULATION, PATTERN RECOGNITION, MAN-MACHINE SYSTEMS, PROGRAMMING LANGUAGES, TIME SHARING, NUMERICAL ANALYSIS, STATISTICAL ANALYSIS, MULTIPLE OPERATION, REAL TIME, SCHEDULING (U)
IDENTIFIERS: *MAC PROJECT, ON LINE SYSTEMS, COMPUTER AIDED DESIGN, COMPUTERIZED SIMULATION (U)

THE BROAD GOAL OF PROJECT MAC IS EXPERIMENTAL INVESTIGATION OF NEW WAYS IN WHICH ON-LINE USE OF COMPUTERS CAN AID PEOPLE IN THEIR INDIVIDUAL WORK, WHETHER RESEARCH, ENGINEERING DESIGN, MANAGEMENT, OR EDUCATION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-681 530 5/9 5/7
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
LINGUISTIC AND TUTORIAL MODELING FOR NATURAL
LANGUAGE CAI. (U)
DEC 68 16P BENNIK,F. D. ;SCHWARCZ,R.
M. ;SILBERMAN,H. F. ;
REPT. NO. SDC-SP-3266
CONTRACT: F33615-68-C-1473

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMED INSTRUCTION,
*LINGUISTICS), ENGLISH LANGUAGE, TEACHING
METHODS, COMPUTERS, STUDENTS, DESIGN, SYNTAX,
SEMANTICS (U)
IDENTIFIERS: *COMPUTER AIDED INSTRUCTION, NATURAL
LANGUAGE (U)

THE PAPER DESCRIBES RESEARCH THAT HAS AS ITS GOAL
THE DEVELOPMENT OF A COMPUTER-BASED TUTORIAL SYSTEM
THAT CAN RECOGNIZE AND GENERATE NATURAL ENGLISH
DISCOURSE, WHILE PROVIDING CAI LESSON AUTHORS WITH
A MEANINGFUL MEANS OF LESSON PREPARATION. THE
PRIMARY LINE OF RESEARCH CONCENTRATES ON NATURAL
LANGUAGE DATA PROCESSING AND CONCEPTUAL MODELING
DESIGNED TO SUPPORT A CAI SYSTEM. THIS HAS
RESULTED IN COMPUTER PROGRAMS THAT PERFORM FUNCTIONAL
OPERATIONS OF SYNTACTIC AND SEMANTIC ANALYSIS,
INFERRING ANSWERS TO QUESTIONS, GENERATION OF
COHERENT DISCOURSE, AND RECOGNITION AND GENERATION OF
PARAPHRASE. A SECOND LINE OF RESEARCH WAS
INITIATED TO FIND DECISION RULES FOR GENERATING AND
SEQUENCING REMEDIAL QUESTIONS AND STATEMENTS, FROM
A STUDY OF VERBAL DATA OBTAINED FROM THE RECORDED
MESSAGES OF TUTORS, AS THEY MONITOR AND AUGMENT THE
INTERACTION BETWEEN STUDENTS AND A COMPUTER-
ADMINISTERED LESSON. A SET OF EFFECTIVE DECISION
RULES IS SOUGHT THAT CAN INVOKE COMPUTER GENERATION
OF REMEDIAL FEEDBACK FROM A SUBJECT MATTER DATA BASE.
(AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-681 531 5/9 5/7
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
A DEDUCTIVE QUESTION ANSWERER FOR NATURAL-LANGUAGE INFERENCE, (U)
NOV 68 53p SCHWARCZ,ROBERT M. ;BURGER, JOHN F. ;SIMMONS,ROBERT F. ;
REPT. NO. SDC-SP-3272
CONTRACT: F33615-67-C-1986

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, *LINGUISTICS), ENGLISH LANGUAGE, COMPUTERS, SEMANTICS, PROGRAMMING LANGUAGES, TIME SHARING, DATA PROCESSING SYSTEMS, ALGORITHMS (U)
IDENTIFIERS: *COMPUTER AIDED INSTRUCTION, NATURAL LANGUAGE, PROTOSYNTHEX 3 LANGUAGE PROCESSING SYSTEM, LISP PROGRAMMING LANGUAGE (U)

