

# **Creating Student Confidence for Communication with Farmer Stakeholders**

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**Abstract:** A summer travel course was established in 1998 as an educational activity of the North Central Institute for Sustainable Systems (NCISS) that included three landgrant university partners: Iowa State Univ., Univ. Minnesota, and Univ. Nebraska – Lincoln. Course goals were to provide students from a wide range of study areas in agriculture and related fields an opportunity to learn directly from Midwest farmers; to visit a range of farm operations from small to large; to learn about both crop and animal production as well as whole-farm systems; to gather essential information to evaluate current farming systems and alternatives; to work together as student teams to process and integrate the information into both oral and written project reports; and above all to gain confidence in communicating with farmers. This last objective helps develop a key capacity for graduating students to use on future jobs, and is one that is rarely met in the conventional on-campus course curriculum. Students were urged to evaluate farms and their potentials for long-term sustainability using production, economic, environmental, and social perspectives and parameters. In addition to the final project team reports, students prepared individual learner documents that followed reflection on their own learning and participation as members of a project team. Feedback from students about communication with farmers has been highly positive over 15 years of the summer course, and their evaluations have been instrumental in the informing of faculty-designed changes in this evolving learning landscape.

**Keywords:** agroecology education, action learning, agroecosystems analysis, travel course, farmer interviews, participatory learning, phenomenon-based learning

## **Introduction**

A course designated *Agroecosystems Analysis* was jointly planned by faculty from three Midwest landgrant universities and one private college as a way to get students out of the classroom to become acquainted with the contemporary practice of agriculture by learning from farmers in the four-state area including Iowa, Minnesota, South Dakota, and Nebraska. As instructors, we had all faced the budget challenges and scheduling difficulties that made periodic field trips during the regular semester or quarter nearly impossible to arrange, and thus we were looking for viable alternatives. It was also clear that just discussing practical farming examples in the classroom even with slides or videos was not adequate to illustrate the complexity of real-life farming situations. Although a number of students arrive with farm background or experience from working on farms as interns, others have no such experience. The summer travel course was designed to fill that gap in agroecology education.

Much of the course design was based on our previous experience as instructors in courses on prairie species and range systems, forage crops and systems, practical agronomy, and plant breed-

ing. Some invited faculty from soils and agricultural education were helpful early in the course, but our intent was to depend on the farmers as primary sources of information for the course. We used as one foundation the Agronomy Society Monograph No. 43 (*Agroecosystems Analysis*, Rickerl and Francis, 2004) that provided an overview of systems thinking as well as integration of topics on production, economics, environmental impacts, and social dimensions of farming systems and rural communities. Another rich resource has been the agroecology course experience in Norway where student teams have explored organic and biodynamic farming systems with farmer interviews, and studied community food systems as part of a semester-long immersion course (Francis, 2009). Starting the educational process in the field builds on the concept of phenomenon-based learning, applied to agroecology through practical learning experience that builds on student exposure to and appreciation of multiple sources of knowledge including that of the farmer and their own observations (Østergaard et al., 2010). There is a rich literature on action-based learning that is closely tied to action research (Levin, 2008; Zuber-Skerritt, 2001), and these have been described in agroecology as learning that leads to responsible action (Lieblein et al., 2004; Lieblein and Francis, 2007).

Course goals were 1) to provide students an opportunity to interact closely with Midwest farmers and learn from their life experiences, 2) to become familiar with Midwest agriculture including a range of farm sizes from large and industrial to small and biodiverse, 3) to learn first hand about crop and livestock production and the challenges farmers face in designing integrated systems, 4) to gather information on the farm visits that would allow students to do a cursory sustainability analysis, 5) to develop team management and learning skills, and 6) above all to provide a safe space for students to learn about communication with farmers and develop interviewing skills that would prove helpful in the future. The methods centered on farm visits and interviews with farmers, collecting and evaluating information as student teams, preparing an oral and interactive team presentation to the whole class and instructors, writing a summary document on the evaluation of farms, and preparing an individual learner document that described the learning process including how well each student perceived their personal contributions as a member of a student team. The course documents, including farm project reports and individual learning statements, were used along with instructor conversations with students to evaluate the success of the program.

