

BACKGROUND INFORMATION FOR PRESENTERS

Questioning is a vital and powerful teaching strategy, and a crucial component of just about any teaching situation. This is especially the case when learning situations derive from student experience, where questions and reflections about that experience are used to develop and refine concepts. Questions can open doors at every stage of the learning experience—inviting students into activities and ideas by creating interest in a new topic, helping guide students’ active explorations, stimulating reasoning and sense-making of new concepts, and encouraging students to apply their ideas to different situations. Well-sequenced questions can initiate the sharing of ideas, encourage development of multiple hypotheses or alternative explanations, help students recall prior knowledge, allow them to synthesize new information, and help guide logical thinking.

It takes some skill to use questioning strategies and to balance the amount of asking and telling in a teaching situation. There’s no one formula for what this balance should be, and it changes from situation to situation. Experience and practice can hone instructors’ expertise and questioning know-how. Skilled instructors use questions to find out what students think, encourage discussion, and draw attention to diverse viewpoints and interpretations. But even some veteran field instructors don’t take advantage of questioning strategies that could elevate their field experiences to interactive learning experiences. Research indicates that instructors who are specifically trained to ask high-quality questions show significant improvement in constructing and using such questions in the classroom (Angletti 1991, as quoted by Cecil 1995).

Connections to Other BEETLES Professional Learning Sessions. This session explicitly focuses on how questions can be used to guide student explorations and discussions. The session, *Promoting Discussion*, looks more closely at how questions and discussion are related, the role of discussion in how people learn, and provides in-depth discussion techniques. The skills and how-to’s of actually leading a discussion are covered in the BEETLES *Promoting Discussions* session. Many programs have found it effective to present the *Questioning Strategies* session, give staff some time to apply it to their instruction, then later follow up with the *Promoting Discussion* session. The *Making Observations* session focuses on how the use of three specific questions can inspire exploration in students, as well as how anthropomorphism and identification can be helpful to or hinder exploration. The *Evidence & Explanation* session focuses on students making observations, asking questions, then making evidence-based explanations.

Questions that Encourage or Discourage Exploration and Discussion

An analysis of questioning strategies can begin with noting the effects of using narrow and broad questions during an exploration or discussion. The model lessons in this session demonstrate how using narrow questions, which have specific, prescribed answers, can shut down exploration and discussion by requiring students to try to guess what the instructor wants them to say. In contrast, using broad questions, which have multiple acceptable responses, can encourage more students to participate and offer various ideas. Of course, narrow questions are very useful for recall and review, which have their place. Once an instructor develops a feel for how these questions affect learners, they can then make thoughtful adjustments to their questioning strategies during their instruction.

Consider Goals When Asking Questions

When planning for questions, another thing to consider is the instructor’s purposes or goals for engaging the learner in a particular learning situation. If the purpose is to encourage exploration, it’s generally useful to use broad questions to engage students in observing and noticing details. Questions, such as: “What do you notice,” “What did you notice when...?” “What do you wonder?” and “What does it remind you of” “Craig, do you agree that the object feels hard and rough?” can be used to guide students to explore while encouraging multiple points of view. Questions, such as: “What do you think will happen if...?” “Do you think there will be more spiders in the chaparral than in the grass?” can be used to stimulate productive activity during an investigation. Once students have explored a phenomenon or performed an investigation, questions can then be used to guide students to make

comparisons or quantify their observations. Given adequate experience and exploration of a topic or phenomenon, students may then be ready to draw conclusions and make sense of their investigations, responding to questions, such as: “What do you think is the explanation for...?” or “Why do you think this happened?” can be used to encourage sense-making. Questions can be used to challenge students to apply what they’ve learned in order to generalize their knowledge or test their ideas, such as: “how do you think the ecosystem might be affected if sharks were gone?” Asking students to reflect on their thinking—“how have your ideas changed, and what evidence made them change?”—and investigation processes help them become more aware of their own strengths and weaknesses in the subject area, and encourages them to take charge of their own learning.

Role of the Instructor

The final factor considered during this session, which can significantly impact everything an instructor does with students, is how the instructor views his or her role as an instructor. A “sage on the stage” type of instructor has the point of view that it’s their responsibility to impart or transmit knowledge directly to students and that the instructor must provide the necessary accurate information for understanding. This view of the learning process can emphasize rote memory and recall of ideas from sources other than the students themselves. The “entertainer” role, common in outdoor schools, is a “fun” version of a “sage on the stage.” Both those roles are instructor-centered, not student-centered or nature-centered. Neither of them are focused on encouraging student thinking and deep learning, or at facilitating student relationships with nature. It can be hard to get an instructor to let go of the “entertainer” role, because it’s often highly rewarding. It’s fun to be the center of attention and make kids laugh and yell chants, and a good entertainer will generally keep students entertained all day, and thus receive kudos from co-workers and classroom teachers. The “entertainer” role certainly has its place in outdoor schools, but if your goal is developing deep learning and a relationship with nature, then instructors need to think about when the “entertainer” role is appropriate, and when it’s not. A “guide on the side” type of instructor embodies a more constructivist view of learning—one which accepts that students need to be encouraged to create their own personal frameworks through discussion and interactions with materials and various sources—so they can develop a deeper understanding that can be flexibly applied to different learning situations. The “guide on the side” knows how to be authentic with students, and how to set up experiences and ask questions that will engage students in developing a lifelong thoughtful and inquisitive relationship with nature and learning. And such guides do not generally focus on taking center stage.

Role of the Leader in this Session

This session relies significantly on the leader comfortably asking questions and leading discussions. Using the discussion map (ask a broad question, listen to response and thinking, ask for evidence or explanation, ask for alternate ideas, ask a question that relates back to the main topic, and repeat) can be a useful tool to use during this session. For more guidance on leading discussions and why they are important, review the background section of the *Promoting Discussion* BEETLES professional learning session.