THE PAPER DESCRIBES AND EXEMPLIFIES IN DETAIL THE QUESTION-ANSWERING ASPECTS OF THE PROTOSYNTHEX III PROTOTYPE LANGUAGE PROCESSING SYSTEM, WHICH IS WRITTEN IN LISP 1.5 AND OPERATES ON THE Q-32 TIME-SHARING SYSTEM. THE SYSTEM'S DATA STRUCTURES AND THEIR SEMANTIC ORGANIZATION, THE DEDUCTIVE QUESTION-ANSWERING FORMALISM OF RELATIONAL PROPERTIES AND COMPLEX-RELATION-FORMING OPERATORS, AND THE QUESTION-ANSWERING PROCEDURES WHICH EMPLOY THESE FEATURES IN THEIR OPERATION ARE ALL DESCRIBED AND ILLUSTRATED. EXAMPLES OF THE SYSTEM'S PERFORMANCE AND OF THE LIMITATIONS OF ITS QUESTION-ANSWERING CAPABILITY ARE PRESENTED AND DISCUSSED. IT IS SHOWN THAT THE USE OF SEMANTIC INFORMATION IN DEDUCTIVE QUESTION ANSWERING GREATLY FACILITATES THE PROCESS, AND THAT A TOP-DOWN PROCEDURE WHICH WORKS FROM QUESTION TO ANSWER ENABLES EFFECTIVE USE TO BE MADE OF THIS INFORMATION. IT IS CONCLUDED THAT THE DEVELOPMENT OF PROTOSYNTHEX III INTO A PRACTICALLY USEFUL SYSTEM TO WORK WITH LARGE DATA BASES IS POSSIBLE BUT WILL REQUIRE CHANGES IN BOTH THE DATA STRUCTURES AND THE ALGORITHMS USED FOR QUESTION ANSWERING. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-681 674 6/4
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
PROBLEM OF TEACHING MACHINES TO IDENTIFY EXTERNAL SITUATIONS. (U)
MAR 68 14P ZYZERMAN,M. A. ;BRAVERMAN, E. M. ;ROZONOER,L. I. ;
REPT. NO. FTD-MT-24-17-68

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED MACHINE TRANS. OF MONO. SAMOOBUCHAYUSHCHIESYA AVTOMATICHESKIE SISTEMY (SELF-INSTRUCTING AUTOMATIC SYSTEMS) MOSCOW, 1966 P3-8.

DESCRIPTORS: (*ARTIFICIAL INTELLIGENCE, *PATTERN RECOGNITION), LEARNING MACHINES, AUTOMATA, PROBABILITY, POTENTIAL THEORY, USSR (U)
IDENTIFIERS: TRANSLATIONS (U)

A METHOD FOR MACHINE RECOGNITION OF EXTERNAL STIMULAE, BASED ON SO-CALLED POTENTIAL FUNCTIONS, IS PROPOSED IN THE PAPER DEALING WITH ARTIFICIAL INTELLIGENCE. INDIVIDUALS CAN RECOGNIZE EVENTS AND PATTERNS, AND TEACH OTHERS TO DO SO, FREQUENTLY WITHOUT BEING ABLE TO EXPLAIN HOW THE PROCESS OF RECOGNITION COMES ABOUT. FOR INSTANCE, AN ILLITERATE PERSON CAN BE SHOWN LETTERS 'A' AND 'B' AND TAUGHT TO RECOGNIZE THESE LETTERS IRRESPECTIVE OF THEIR SHAPE. THIS PROCESS OF INFORMATION TRANSFER IS THEREFORE BASED NOT ON EXPLANATION, BUT ON DEMONSTRATION. THIS TECHNIQUE CAN BE APPLIED TO LEARNING, PATTERN-RECOGNITION MACHINES, DESIGNED TO RESPOND TO AUDIO OR VISUAL COMMANDS. THE PROBLEM OF TEACHING THE AUTOMATON TO CLASSIFY CORRECTLY A GIVEN INPUT CAN BE DEFINED EITHER IN THE DETERMINISTIC OR IN THE PROBABILISTIC DOMAIN. THE REPORT DESCRIBES THE APPLICATION OF POTENTIAL FUNCTIONS TO THE PROBABILISTIC DOMAIN, AND IN CONJUNCTION POSTULATES A THIRD THEOREM. IT IS CONCLUDED THAT IT IS IN PRINCIPLE POSSIBLE TO APPLY THE DEMONSTRATION TECHNIQUE TO TRAINING OF AUTOMATA AND THAT A RIGOROUSLY SCIENTIFIC, RATHER THAN AN EMPIRICAL, APPROACH TO THE SOLUTION OF THIS PROBLEM IS POSSIBLE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-684 492 5/10 9/2
UNIVERSITY OF SOUTHERN CALIFORNIA LOS ANGELES ELECTRONICS PERSONNEL RESEARCH GROUP
TASKTEACH: A METHOD FOR COMPUTER-ASSISTED LEARNING OF SERIAL-ACTION TASKS. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
FEB 69 47P RIGNEY,JOSEPH W. ;TOWNE, DOUGLAS M. ;BOND,NICHOLAS A. , JR;
REPT. NO. TR-62
CONTRACT: NONR-228(22)
PROJ: NR-153-093