### **Course Methods**

The travel course has evolved over 15 years in a time of substantial stress in the farming industry, but also with some good years when farmers were successful in making an adequate income to meet expenses and help pay for their investments in land. Although we recognize as instructors that we can attain this longitudinal view due to many years of visiting some of the same farms, this generally is not apparent to students who are provided with a single year snapshot of the farms included in the tour. Students do acquire some sense of the evolution of each farm and all the systems, as farmers describe their personal histories in farming, current operations, and future plans. Students attempt to take this information into account as they assess the farms and come up with potential recommendations for future activities or enterprises that would help farmers meet their goals.

The travel schedule and appointments with farmers are all arranged ahead of time, and there is little opportunity for modification since it is difficult to make changes when people are busy during the growing season. Several of the same farmers have been visited each year since the start of the course, while others have been added as family or financial or timing circumstances changed. The general schedule is to visit two farms each day, along with another site visit that could be study of specific soils, a transect walk across a native prairie, or an associated industry such as a wind farm or commercial processing activity. The core of the course has been eight to ten visits

to farms each year. In one of the early years we moved the class across the three-state area and stayed in different places each night. But this proved cumbersome, expensive, and logistically difficult; for the past decade we have used Dordt College dormitories in Sioux Center, Iowa as the headquarters where there are comfortable accommodations, opportunities for students to prepare their own food, and meeting rooms where student teams as well as the entire group can meet. This has meant longer travel distances to some farm sites, but the time has been used to advantage by having teams meet during the trips to begin their debriefings and evaluation of information collected.

The preferred method for the course is phenomenon-based learning (Østergaard et al., 2010), where the learning process starts on the farm with the phenomenon itself rather than starting with theory and extensive facts about the farms or practices in the classroom. Farmers are well versed in the enterprises and practices they include in their operations, and also integrate a wide range of mechanical, agronomic, business, and personal relations skills as they deal with the complexity of their farms and markets. Thus they provide a rich source of information that brings students into the learning activity at what we have called the ‘third step on a learning ladder’ (Lieblein et al., 2007), where the two previous steps are 1) learning theories about farming or specific disciplines and 2) learning skills about growing crops or raising animals. Students enter the learning ladder at the step of practice and integration. This strategy is consistent with the long history of experiential learning over the past century in the U.S. (Moncure and Francis, 2011), and it may also be called ‘action learning’ (Lieblein and Francis, 2007).

Two preparatory activities in which we engage the students on the first day of class are community building and practicing interview techniques. The first is initiated using personal biographies which students and instructors all prepare in about ten minutes on large flip chart pages, and then present to the entire class. This breaks the ice in a group that comes from at least three different universities, and will have to work together for the next eight days. The other activity is discussion about interview techniques, and after some introduction about what we want to learn and how to approach this challenge the new student teams assemble and decide on what questions they will ask and how to approach the farmers. Some guidelines are available for initiating this activity (Francis, 2012; Østergaard et al., 2013)

Students have reviewed key literature materials during one month before the group assembles, and students are asked to read about and evaluate several models provided by instructors for describing sustainability. They write a brief essay about which model(s) they prefer and why. When teams are assembled the first evening they discuss their individual opinions about different models that could be useful, and then make tentative decisions about which model(s) to use for their group project report. Choice of a technique also impacts their decisions about how to interact with farmer stakeholders including what questions to ask and how as a group to record information to be prepared for their reporting sessions. We urge students to make careful observations and take notes, then compare these within each group, and not to jump to conclusions nor recommendations.

On return to the Dordt campus each evening, we assemble for a plenary reflection session that is guided by a different student team each day. The goal is to share observations and experiences from the farms that day, recognizing that every person gathers different ideas and insights from the same visit. Students have been highly creative in designing these sessions, and we consider the success of group reflection to be a product of having built a tight learning community from the outset and providing a safe space for initiatives and exploring a range of possibilities rather than seeking ‘the right answer’. Student teams then have the opportunity to meet and share data and ideas from the farms, begin to digest and interpret the information, and continue to expand their ideas about how to present findings in both oral and written formats. This represents another

form of client communication, where the class becomes the stakeholder group for the team conducting the reflection session.

