The bibliography is divided into two sections: "Doctoral Dissertations of Interest to Teachers of Earth Science 1960-1969," and "Bibliography of Selected References." The first section includes entries for 13 dissertations and each entry indicates the originating university and the dissertation reference location in "Dissertation Abstracts." The other section contains over 100 entries for articles found mainly in science education and earth science education periodicals. Some of these entries have brief annotations. Coverage is broad and related to most areas of earth science education, such as research, curriculum and programs, instruction, evaluation, and teacher education. (PR)
SELECTED BIBLIOGRAPHY

for

EARTH SCIENCE EDUCATION
PARTIALLY ANNOTATED

by

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DOCTORAL DISSERTATIONS OF INTEREST TO TEACHERS OF EARTH SCIENCE 1960-1969


"Research indicated that there were gross weaknesses in teacher preparation in Arkansas."

"Research indicated no significant difference between group taken into the field or group taught with the aid of 35 mm. color slides."

"This descriptive-survey indicated that the biggest rate of planetarium use was for concepts of motion and celestial geometry, while observatory use centered around teaching of lunar motion and planet characteristics."

"In programs studied by use of questionnaires, the courses in the earth sciences in general were found not to provide learning experiences which develop familiarity with investigative and student-centered techniques of instruction."


"The study pointed out that the use of a planetarium made no difference in understanding phases of the moon and the apparent turning of the sky when compared to a group not using the planetarium."

"This statistical study pointed out types of teaching techniques to use in the classroom."


"Research indicated that students studying ESCP developed into significantly better critical thinkers and tended to show greater gains in understanding science than did students taking a non-ESCP course."


"Research indicated that planetarium use was significant for selected astronomical concepts."


"This study indicated that teacher preparation for ESCP was being met by college and university astronomy courses."

BIBLIOGRAPHY OF SELECTED REFERENCES


"A review of five ways earth science can be placed in the science curriculum for grades 10 through 12."


"Conceptual scheme approach to teaching earth science is stressed. Basic geology background presented for elementary earth science teachers."


"Experiment described relates geological time and astronomical distances using a 10-meter piece of tape."


"Interdisciplinary nature of oceanography as an excellent vehicle for teaching science concepts and skills at the junior high level is discussed."

"Advantages and disadvantages of earth science teaching at the junior high school level is presented."


"Author pointed out that geology is not only for geologists but is, or should be, for everyone."

"Evolution of a one-semester earth science course especially designed for eighth-grade level is presented."


"Central Park, New York City, is the focus for field work for an ESCP urban school test center."


Ladd, George T. "ESCP....An Investigative Approach for Teaching Earth Science to Students of All Levels of Ability." Journal of Geological Education. Vol. 16. April, 1968. pp. 61-64. "Basing his study on the teaching of ESCP for two years to ninth grade students, the author concluded that student-oriented investigative approach in earth science can be achieved by students of all levels of ability."


"Basic information for elementary school teachers is given in setting up simple earth science experiments."


"Model consists of a recommended academic program, instructional methods, professional science education requirements, staffing, equipment and facilities, and other areas. Its purpose is for evaluation of present programs or development of new programs."
"This article contains much useful information on earth science teacher education programs."


"Earth science is shown to unify the teaching of science in general. Many pertinent questions are discussed."


"Teaching philosophy of the Pennsylvania approach differs from that of ESCP and the New York approach in the laboratory work is secondary to classroom discussion."


"Stereograms are used in place of topographic maps to produce realism and better understanding of landscapes."

"Earth science teaching has never really changed for it has always included inquiries, investigations, activities, and laboratory experiments."


"Research indicated that ESCP students are better prepared for physical geology than non-ESCP students; they also have improved scientific attitudes and abilities."

"Seven helpful suggestions for presenting a planetarium program are given."

"A critical review of man's problems with the earth's natural resources is presented."

"Problems in retraining earth science teachers are pointed out."

"Explains how to construct a working model of a limestone cavern."

"This article is an annotated bibliography of over 500 useful paperback books in the earth sciences up to 1967."


"A short summary of the events leading up to the ESCP approach to teaching earth science is presented."

"What not to do in using inquiry method of teaching ESCP in a laboratory setting is discussed."

"Activities of 25 ESCP teachers aboard an oceanographic research vessel in the Chesapeake Bay are presented."

"Experiences of in-service ESCP teachers aboard an oceanographic vessel are given."


"History of fossils and student activities with fossils are given."


"The earth and man's interest in it throughout history is the theme of this historical resource for the earth science teacher."


"The recommendation is made to change present laboratory facilities into independent study centers using the auto-paced laboratory which is based on Skinner's psychology of learning."


"Research indicated that it made no difference whether students learned astronomy concepts or astronomy facts on the students' understandings about science as measured by Test on Understanding Science (TOUS)."


"It is pointed out that ESCP investigations are generally far more astute when mistakes are made, analyzed and corrected by the students, as opposed to an investigation where everybody gets the right answer without much thought as to "why"."


"This pilot study for high ability students showed that they learned in spite of fact filled lectures by visiting space science research specialists."