UNCLASSIFIED REPORT

DESCRIPTORS: (*COMPUTER PROGRAMS, *LEARNING), PERFORMANCE(HUMAN), MAN-MACHINE SYSTEMS, ADAPTIVE SYSTEMS, AUTOMATIC, FEEDBACK, TEACHING MACHINES, TIME SHARING, ELECTRONIC EQUIPMENT, MAINTENANCE (U)
IDENTIFIERS: TASKTEACH METHOD, SERIAL ACTION TASKS, LISP(LIST PROCESSING), LISP PROGRAMMING LANGUAGE (U)

THE REPORT DESCRIBES A METHOD, TASKTEACH, FOR TEACHING THE PERFORMANCE OF SERIAL-ACTION TASKS, USING A COMPUTER TIME-SHARING SYSTEM AND APPROPRIATE STUDENT TERMINALS. THE METHOD ALLOWS THE STUDENT TO BE SELF-ADAPTIVE IN THE LEARNING SITUATION BY TAILOR-MAKING THE KINDS AND DEGREES OF SUPPORT HE NEEDS AND BY DETERMINING WHEN HE IS READY TO DISPENSE WITH THIS SUPPORT AND BE TESTED. THIS IS EXPECTED TO ENCOURAGE THE USE OF SELF-ORGANIZING ABILITIES, TO FACILITATE THE LEARNING OF MEDIATING SKILLS, AND TO MOTIVATE THE STUDENT TO LEARN. THE PROCEDURES FOR IMPLEMENTING THE METHOD AND THE FEATURES WHICH CONTRIBUTE TO ITS GENERAL USEFULNESS IN TEACHING THE PERFORMANCE OF SERIAL-ACTION TASKS ARE DESCRIBED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-684 831 5/9 9/2
BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS
COMPUTER SYSTEMS FOR TEACHING COMPLEX
CONCEPTS. (U)
DESCRIPTIVE NOTE: FINAL REPT, 1 OCT 63-30 SEP 68,
MAR 69 186P FEURZEIG,WALLACE ;
REPT. NO. BBN-1742
CONTRACT: NONR-4340(00)

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMED INSTRUCTION,
PROGRAMMING(COMPUTERS)), PROBLEM SOLVING,
MATHEMATICS, PHYSICS, MEDICINE (U)
IDENTIFIERS: *COMPUTER AIDED INSTRUCTION (U)

THIS RESEARCH CONCERNS VARIOUS WAYS OF USING COMPUTERS FOR TEACHING PROBLEM-SOLVING CONCEPTS AND SKILLS. NEW LINES OF APPROACH TO PROGRAMMED TEACHING, PROGRAMMING, AND INSTRUCTIONAL MONITORING WERE INVESTIGATED IN VARIOUS INSTRUCTIONAL CONTEXTS INCLUDING MATHEMATICS, PHYSICS, AND MEDICINE. FOUR PROGRAMMING SYSTEMS--MENTOR, STRINGCOMP, SIMON, AND LOGO--WERE DESIGNED AND USED AS AN INTEGRAL PART OF THESE INVESTIGATIONS. THE SYSTEMS ARE DESCRIBED AND THEIR CAPABILITIES DEMONSTRATED IN INSTRUCTIONAL APPLICATIONS OF SEVERAL KINDS. THE WORK SUGGESTS SOME NEW WAYS IN WHICH COMPUTERS MIGHT MAKE VALUABLE CONTRIBUTIONS TO EDUCATION. (1) THE TEACHING OF APPROPRIATE PROGRAMMING LANGUAGES CAN PROVIDE A CONCEPTUAL AND OPERATIONAL FRAMEWORK FOR THE TEACHING OF MATHEMATICS. (2) UTILIZING DIAGNOSTIC CUES, INSTRUCTIONAL MONITORS CAN ENHANCE THE TEACHING OF PRACTICAL SUBJECTS (NAVIGATION, LANGUAGES, MUSIC) WHOSE MASTERY REQUIRES THE INTEGRATION OF MECHANICAL AND INTELLECTUAL SKILLS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-685 498 5/9
GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES RESEARCH OFFICE
INNOVATIONS FOR TRAINING. (U)
DESCRIPTIVE NOTE: PROFESSIONAL PAPERS,
FEB 69 46P MCFANN,HOWARD H. ;SEIDEL, ROBERT J. ;WILLARD,NORMAN , JR.;CRAWFORD, MEREDITH P. ;
REPT. NO. HUMRRO PROFESSIONAL PAPER-6-69
CONTRACT: DA-44-188-ARO-2
PROJ: DA-2-J-062107-A-712

