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Over the River and Through the Woods: Teaching Environmental and Natural Resource Economics in the Field

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Mark Griffin Smith

Go my sons, Burn your books, Buy yourselves stout shoes
Get away to the mountains, the deserts and the deepest recesses of the earth
In this way and no other
Will you gain true knowledge of things and their properties!
- Peter Severinus, 1571[1]

Introduction

For most economics professors, field trips are associated with a grade school excursion to the zoo or local science museum in a yellow school bus. Field trips in college and in economics, in particular, are unusual (Carter 1993) and in its 35-year history this journal has never published an article on the subject.

The intent of this article is to share my eleven years of experience running field trips in upper level economics courses at Colorado College. Over this period I have taken students taken students to sites as close as the local auction house for an hour to over a thousand miles away for ten days. I hope to offer insights into the advantages and disadvantages of field trips in economics as well as practical advice on how to do it. I will focus here on the extended field trip – one lasting a week or more. One in which the intent of the trip is to examine, in detail, a particular issue, company or region, to gain diverse perspectives and then to synthesize course concepts in the context of an applied problem.

The academic literature on college-level field trips is not extensive. Most of what is written focuses on K-12 education and then on the natural sciences (Lee 1997). Justification for field-based learning is frequently based on reasons other than the efficient delivery of content. Spence (1991) finds that teachers use field trips to develop environmental awareness, stimulate interest and appreciation of science, improve observation and perceptual skills, improve retention of content and provide opportunity for discovery, inquiry and investigation. Falk, Martin and Balling (1978) find positive outcomes in interest, motivation and revival for teachers and students that arise from field trip settings. Students and teachers may appreciate each other more because of field experiences (Hammerman and Hammerman 1973) and previously isolated individuals and groups appear to be drawn into the main networks of the class (Bateson 1981). As for content, Lee (1997) finds a small but significant positive difference in test scores for college biology students between students in field versus non-field courses, though Andrews (1978) notes no difference in younger students. Koran and Baker (1979) contend that field trips do not cause better academic outcomes than conventional classroom settings that are often better

[1] Cited in McKenzie et al, 1986.

disciplined, less time consuming and cheaper. While I have never run the experiment, it does not surprise me that others have found field trips an inefficient means to convey content. Nevertheless my experience is that students who have participated in field trips become enthusiastic about the subject and may pursue further course work, research and even careers in the field.

My aim here is not to proselytize – I am aware of the opportunity costs. Gains in content knowledge would not, alone, justify a field approach. The literature and experience do suggest other justifications that readers may find compelling. This advice is offered in the hope that I can lower transactions costs and move others further down the learning curve.

Conceptualizing a Field Trip Experience

Over the years I have run three types of field trips: (1) problem or issue oriented, (2) topic oriented and (3) firm oriented. (See Appendix A) Problem or issue oriented field trips focus on a specific project or issue – a controversial water project, pending legislation such as reform of the Hard Rock Mining Act, or the designation of a new wilderness area. These are issues where there are conflicting viewpoints. A topic-oriented field trip takes on a more general topic such as Colorado agriculture or public lands management. These are broad topics involving many issues. A firm oriented field trip involves studying a single firm in depth. I have done this only once when I was given unparalleled access to a privately held manufacturing firm owned by a trustee of the college. This was a great experience for the students, but without strong commitment from the CEO to provide access, such an experience would be nearly impossible to replicate.

My best success has been with problem or issue-oriented field trips. One of the primary reasons for taking students into the field is to expose them to conflicting perspectives articulated by the stakeholders who hold those views. Topic oriented trips are enjoyable because students learn about many different issues. Nevertheless, with limited time, it is impossible to hear all sides. Such trips become more of a survey of the issues and may be more appropriate for survey or introductory courses. My preference is to study a complex project or issue in depth. (See Appendix B)

Interesting problems are not hard to find. When I attend regional conferences and workshops, identifying interesting case study problems and potential speakers is always on my mind. Such meetings provide easy opportunities to make informal, initial contact with potential speakers. Local newspapers are another good source, as articles will often cite opinions by experts, government officials and other stakeholders. You only need a few names to begin as these contacts will lead you to other contacts. They will know other stakeholders and often know how to contact them. Before contacting more than a few people, you need to have a clear idea of what the primary issues are and who you need to present them; what the secondary issues/activities are; which perspectives require balance from another perspective and, ideally, the “optimal” order of presentation. The last will never be achieved. With this framework, you can begin to construct a field trip.

