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ABSTRACT

This digest focuses on field instruction in school settings. Major areas considered include: (1) factors contributing to the paucity of field activities; (2) whether teacher commitment to the concept of field instruction exists; (3) research on affective-realm educational values of field instruction; (4) research on cognitive-realm educational values of field instruction; and (5) the availability of "how to" information for teachers involved in planning and implementing field instruction. A list of 15 references (with ED numbers for documents in the ERIC database) is included. (JN)

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FIELD INSTRUCTION IN SCHOOL SETTINGS

Field instruction is consistently recommended as a key element for school-based programs directed toward environmental learning, but rarely do such recommendations progress beyond the platitude stage. In general, published surveys dealing with the instructional practices of classroom teachers in all fields of formal education indicate that they conduct very few field activities off school grounds. The extent of their usage of school grounds is less well documented, but is generally considered to be less than optimal.

In an extensive survey of classroom earth science teachers, Mason (1980b) identified a number of factors contributing to paucity of field activity: lack of planning time; lack of resource people for assistance; failure of the school to assume trip risk, lack of a satisfactory method for covering classes; restrictions placed on field work by school regulations; lack of administrative leadership, support, and encouragement; lack of funding; limited available transportation; too much "red tape;" and excessive class size. Though this list was compiled with instruction in secondary school earth science as its specific referent, it appears to be applicable to environmental education in its various countenances, and to K-12 formal education situations in general.

Are There Additional Problems?

These factors are basically organizational, administrative, and budgetary in nature. From lack of inclusion of response to the contrary, one might assume that teachers generally place a high value on the educational efficacy of field instruction, and that they would be desirous of employing field work as a routine technique if such impediments could be overcome.

However, little research-based evidence demonstrating the educational superiority of field instruction, when compared to other techniques, has been published. Relatively more evidence suggests that field work is at best equivalently effective, but not superior, in terms of student learning. If such is in fact the case, it follows that the reality of constraints such as those noted above is sufficient to justify infrequent, or non-, use of field work as an instructional technique.

Does Teacher Commitment Exist?

Also, there is some question as to the reality of teacher commitment to the concept of field instruction in situations where organizational, administrative, and/or budgetary constraints are less critical. All other things being equal, it is clear that field instruction places additional demands on the skills and energies of the teacher, when compared to other instructional devices. It is in fact "easier" to teach in the classroom than to plan and implement outside-the-four-walls initiatives. Generally, pre-service teacher education does not emphasize methodologies for field instruction, nor are role models of effective field teachers commonplace. In a word, many teachers do not know how to plan and conduct effective field instruction, and have little motivation to learn how to do so.

Proponents of field instruction frequently place, a priori, a premium on its educational values. In doing so, they often convey the impression that, in their view, the need for field instruction is self-evident and needs no verification. If such values were in fact self-evident, one would expect field instruction to be common practice, regardless of constraints. But it is not.

Over the years, a number of researchers have investigated educational values of various modes of field instruction. Summaries of such studies through the late 1970s were published by Koran and Baker (1979) and Mason (1980a). In this *Digest*, results of several recent studies targeted on field instruction, specifically field trips, are summarized.

What Does Research Say? — Affective Domain

It has long been an article of faith that a major value of field instruction is in the affective realm. For example, a positive relationship between eleventh grade biology students' attitude toward science and environmental concepts and their exposure to field trip activities was demonstrated in a study by Ignatiuk (1978). Statistically significant differences in such attitudes between pretest and posttest measurements after varying amounts of field work during a 15-week study period were found; the students involved were using the Biological Sciences Curriculum Study (BSCS) text, Green Version.

A sixth-grade program of school site and community outdoor education achieved positive attitudinal changes toward school similar to changes noted with similar students in residential outdoor programs (Smith, 1979). In the same study, it was found that a classroom teacher with no previous training could successfully implement the specific program, given adequate support. Students in the study group participated in outdoor activities on the school site and in the community one-half day a week for ten weeks, while a control group did not. Both groups demonstrated similar attitude scores in a pretest, but the experimental group attained a statistically significant difference in gain scores at the end of the ten-weed period.