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT U. S. CONTINENTAL ARMY COMMAND TRAINING INNOVATIONS CONFERENCE, FT. BENNING, GA. 17-18 SEP 68.

DESCRIPTORS: (*ARMY TRAINING, *MANAGEMENT PLANNING), REPORTS, TEACHING METHODS, APTITUDE TESTS, CLASSIFICATION, PROGRAMMING(COMPUTERS), MOTIVATION, PERFORMANCE(HUMAN), ADVANCED PLANNING, PROGRAMMED INSTRUCTION (U)
IDENTIFIERS: TRAINING INNOVATIONS, COMPUTER AIDED INSTRUCTION (U)

RESEARCH IN THE AREAS OF ARMY TRAINING PROGRAMS AND IN THE ARMY TRAINING SYSTEM IS REPORTED IN THIS COLLECTION OF FOUR PAPERS: 'INDIVIDUALIZATION OF ARMY TRAINING,' 'DISCUSSION OF A UNIQUE APPROACH TO CAI: PROJECT IMPACT,' 'STUDENT MOTIVATION,' AND 'TRAINING IN THE 70S AND 80S. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-686 422 5/9
AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB OHIO
EFFECT OF CONFIRMATION PEEKING AND RESPONSE MODE ON PROGRAMMED INSTRUCTION. (U)
DESCRIPTIVE NOTE: FINAL REPT. APR 65-JAN 66, DEC 68 33P VALVERDE,HORACE H. ;
REPT. NO. AMRL-TR-67-225
PROJ: AF-1710
TASK: 171003

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, REACTION(PSYCHOLOGY)), AIR FORCE TRAINING, LEARNING, AIR FORCE PERSONNEL, EFFECTIVENESS, TIME, PILOTS, RADAR, SYMPOSIA (U)

AN EXPERIMENT WAS CONDUCTED TO DETERMINE THE EFFECT OF PEEKING ON PROGRAMMED INSTRUCTION. THE STUDY TESTED THE FOLLOWING HYPOTHESES: (1) THE REQUIREMENT FOR OVERT RESPONSES DOES NOT INCREASE LEARNING IN PROGRAMMED INSTRUCTION, (2) DEVICES OR FORMATS TO PRECLUDE CONFIRMATION PEEKING DO NOT INCREASE THE EFFECTIVENESS OF PROGRAMMED INSTRUCTION, AND (3) TIME CAN BE SAVED BY ELIMINATING THE REQUIREMENT FOR OVERT RESPONSES. TWO GROUPS OF 39 SUBJECTS EACH WERE USED. THE SUBJECTS WERE COMMISSIONED OFFICER AIR FORCE PILOT TRAINEES AND AIR FORCE RESERVE OFFICER TRAINING CORPS (AFROTC), JUNIOR AND SENIOR COLLEGE STUDENTS MATCHED ON THE BASIS OF SCORES OBTAINED ON THE OFFICER QUALITY COMPOSITE OF THE AIR FORCE OFFICER QUALIFYING TEST (AFOQT). THE STIMULUS MATERIAL WAS A RADAR ORIENTATION PROGRAMMED TEXT. RESULTS OF THE STUDY WERE: (1) PEEKING DID NOT REDUCE THE EFFECTIVENESS OF PROGRAMMED INSTRUCTION; (2) STUDENTS WHO RESPONDED COVERTLY LEARNED AS EFFICIENTLY AS STUDENTS WHO RESPONDED OVERTLY; AND (3) COVERT RESPONDING DID NOT SAVE INSTRUCTIONAL TIME. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-686 598 9/4 9/2 6/4
TEXAS UNIV AUSTIN ELECTRONICS RESEARCH CENTER
ADAPTIVE DECOMPOSITION OF MIXTURES: A UNIFYING
APPROACH. (U)
68 5P LAINIOTIS,D. G. ;
CONTRACT: AF-AFOSR-766-67
PROJ: AF-4751
MONITOR: AFOSR 69-1051TR

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN PROCEEDINGS OF THE NATIONAL
ELECTRONICS CONFERENCE, V24 P104-106 1968.