Practicalities

Preparation is Everything! Like a great artistic or athletic performance, a great field trip should appear to be easy. It should seem to the students that, when you show up, your presenter just happens to be there and eager to talk with you on just the subject that you are interested in discussing. Such execution requires careful preparation.

Once you have identified the principal people with whom you wish to meet, you must develop a tentative schedule. The first consideration in composing a schedule is sequencing your meetings to systematically build students' understanding of the problem. Begin with a speaker who can give the students an overview of the project and describe the major issues, then move to speakers who have different perspectives on the problem or are stakeholders with strong interests in a particular issue. For example, on a field trip on the controversial Animas-La Plata water project in southwestern Colorado, we first met with a major proponent and opponent of the project. We then drove to southwestern Colorado and met with the Bureau of Reclamation to discuss project development and finance and tour the site. After the students had an understanding of its scope and purpose, we began meeting with various stakeholders who had an interest in supporting or opposing the project. (See Appendix B)

The second scheduling consideration is logistics – where you will meet with people and when they can see you. Sometimes you may have an entire day of meetings in the same room with different speakers coming in as scheduled to meet with your class. Other times you may drive several hundred miles between two meetings. In the latter case it is critical to know how much time it will take to drive between one place and another. MapQuest.com is great resource for estimating travel times. Where possible, I like to meet with speakers *in situ*, that is where they work, so that students will see different work environments.

Inevitably, you will not always be able to schedule meetings in the order you would choose to systematically develop the problem. When this happens the instructor must provide students background in advance of such an out of sequence meeting so that they are able to put the talk in context.[2]

Once I know with whom I want to talk to and when, I start contacting people starting with the key speakers first. My first contact may be by phone, email, fax or letter. In general, I am more likely to employ the formality of a letter with a person who I feel is least likely to have the time or inclination to meet with us. However, in my experience there is no correlation between ease of access and someone's "importance." Whatever form this first communication takes, the critical information to convey is:

- Who you are and the institution with which you are associated;
- What the class is, the number of students and their backgrounds;
- What the field trip/case study is about;

[2] On the example schedule I would have, ideally, scheduled our meeting with the Bureau of Reclamation first before any other meetings as they are the implementing agency. However logistics necessitated meeting with two key stakeholders in Denver before traveling 300 miles to Durango.

- What you would like them to talk about;
- When, where and for how long you want to meet;
- Your objectives for the case study/field trip.

I am often dealing with controversial environmental or natural resource issues and thus there are two other things that are critical to state:

That I am trying to meet with the full range of stakeholders on this issue so that the students see all perspectives; that I want to meet with them because they are known to have a particular point of view and you want the students to hear that point of view.

Once a speaker has agreed to meet with us, I send a confirmation letter outlining the above and providing as much guidance as I can on the particular points I would like the speaker to address. (See Appendix C) I always include the tentative schedule for trip so that the speaker can see the all the meetings and activities and when they are scheduled so that they know what the students have already heard before their talk and will hear later. In addition, sharing the schedule with the speakers substantiates your claim of addressing many perspectives. (See Appendix B) If you been thorough, identified good people, and persuaded them to meet with you, the schedule also conveys to your seriousness and commitment to this endeavor.

Finally, I also ask speakers if they have any materials that they can send me for use by the class in preparing for the field trip. I make a bibliography of these and other materials I have assembled and distribute with the field trip assignment. Generally I organize these readings into folders which are kept in a plastic milk crate that can be brought to class and then along on the field trip.

I rarely offer to pay an honorarium. Most people are speaking with us in association with their jobs. I have paid honoraria to speakers who work for non-profit organizations or who have traveled some distance to meet us. In such a case, I would also offer to pay their travel expenses.

One last note about scheduling - it is important to schedule down time. Students need time for resting, sightseeing, shopping, hiking, swimming, and just hanging out. If they have this time, and they see it in the schedule, they will be much more attentive during your meeting times. It may also be possible to schedule activities, related to the purpose of the trip, that provide from break meetings with speakers such as a hike, a raft trip, a tour, a stop at a site of historic or cultural significance.[3]

Preparing for an extended field trip is time consuming. I estimate that there is at least a day of preparation time required for each day in the field.

Preparation II – Orienting the Students to the Trip, the Problem and Setting Expectations

[3] For example, the attached schedule on the Animas-La Plata water project shows a raft trip in the middle of the field trip. The impact of the project on river recreation is an issue so rafting gave the students an opportunity to experience current river conditions as well as see the site of a major project component.

