



Planning for Instruction in Field Settings and Laboratories

The use of educational field settings and laboratories has long been a major part of the education programming for both youth and adults. However, due to funding limitations, time constraints, and increased liability concerns many education professionals balk at requests for instruction in field settings and laboratories (Shoulders & Myers, 2012). In spite of these concerns, well-planned instruction in these settings can be a valuable tool in the field agent's educational toolbox.

Field settings and laboratories can be an integral part of the instructional program (Shoulders, Blythe, & Myers, 2012). Good field-based instruction provides participants with first-hand experience related to the topic or concept being discussed in the program. It provides unique opportunities for learning that are not available within the four walls of a classroom (Warner, Arnold, Jones, & Myers, 2006). An example of this would be a group of farmers visiting a local farm. A field setting such as this would allow farmers to see first-hand the many principles of plant growth and management, pest control, and watering techniques discussed in the program.

Planning

As with any type of educational program component, instruction in field settings and laboratories should be designed around specific educational objectives. The educational experience should be designed so participants can easily make connections between the focus of the field-based instruction and the concepts they are learning in the rest of the educational program (Phipps, Osborne, Dyer, & Ball, 2008). Numerous research studies in science education have documented significant increases in participant factual knowledge and conceptual understanding after participation in well-planned field experiences (Jones, 2000). When planning and organizing a successful instruction in field settings and laboratories, three important stages should be included: pre-experience, experience, and post-experience (see Figure 1).

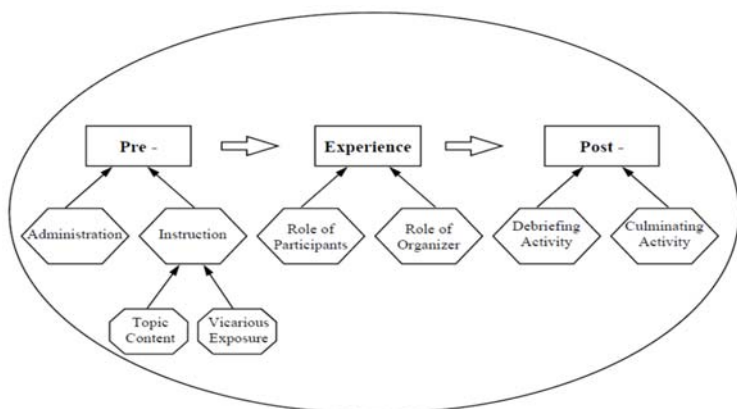


Figure 1. Instruction in Field Settings and Laboratories Planning Model

Pre-experience Stage

The pre-experience stage of instruction in field settings and laboratories involves two major components: **administration** and **instruction**. The administration component involves all of the steps taken by the organizer to arrange the logistics of the instruction. Steps include securing permission from the appropriate administrator, organizing transportation to and from the field site location, and contacting the field site location to verify the schedule and activities. Unfortunately, many organizers only focus on administrative concerns during the pre-experience stage of instruction in field settings and laboratories planning. Although the activities of the administration component are important, if organizers only focus on logistics, a major segment of the pre-experience stage is missing and the instructional experience may not be educationally successful.

The instruction component of the pre-experience stage is critical in preparing participants for the experience. Numerous research studies have shown that participants, especially youth, often have high levels of anxiety when going to a field setting or laboratory. Anxiety levels can be especially high for experiences in novel, unfamiliar settings. Often a field experience is the first encounter a person has with a particular location. When individuals experience high levels of anxiety, learning cannot take place. To reduce anxiety, organizers need to make participants feel comfortable and safe at the location, just as they would in a typical classroom.

One method of accomplishing this goal is to provide participants with vicarious exposure to the field site as part of pre-experience instruction (Bixler, Carlisle, Hammitt, & Floyd, 1994). Vicarious exposure could involve the organizer showing participants photographs, drawings, or a DVD of the site to be visited. This can occur at a meeting prior to the experience, or materials may be given to participants prior to the event. Another option would be to post important information on the Internet so that participants can visit a website prior to the experience. Items such as the location of restrooms and basic features of the site should be identified. If participants will be at the field site during a meal time, such arrangements should also be discussed. Studies in science education have shown time and again that providing participants with vicarious exposure prior to a field experience significantly reduces individual anxiety and increases overall effectiveness.