DESCRIPTORS: (*INFORMATION THEORY, PATTERN
RECOGNITION), (*LEARNING MACHINES, PATTERN
RECOGNITION), (*PATTERN RECOGNITION,
CLASSIFICATION), ADAPTIVE SYSTEMS, LEARNING,
PROBABILITY, ALGORITHMS, THEOREMS (U)
IDENTIFIERS: PATTERN CLASSIFIERS, BAYES OPTIMAL
LEARNING (U)

A UNIFYING FORMULATION OF BAYES-OPTIMAL LEARNING,
FOR MINIMUM CONDITIONAL-RISK ADAPTIVE PATTERN
CLASSIFICATION HAS BEEN PROPOSED THAT RESULTS IN A
NEW CLASS OF FIXED-SIZE, FIXED-MEMORY STRUCTURALLY
INVARIANT LEARNING MACHINES FOR THE DECOMPOSITION
(LEARNING) OF MIXTURE PROBABILITY SPACES WITHOUT
NECESSARY QUANTIZATION OF THE UNKNOWN PARAMETER SPACE
AND OBSERVATION SPACE; THE LATTER REQUIRED IN
PREVIOUS INVESTIGATIONS OF THE NONPARAMETRIC LEARNING
PROBLEM. THE APPROACH IS GENERAL AND APPLIES TO
ALL MODES OF LEARNING E.G. UNSUPERVISED OR SUPERVISED
LEARNING AND/OR NONPARAMETRIC OR PARAMETRIC LEARNING
PROBLEMS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OMK08

AD-687 746 9/2 5/7
BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS
THE TEACHABLE LANGUAGE COMPREHENDER: A SIMULATION PROGRAM AND THEORY OF LANGUAGE. (U)
JAN 69 69P QUILLIAN,M. ROSS ;
REPT. NO. SCIENTIFIC-10, BBN-1693
CONTRACT: F19628-68-C-0125, F33615-67-C-1982
PROJ: ARPA ORDER-627, AF-8668
MONITOR: AFCRL 69-0108

UNCLASSIFIED REPORT

DESCRIPTORS: (*LEARNING MACHINES, *ENGLISH LANGUAGE), COMPUTATIONAL LINGUISTICS, COMPUTER STORAGE DEVICES, SIMULATION, THEORY, SEMANTICS, PROGRAMMING(COMPUTERS) (U)
IDENTIFIERS: TEACHABLE LANGUAGE COMPREHENDER COMPUTER PROGRAM, NATURAL LANGUAGE (U)

THE TEACHABLE LANGUAGE COMPREHENDER (TLC) IS A PROGRAM DESIGNED TO BE CAPABLE OF BEING TAUGHT TO 'COMPREHEND' ENGLISH TEXT, WHEN TEXT WHICH THE PROGRAM HAS NOT SEEN BEFORE IS INPUT TO IT, IT COMPREHENDS THAT TEXT BY CORRECTLY RELATING EACH (EXPLICIT OR IMPLICIT) ASSERTION OF THE NEW TEXT TO A LARGE MEMORY. THIS MEMORY IS A 'SEMANTIC NETWORK' REPRESENTING FACTUAL ASSERTIONS ABOUT THE WORLD. THE PROGRAM ALSO CREATES COPIES OF THE PARTS OF ITS MEMORY WHICH HAVE BEEN FOUND TO RELATE TO THE NEW TEXT, ADAPTING AND COMBINING THESE COPIES TO REPRESENT THE MEANING OF THE NEW TEXT. BY THIS MEANS, THE MEANING OF ALL TEXT THE PROGRAM SUCCESSFULLY COMPREHENDS IS ENCODED INTO THE SAME FORMAT AS THAT OF THE MEMORY. IN THIS FORM IT CAN BE ADDED INTO THE MEMORY. FACTS AND READING ABILITIES MAY BE TAUGHT TO THE PROGRAM AS NEEDED. THIS INFORMATION IS GENERALIZED IN TLC AND HENCE A SINGLE ADDITION CAN OFTEN PROVIDE A LARGE INCREMENT IN TLC'S EFFECTIVE KNOWLEDGE OF THE WORLD, AND IN ITS OVERALL ABILITY TO COMPREHEND TEXT. THE PROGRAM'S STRATEGY IS PRESENTED AS A GENERAL THEORY OF LANGUAGE COMPREHENSION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-687 842 9/2 5/9
SYRACUSE UNIV N Y
LARGE SCALE INFORMATION PROCESSING SYSTEM. VOLUME III. MODEL BUILDING AND EDUCATIONAL USE OF COMPUTERS. (U)
DESCRIPTIVE NOTE: ANNUAL REPT. NO. 1. 16 JUL 67-15 JUL 68.
APR 69 145P PETERSON,PHILIP L. ICARNES, ROBERT :REID,ILENE :O'CONNELL,EDWARD J. : ATHERTON,PAULINE :
CONTRACT: F30602-68-C-0013
PROJ: AF-5581
TASK: 558102
MONITOR: RADC TR-68-401-VOL-3