The instructor should discuss the field trip on the first day of the course. Students will want to know: where you are going; what it is about; how long you will be away; how much it will cost; and what assignments will be related to the field trip component of the course. At Colorado College whether a course has a field trip requirement and an extra expense are noted both in the course catalog and in the course schedule. Both this and word of mouth should assure that no one is surprised to find that the course has a field trip. Nevertheless, as in any course, some students decide to drop the course and need to find an alternative course as soon as possible. Moreover, those students who are eager and excited about the field trip may have jobs or other commitments they need to schedule to make it possible for them to participate and should be given as much lead time as possible to make these arrangements.

Once you know who is going, you must orient them to the problem. The students should see the field trip as the vehicle with which they will make a grand synthesis of what they learn in the course. Towards this end, you can help them to build these connections from the start.

At the point in the course that the instructor desires to build into the field trip (which will depend on the length of the term), students should be given the assignment, the schedule, the bibliography of materials and background reading. It is important to describe the problem in some detail and to review the schedule to emphasize why we are meeting with these particular people, describing each speaker's stake in the issue and to generate excitement about the opportunity to meet these people. Often I have been able to find good, non-technical, background material in newspapers or magazines. An article that gives a general description of the problem and describes the controversies is best.

Few students will start reading through the background materials on their own. To accomplish this, I ask students, in groups, to prepare a 1-2 page background brief on a particular aspect of the case that are then copied and distributed to each student in advance of the field trip. This assignment is not only a good exercise in synthesizing disparate readings into a short summary, but the collected briefs also give the entire group background on specific issues. Moreover, the students who have done this work have more confidence to pursue questions related to their brief with our presenters, thus making for more active participation. These briefs can also be presented before or during the trip as a means of prepping the group for a particular day of meetings.

Expectations

A dean once said to me as I was heading out in the field that the first measure of field trip success is that you come back with the same number of students that you started out with; the second, that they are the same students. It is important to set expectations before the trip begins. The primary message is that the field trip is a learning experience. There will be time to have fun, but you expect them to be ready to listen and learn from the speakers. Being ready means that the group will be on time, attentive and respectful. They are expected to engage the speaker by asking questions. They are encouraged to ask tough questions, if they have them, but discouraged from being rude. They are reminded that they are representing the college and that we wish to leave the speaker with a positive impression. If there are particular behaviors you are concerned about, you should tell them, pleasantly, that those behaviors are inappropriate in this

setting; e.g., our students will get up and walk out of a lecture at any point and return five minutes later. I tell them that these speakers are not used to that, would consider it rude and so that they should refrain from this practice during the field trip. Finally, you may have meetings at which it would be appropriate for students to be better dressed than for class, if so, tell them what you expect and explain why. They may grumble, but will comply if they understand why it is important.

Meetings with Speakers

Before heading out each day, it is important to go over the day's activities with the students. Remind them who you are meeting with and why. Put the day's meetings in context with previous and future meetings. If a particular speaker is the key person on a particular issue, tell students that and suggest that they engage the speaker on that issue. Do not assume that the students are as familiar with the schedule as you are.

Arrive 5-10 minutes early so that your class is ready to listen at the agreed starting time. These days both government and corporate buildings have security screening including the need for a photo i.d.. Make sure you know what these security procedures are, what you will need, and how long it will take to get through.

At the beginning of the meeting, I usually introduce the speaker. I always ask speakers to begin by talking about themselves and how they came to do what they are doing. Students are interested in how people make their way in the world and may aspire to have a job similar to that of one of your speakers. They may glean something from this that helps them think about their own future careers. Moreover, it breaks the ice as most people like to talk about themselves and many will use it as a means to connect with the students on the basis of common life experience.

Speakers need to know upfront how long they have to speak and how long you intend for questions. This should be in the letter, but it is a good idea to remind them before they begin speaking. It is also important to tell them if your time is constrained by an appointment following their talk.

Speakers should also be told if they should expect or have been set up by a previous speaker for, a particularly difficult or pointed question. Speakers will tell students, "Well, when you see, so and so, ask her …" If the speaker knows such a question is coming, she will be prepared and appreciate not being put on the spot. Moreover, they will not associate the position, implied in the question, with you the instructor.