After completing the farm visits, the teams have one evening and two hours the next morning to finalize their group presentations, and then each team has 45 minutes to present their analysis and conclusions in an interactive format that involves the entire group in a learning environment. There are questions and answers from the class, and teams often use some type of survey of students to collect more ideas for their final papers. The course concludes with an evening barbeque and volleyball event, and a time for open space discussion of topics not included during the week. Before returning home a final overview and reflection session is held the following morning. Through the entire week, there are daily one-page evaluation forms that are completed by students and faculty, and carbon copies allow the students to keep a record of what they have written to help build their final individual learning documents. The team of instructors uses information from these evaluation sheets, as well as conversations with students while driving to farm sites, at meals, and informal moments, that are shared every evening among the instructors who meet while the student teams are working. To the extent possible, we keep track of the learning and personal situation of each student, make small adjustments in the schedule for the next day, and generally assess progress of the course. This has proven helpful in identifying team problems, in counseling individual students, and generally keeping close watch on the pulse of the group in order to enhance the learning opportunities.

### **Course Results**

As instructors, we have observed a number of indicators of success, including several related to the goal of creating greater confidence and comfort for students in communicating with multiple stakeholders. One obvious indicator is the consistent number of student applicants that has maintained the course at full enrollment of 25 per year since the course began. This is not necessarily easy with a course in late July that conflicts with many students' summer work schedules that do not allow them to miss a week of employment. The mix of approximately 75% undergraduates, usually fourth year students, and 25% graduate students provides a valuable mix of youthful energy and experience that is beneficial for both student demographics. There have been two to six students each year from other countries, and this has added a special learning opportunity for domestic students to communicate and work closely with young people from other cultures.

In preparing for farmer interviews, student teams deliberated about the types of questions that would not only give them needed information, but that would be appropriate to ask. While it was easy to ask about farm size or areas planted to each crop enterprise and a general idea of crop yields, which farmers are ready to share, it is more difficult to ask about sensitive issues such as farm finances or long-term plans for succession of ownership. The former can be derived from number of hectares in each crop and some idea of yields per hectare, together with commonly available crop prices and production costs that are published by Nebraska Extension each year. An example from the question on succession can be approached tactfully, not by asking "Who will take over the farm", but rather "How would you describe your plan for management of the farm 20 years from now?" Many of these issues and questions can be posed using common sense, but it is instructive to practice the skills in a safe space and together with other students to share the task and develop ideas together.

Another dimension of communication with farmers is the "farming language" issue, something that farm children grow up with and most from the city do not. Agronomy students and those from the farm are excellent mentors for those students in natural resources who do not have prior farm experience. Often this happens in humorous ways, as we recently were discussing encountering loose cattle in the countryside that should be herded back to where they belonged. One biology student recounted once seeing a stray cow on the street and helping put it back behind the fence, then another student with livestock experience pointed out that cattle were found on the

road and not “on the street” and belonged inside the pasture and not “behind the fence”. It is not that the farmers we visit lack sense of humor or will challenge students about use of unusual language, but it is important for students to feel a sense of confidence in how they ask questions about farming matters. Other language barriers have come up over the years, and often involve jargon commonly used in the farming community. Students from town may be mystified by some terms and afraid to ask, assuming that everyone else understands. Specific terms we remember from the summer course included farmers talking about

- “tiling their fields” (conjuring up for a city dweller an image of installing bathroom tiles for some unknown reason),
- hiring students to “walk the beans” (creating an image of soybeans on a leash similar to a pet dog walked around the neighborhood),
- contracting a “floater to take care of post-emergence weed chemical application” (creating who knows what type of image), and
- “contracting futures on half the corn crop” (perhaps suggesting a farmer gazing into a crystal ball, which might not be too far from the truth).

Part of creating a trusting learning community is to embrace these cultural differences and use them during the farm visit to provide students an opportunity to practice interview skills, to seek ways to increase communication, and to demonstrate respect for the farmers and their knowledge and experience. We nurture a class environment where students and instructors and certainly not allowed to put others down for not understanding. We urge students to ask us with total confidence whenever they do not understand, or to use their farm-based fellow students as consultants for issues related to farming and special terms. One is tempted to say that, “There is no such thing as a stupid question!”, although we are regularly challenged by this in our classes.