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 1, AD-687 840 AND VOLUME 2. AD-687 841.

DESCRIPTORS: (*DATA PROCESSING SYSTEMS, *EDUCATION), DIGITAL COMPUTERS, DESIGN, INVENTORY, TRAINING FILMS, MATHEMATICAL MODELS, PROGRAMMING(COMPUTERS) (U)
IDENTIFIERS: COMPUTER AIDED DESIGN, COMPUTER AIDED INSTRUCTION (U)

THE REPORT COVERS (1) COMPUTER-AIDED DESIGN OF INVENTORY SYSTEMS, (2) COMPUTER-AIDED EDUCATION, (3) COMPUTER-AIDED INSTRUCTION, AND (4) COMPUTER-AIDED MOVIE-MAKING FOR CHEAP RAPID PRODUCTION OF TRAINING FILMS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OMK08

AD-689 016 5/9 9/2
GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES RESEARCH OFFICE
COMPUTERS IN EDUCATION: THE COPERNICAN REVOLUTION IN EDUCATION SYSTEMS, (U)
MAY 69 9P SEIDEL,ROBERT J. ;
REPT. NO: HUMRRO PROFESSIONAL PAPER-16-69
CONTRACT: DAHC19-69-C-0018
PROJ: DA-2-J-063101-D-734

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN COMPUTERS AND AUTOMATION, V18 N3 MAR 69.

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, PREDICTIONS), COMPUTERS, LEARNING, TEACHING METHODS, MAN-MACHINE SYSTEMS, COMPUTERS, EDUCATION, PREDICTIONS, TRANSFORMATIONS, EFFECTIVENESS, THEORY (U)
IDENTIFIERS: COMPUTER AIDED INSTRUCTION (U)

IN THE PAPER THE PREDICTION OF SUCCESS IN THE USE OF COMPUTERIZED EDUCATION AND TRAINING SYSTEMS IS MADE. THE AUTHOR BELIEVES THAT MAN WILL HAVE TO RELINQUISH HIS EGOCENTRIC ROLE IN TEACHING TO BE REPLACED BY INTERDISCIPLINARY INSTRUCTIONAL TEAMS IN THE DESIGN OF CONTENTS OF COURSES. THE SYSTEM FOR INFORMATION EXCHANGE BETWEEN LEARNER AND KNOWLEDGE WILL BECOME FAR MORE EXPLICIT, MORE EFFICIENT, AND MORE RELIABLE THROUGH THE USE OF COMPUTERS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-689 104 5/9
NAVAL PERSONNEL RESEARCH ACTIVITY SAN DIEGO CALIF NAVY TRAINING RESEARCH LAB
THE RELATIVE EFFICIENCY OF PRETESTING AND TWO TYPES OF PROGRAMMED INSTRUCTION FOR SOLVING MANEUVERING BOARD PROBLEMS. (U)
DESCRIPTIVE NOTE: FINAL REPT.,
MAR 69 19P MEYER,JOHN K. ;
PROJ: PF39522004010 7
MONITOR: NPRA SRR-69-20

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROBLEM SOLVING, PROGRAMMED INSTRUCTION), APTITUDE TESTS, PERFORMANCE(HUMAN), CLASSIFICATION, TEACHING METHODS, LEARNING, OPTIMIZATION, PERSONNEL MANAGEMENT, NAVAL TRAINING, CORRELATION TECHNIQUES, STATISTICAL PROCESSES, NAVAL PERSONNEL (U)
IDENTIFIERS: MANEUVERING BOARD PROBLEMS (U)