Be sure to schedule time for questions. Learning how to ask questions is an important aspect of field learning. The question and answer period may also afford an opportunity for you to further your own research interests. When you, as a researcher, interview someone one-on-one, you must come prepared with good questions to draw information out of your interlocular. However, when you bring a group of students to meet with the same person, they will prepare a well-organized presentation thus providing you with the background to focus on the questions that interest you.

Follow-Up

As soon as possible after the field trip I send hand-written thank you notes on college stationery or note cards to everyone who has met with us.

The Final Assignment

Upon their return from the field trip the students are responsible for a policy recommendation paper. An example of this paper assignment is given in Appendix D. This assignment generally has four parts:

The assignment should emphasize analysis over description. I have shortened this paper over the years as I have found that I receive no more than five pages of good analysis regardless of whether the paper is twelve or twenty pages long. With a twelve page paper, I simply get a shorter description of the problem. Students seem to need to describe the problem to some extent before they can launch into their analysis.

More recently I have also offered students the option to build a website on the case study problem based on the field trip as a group project. Examples of these websites can be found under "Projects" at: http://www2.coloradocollege.edu/dept/EC/Smith/Smith.html. These websites are completely the students' work, often incorporating revised versions of the initial background briefs prepared earlier in the course. I allow only 4-5 students to work on the website project and only those whom I believe, based on their participation in the field, will bring strength to the team. They are instructed to create a site that will be a resource to people interested in the problem. They are also instructed to be objective – which some groups achieve with greater success than others. I do not edit the site.

Assessment – What Do Students Learn?

If your principal objective is the efficient communication of economic theory, field trips are not for you. There is nothing efficient about an extended field trip as a teaching technique. While I have never run the experiment, I am convinced that students would "test better" in a standard exam format if we spent more time reinforcing the material in the text and readings and doing more problem sets. So, what do they learn?

Foremost, they learn that real world issues are complex and that, while we may desire simple solutions, they are generally elusive. This may not sound profound but, in general, students start the course knowing what should be done, they end the course less certain. Such uncertainty would be unconstructive if they were simply confused, but their loss of this assurance about what is "right" flows from several constructive forces that occur over the course of the experience.

First, they encounter sympathetic and articulate people on opposite sides of the issue. They hear arguments that they expected to disagree with convincingly presented; they meet well-meaning people on both sides; they no longer see the issue in terms of good versus evil or the environment versus development. As a consequence they become less judgmental and, perhaps,

realize the limitations of making decisions based on emotion. This is, in turn, can lead to an understanding of the need for objective criteria on which to make decisions.

Second, they confront the multi-objective nature of the problem and the challenges of making different consequences of an action or outputs or a project comparable. While this may be particularly true for environmental problems in which important outputs lack market values, it may be nearly as true in a business case in which the interests of various stakeholders come into play, e.g., labor/management, vendor/customer.

Third, they gain a better appreciation of the pervasiveness of uncertainty that are a result of the limitations of our understanding of natural processes, the stochastic nature of natural processes themselves, limitations in available data and, in some cases, conflicting theories over how natural processes work. As a consequence they may be motivated to further their knowledge of the science, statistics, qualitative methods and other skills that can help reduce these uncertainties. The same is true for business cases but uncertainties for the business environment arise from other sources.

Fourth, and this is perhaps the most difficult problem for them, they confront the distributional consequences of alternative actions. They want to make everyone happy and thus they flee from the opportunity cost implications of their policy prescriptions as fast as they can. This point is critical in defining their task in the final paper. If you allow them to ignore opportunity cost, they will do it and so the paper must be explicit in asking them to identify the tradeoffs and to justify making these tradeoffs.

You will also learn much. What you will learn will range broadly. You will come back with good illustrations for your lectures. You may bring back research ideas, and material and contacts from your meetings with speakers.[4] You will also have had a good deal of informal contact with students from which you may learn much about their perceptions and experience in your department and college or university.

Students' papers will not fully reflect the value of the experience. What they take away you may not know, nor ever truly know. But if you do it well, someday you may have the experience of sitting at a conference where the speaker looks vaguely familiar, but you cannot place her until she begins her talk, "I originally became interested in this problem when this crazy economics professor took us on a field trip…" Sometimes we do more than teach economics, we change people's lives.

[4] University of Colorado Law School Professor, Charles Wilkerson has, for many years, taught an environmental law seminar with a field trip component over spring break. The chapters of is book, Eagle Bird, map exactly into the preceding years field trips. My paper with former student Robert Naeser, "Playing with Borrowed Water: Conflicts over Instream Flows on the Upper Arkansas River, " was sparked by a field trip experience.

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