Working with college students in an introductory level geological science course designed for general education, Kern and Carpenter (1984) found that a field-oriented approach had a pronounced positive influence on the affective responses of participating students. Interest and enjoyment both increased dramatically, and the students involved attached more importance to their work when compared with students in a control-group class employing a more traditional laboratory approach. Affective factors considered in the study were value (perception of importance of the field of study), interest (in the course itself), and attitude (enjoyment of the course), leading to an increase in student motivation.

What Does Research Say? — Cognitive Domain

Less well-documented over time have been the cognitive-realm educational values of field instruction. However, a number of recent studies have dealt with various aspects of this concern.

How well geography facts and skills are learned, and how well such learning is retained, was the subject of a study involving junior high school students in Australia (Mackenzie and White, 1981). Comparing three groups—one treated to an excursion stressing processing of meaning of phenomena observed and experienced during a field trip, another participating in a traditional "passive" excursion, and the third participating in the same basic geography course, but without an excursion—they found that students receiving either form of field work outperformed students with no field trips on a test of geography knowledge, and that those students who participated in the field trip stressing knowledge and idea processing outperformed students who participated in the passive field trip. This was true at the conclusion of instruction and again twelve weeks later, leading to a conclusion that information and skill links such as those encouraged during the excursion described do aid recall and retention of facts and skills.

Field experiences can be planned to capitalize on the effects of novelty of setting to meet students' needs, according to a series of studies conducted by personnel associated with the Smithsonian Institution's Chesapeake Bay Center for Environmental Studies (Falk, 1983). They found that most children in the 10-12 year-old range are ready for day-long field trips to novel settings such as museums, outdoor centers, and zoos, and should even thrive on

SE 045 908

them. By contrast, younger children may not be as receptive unless more than one trip to the same site can be planned. Results of these studies suggest that repeated visits to a site often produce the best learning results for all ages, but particularly for very young children, and also support the notion that significant cognitive learning can, and frequently does, occur on field trips. Among findings reported are that students' perceptions of the novelty of the trip affects what they learn, and that imposed learning is inhibited in settings where novelty is either extremely great or extremely small. A more extensive report of one of the studies (Falk and Balling, 1982a) dealing with attitudes and behavior of third and fifth grade students noted that third graders seemed overwhelmed by the novelty of the trip, and learned more from an outdoor activity near their school, while fifth graders were stimulated by the trip itself but bored by the outdoor lesson (imposed learning). Yet another study in the series (Wade, *et al.*, 1981) concluded that, for children between 7 and 13 years of age, novel environments are poor settings for imposed task learning, when compared with familiar environments.

Elementary students can learn a great deal from a single-visit, structured tour of a specific area of a zoological park (Falk and Balling, 1982b). Though field trips typically have been considered of more use in affecting student attitudes and motivation, this study demonstrated that children do learn on well-structured field trips. The study stressed the critical nature of the design and execution of the field trip, including the need for pre-trip orientation. The most effective pre-trip orientation reported was that conducted by the students' classroom teacher, trained by a targeted workshop, as opposed to orientation by a resource person from the zoo or by a classroom teacher supported by mailed printed materials only.

Use of pre-trip instructional materials significantly increased student test scores in a cognitive-gain study dealing with a museum field trip experience for junior high school earth science students (Gennaro, 1981). In the study, an experimental group showed statistically significant differences in gain score when compared to a control group which made the same field trip, but did not receive pre-visit instruction.

Does "How To" Guidance Exist?

"How to" information for teachers involved in planning and implementing field instruction with and for their classes is available from a number of sources, many of them highly localized (i.e., for specific trips to specific places for specific purposes). The fact that many of them are home-made guarantees a wide range of quality and usefulness, and often limits their generalizability, but many are of particular value for the purposes for which they were designed. More general "how to" documents are also available, and can be of particular use top those needing overall guidance and basic checklists. For example, a volume developed by Krepel and DuVall (1981) deals with a broad range of concerns—values of field trips as teaching tools, teacher liability, school board policies, administrative support, teacher responsibilities, safety, supervisory assistance, pre-trip activity, follow-up activities, and trip evaluation.

What Else is Needed?

It is clear that serious attempts to promote wider use of field instruction in formal education settings, including those associated with environmental education, must demonstrate the unique educational values to be derived from it, specifically in comparison with other approaches to learning, in such a manner as to be convincing to administrators, curriculum specialists, and theachers themselves.

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