STUDY TIME FOR A LARGE FRAME AND A SMALL FRAME TYPE OF PROGRAMMED EXPLANATION IN MANEUVERING SOLUTIONS WAS COMPARED USING TWO EQUATED, PRETESTED GROUPS OF ENLISTED MEN IN A BASIC CIC TECHNIQUES COURSE, AND TWO EQUATED GROUPS ASSIGNED TO BASIC ELECTRICITY AND ELECTRONICS TRAINING. IT WAS FOUND THAT, BY USING PRETESTING, AS MANY AS 60 PERCENT OF THE CIC TECHNIQUES STUDENTS COULD SAVE STUDY TIME BY ENTERING THE LEARNING PROGRAM AT AN ADVANCED LEVEL, AND THAT AS MUCH AS 42 PERCENT OF STUDY TIME COULD BE SAVED BY USING A FEW LARGE RATHER THAN MANY SMALL FRAMES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-689 113 5/9 9/2
NAVAL WEAPONS LAB DAHLGREN VA
COMPUTER ASSISTED INSTRUCTION: A SELECTED
BIBLIOGRAPHY AND KWIC INDEX. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
APR 69 179P ENGEL,GERALD L. ;
REPT. NO. NWL-TR-2283

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SUPERSEDES AD-638 892, AD-645 654,
AND AD-659 987.

DESCRIPTORS: (*PROGRAMMED INSTRUCTION,
*COMPUTERS), BIBLIOGRAPHIES, INDEXES, MILITARY
TRAINING, TEACHING METHODS (U)
IDENTIFIERS: *COMPUTER AIDED INSTRUCTION, KWIC
INDEXES (U)

THE REPORT CONSISTS OF A KWIC INDEX AND AN
ANNOTATED BIBLIOGRAPHY BY AUTHOR CONTAINING 570
ITEMS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-689 910 5/9
GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES RESEARCH OFFICE
DEVELOPING PROGRAMS FOR TEACHERS. (U)
JUN 69 21P LANGE,CARL J. ;
REPT. NO. HUMRRO PROFESSIONAL PAPER-20-69

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN PREPARING EDUCATORS TO MEET EMERGING NEEDS. P112-129 MAR 69.
SUPPLEMENTARY NOTE: PART ONE OF 'DESIGNING PREPARATION PROGRAMS FOR THE FUTURE: UTILIZING A SYSTEMS APPROACH.'

DESCRIPTORS: (*INSTRUCTORS, TRAINING), (*PROGRAMMED INSTRUCTION, TRANSFORMATIONS), EDUCATION, RESEARCH PROGRAM ADMINISTRATION, SEQUENCES, PSYCHOMETRICS, JOB ANALYSIS, EFFECTIVENESS, MODELS(SIMULATIONS), INTERACTIONS, LEADERSHIP (U)
IDENTIFIERS: SYSTEMS ANALYSIS, TEACHER PUPIL INTERACTIONS (U)

A SYSTEMS APPROACH TO DEVELOPMENT OF TEACHER TRAINING PROGRAMS IS DESCRIBED, AND THE UTILIZATION OF THE SYSTEMS APPROACH IN THE DESIGN OF TEACHER EDUCATION PROGRAMS IS DISCUSSED. PARTICULAR ATTENTION IS GIVEN TO THE IMPORTANCE OF THE SYSTEMS APPROACH IN PROVIDING TRAINING PROGRAMS THAT ARE RELEVANT TO THE TEACHER'S ROLES. LONG-TERM AND SHORT-TERM FUTURE TRENDS ARE DISCUSSED IN REFERENCE TO WORK ON JOB MODELS FOR THE TEACHER. CONSIDERATIONS OF CURRICULUM DESIGN WHICH PROVIDE PRACTICE INTEGRATED WITH THEORY FROM BEHAVIORAL SCIENCE AND SUBJECT MATTER CONTENT ARE PRESENTED. EXAMPLES OF RESEARCH AND DEVELOPMENT ON TEACHER TRAINING AND RELATED TRAINING PROBLEMS ARE BRIEFLY DESCRIBED TO SUGGEST CURRENT AND FUTURE TRENDS AND TO PROVIDE ILLUSTRATIONS OF SOME OF THE CONCEPTS NOTED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-690 590 5/10
MICHIGAN UNIV ANN ARBOR HUMAN PERFORMANCE CENTER
HOW ASSOCIATIONS ARE MEMORIZED. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
DEC 68 44P GREENO,JAMES G. ;
REPT. NO. TR-12, 08773-32-T
CONTRACT: AF 49(638)-1736
PROJ: AF-920F, AF-5002
MONITOR: AFOSR 69-1775YR