To increase the educational effectiveness, pre-experience instruction should also focus on the content topics and concepts that participants will be investigating during the experience. It is important for organizers to give participants verbal clues regarding what to look for during the activities. Pre-experience instruction makes it easier for participants to focus on the educational goals of the trip. As part of the pre-experience lesson, organizers should demonstrate the use of any equipment and explain in detail any activities that will be occurring during the field- or lab-based instruction.

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Research has clearly shown that learning activities involving groups of 2-3 individuals are most effective during field experiences. These groups should be assigned during the pre-experience stage. Specific roles of each group member during activities (such as observer, recorder, graphic artist) should also be explained in advance.

Experience Stage

The second stage of successful instruction in field settings and laboratories is the experience itself. Two components should be addressed during this stage: the **role of the participant** and the **role of the organizer**. The role of the participant is accomplished by establishing an instructional agenda and sharing this agenda and experience objectives with the participants. A suggested agenda for an experience starts with a brief amount of free time for individuals to explore the field site, within certain safety parameters. This open exploration may not be appropriate in all locations. For example, individuals could not roam freely inside a manufacturing or processing plant. They could, however, have free time to view items in the visitor area or lobby prior to the guided tour. This exploration time allows participants to become comfortable with their surroundings. Once the basic curiosity of the facility is satisfied, learners are better able to focus their attention on the content topics to be learned.

The second phase on the agenda is often a whole-group guided tour. During the tour, the organizer or tour leader can point out specific items that relate to the educational goals of the trip. This also provides an opportunity for participants to ask any questions they may have developed during their exploration time. The third phase of a suggested instructional experience in field settings and laboratories is a small group learning activity. Working in pre-assigned groups of 2-3, participants can complete an activity such as a short worksheet or laboratory exercise. The worksheet should be designed in a manner that is challenging to learners yet not frustrating. The worksheet should clearly relate to the educational goals of the field experience.

The role of the organizer is also an important consideration during the experience stage. Although monitoring and management of the experience is important, monitoring participant learning is also a major organizer responsibility. Throughout the experience, the organizer should be actively engaged in teaching activities. However, in field settings and laboratories the organizer should utilize different teaching approaches than those used in traditional classroom settings (Burlison & Myers, 2012). Organizers should interact with participants to help answer questions they might have. Organizers should also initiate discussion with small groups of participants by asking them questions. During field experiences, organizers should function more as facilitators or guides rather than directors. By playing an active rather than a passive role during the field experience, organizers can increase student interest and learning.

This Technical Note is from a series on Effective Teaching and Learning. Modernizing an extension and advisory services system in any location requires competent field agents and others who know and/or have access to content needed at the local level and are able to teach that content using proven teaching strategies and methodology. These technical papers should be utilized by anyone involved in the training of extension professionals.

Photo Credit: Brent Simpson

Post- Experience Stage

The third and final stage of successful instruction in field settings and laboratories is the post- experience stage. Like the stages before it, this stage also contains two components: **debriefing** and a **culminating activity**. During the debriefing session, participants should be encouraged to share and discuss their experiences. This could include sharing and discussing data or results of assigned small group activities as well as sharing feelings about specific aspects of the experience or overall impressions. Participants should also be given an opportunity to identify and discuss problems encountered during the field experience.

The second component of the post- experience stage is a culminating activity. This activity should give participants an opportunity to apply the content knowledge they gained during the field experience. Culminating activities should help learners tie together content they covered in regular educational program sessions and content learned during the experience. They can be whole group or small group experiences. Both the debriefing and culminating activity should occur as soon after the experience as possible. The overall goal is for participants to be able to apply their new knowledge in their own farm or business.

Summary

Planning and organizing successful instruction in field settings and laboratories can require a great deal of work for the organizer. However, by following the simple steps in each of the pre-experience, experience, and post- experience stages, your participants can greatly benefit from your labor. Instruction in field settings and laboratories should be an integral part of field extension programming. If faculty properly plan and execute educational field- and laboratory-based experiences, everyone can benefit.

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