UNCLASSIFIED REPORT

DESCRIPTORS: (*MEMORY, THEORY), LEARNING, STATISTICAL ANALYSIS, PERFORMANCE TESTS, DATA STORAGE SYSTEMS, INFORMATION RETRIEVAL, TRANSFER OF TRAINING, PSYCHOMETRICS (U)
IDENTIFIERS: PAIRED ASSOCIATE LEARNING, STIMULUS RESPONSE UNITS, MARKOV MODELS (U)

IT IS OBSERVED THAT PERFORMANCE IN TASKS INVOLVING RECALL OR RECOGNITION OF ITEMS SEEMS TO BE EXPLAINED BEST WITH CONCEPTS OF STORAGE AND RETRIEVAL, RATHER THAN FORMATION OF ASSOCIATIVE CONNECTIONS. EVIDENCE IS PRESENTED THAT THIS IS ALSO TRUE OF PAIRED-ASSOCIATE MEMORIZING, AND IT IS PROPOSED THAT THE STAGES OF MEMORIZING ARE STORAGE AND LEARNING TO RETRIEVE. STATISTICAL METHODS ARE PRESENTED FOR OBTAINING MEASUREMENTS OF DIFFICULTY IN EACH OF TWO STAGES OF LEARNING, USING A MARKOV MODEL. IN EXPERIMENTS WITH VARYING RESPONSE DIFFICULTY AND STIMULUS SIMILARITY, THE DIFFICULTY OF THE FIRST STAGE DEPENDED ON BOTH STIMULI AND RESPONSES, BUT THE SECOND STAGE DEPENDED ONLY ON THE STIMULI. THIS FAVORS THE STORAGE-RETRIEVAL THEORY, OVER THE HYPOTHESIS THAT THE FIRST STAGE IS RESPONSE LEARNING AND THE SECOND IS HOOKUP LEARNING. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-690 592 9/2
WASHINGTON UNIV SEATTLE COMPUTER SCIENCE GROUP
THE WRITEACOURSE LANGUAGE: PROGRAMMING
MANUAL. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAY 69 108P ZOSEL,MARY ;HUNT,EARL ;
SCHULDT,SHARON ;
REPT. NO. TR-69-1-3
CONTRACT: AF-AFOSR-1311-67, AF-AFOSR-1701-69
PROJ: AF-9778
TASK: 977801
MONITOR: AFOSR 69-1790TR

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REVISION OF REPORT DATED 1 MAY 68,
AD-670 524.

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, *PROGRAMMING
LANGUAGES), MAN-MACHINE SYSTEMS, INTERACTIONS,
CORRECTIONS, TIME SHARING, FLOW CHARTING (U)
IDENTIFIERS: WRITEACOURSE PROGRAMMING LANGUAGE,
COMPUTER AIDED INSTRUCTION (U)

WRITEACOURSE IS A LANGUAGE FOR PROGRAMMING MAN-
COMPUTER INTERACTIONS. THE LANGUAGE WAS ORIGINALLY
DESIGNED FOR WRITING COMPUTER AIDED INSTRUCTION
(CAI) COURSES, BUT IT CAN ALSO BE USED TO CONTROL A
REMOTE TERMINAL IN A VARIETY OF APPLICATIONS WHICH
INVOLVE DISPLAY AND EDITING OF CHARACTERS.
WRITEACOURSE IS NOT SUITED FOR APPLICATIONS WHICH
USE THE COMPUTER AS AN ARITHMETICAL CALCULATOR.
THIS MANUAL DESCRIBES THE FORTRAN VERSION OF
WRITEACOURSE IMPLEMENTED ON A PDP 10/8 TIME-
SHARING SYSTEM. (AUTHOR) (U)

CORPORATE AUTHOR - MONITORING AGENCY

•ADAPTRONICS INC MCLEAN VA

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AD-605 167

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DESIGN AND USE OF INFORMATION SYSTEMS FOR AUTOMATED ON-THE-JOB TRAINING. VOLUME III. EXPERIMENTAL USE OF THREE INSTRUCTIONAL CONCEPTS.
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FURTHER EXPERIMENTS ON COMPUTER-AIDED LEARNING OF SOUND IDENTIFICATION.
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