The prime opportunity for building communication skills and confidence is during the farmer interviews. We urge student teams to be sure to have everyone in each group participate, and one suggestion is to have different team members focus on unique aspects to listen for during the interviews, e.g. production, economics, environmental issues, social dimensions. Since we have visited most of these farmers in previous years, they are often well prepared in their introductory remarks and during the tours of the farms to anticipate and answer many crucial questions. We ask teams to have in mind a list of questions they want answered, and to be sure to pose those that are not addressed by farmers in the presentation or during the tour. As instructors, we consciously stay behind the student group and let them take the lead in conducting the interviews. We have found by experience that a group of 25 students plus several instructors is about the maximum number that can cluster around a farmer for a group interview. With more people, some tend to break off into small groups for their own conversations, a behavior we discourage as strongly as possible. This means that instructors should also be taking careful notes to model good behavior, and not to stand apart and follow our own conversations.

During most farm visits we only meet the principal operator or owner, but on occasion there is also a spouse, a child, a hired person or intern, or a neighbor who joins the tour of a farm. We urge our students to engage these additional resource people, if it is convenient, in order to access an additional window and set of opinions on the farm operation. This also serves to build confidence in their communication skills in the rural farming environment.

Another opportunity for “farmer-student communication” is within the class group. We make sure that each of the student teams has at least one member with strong farm experience, and these people become “imbedded mentors” to some extent. We are transparent about setting up the teams, based on mixing genders, major fields of study, those from different universities, and their

own “resident farmer” who provides invaluable translation of little-known terms and frequent explanations of crop rotations, identification of pasture species, insight on sizes and capabilities of different farm implements, and answers to the many questions that arise. This communication opportunity has been an ‘emergent property’ of the diverse student teams, and not something that we consciously expected in the early years of the course.

There are daily evaluations, a total of nine during the week, that cause students to reflect on their goals and expectations, relevant prior experiences, and daily observations about the farms visited and other issues that have emerged during conversations that day. Also included are questions about contributions to the team planning and task implementation, about the day’s schedule and activities, and about how the class tasks and project work could be improved. The instructors read through these anonymous reflections during our evening meetings, and make adjustments to the program if possible and take care of specific and general questions that arise from the group. This is an intense mentoring experience for instructors.

An additional issue that emerged is related to teacher/instructor interactions, another type of ‘stakeholder communication’ that is fostered by this type of travel course when people are together every day for a full week. Students often mention that this is the first time they have really become acquainted with faculty members as ‘real people’ who jog every morning, who have special food habits and preferences, who like to engage with students on topics outside the course materials, and who have families and challenges with their children. Here is a quote from C. Francis: “One student mentioned to me about four years after the course that she really remembered a conversation when I was driving and she was co-pilot; the dialog started when I asked her what interesting books she had read recently, and we had an hour-long discussion about novels and how they were meaningful to each of us.” This type of conversation builds what has been called *immediacy* (Mehrabian, 1971), defined as messages that we give, silently or overtly to students in the classroom or other learning venue. It has also been described as the perceived distance between people, eg. instructor and student (Anderson, 1979). Although many instructors are hesitant to ‘get too close to their students’ in fear of not being able to objectively assess performance, the literature shows that immediacy is positively correlated with attendance, participation, learning, attitude toward class, and student evaluations (Rocca and McCroskey, 1999). The summer course provides ample opportunities for faculty instructors to increase their immediacy with the students in the course.

On Friday morning we have a structured final group reflection session to answer any last minute questions from the teams about their written documents, due a month later, and their preparation of individual learner documents. This is often a joyful time, with much anticipation of a nice ride home, last chance to give us feedback on the course, and an unspoken desire to get some much-needed sleep on the road after the intensive week of interaction. We ask about whether expectations were fulfilled, and solicit ideas about how to improve the course. The last activity is a trip around the circle when each person has an opportunity to give their personal opinions and reactions about the learning environment and what the week has meant to them. This often evokes a very personal and at times emotional statement about what the course has meant, and the courage such reports require also reflects the degree of closeness and trust that has been established in this agroecology learning community. One student from ISU said, “I learned more in one week in this course than in a full semester of courses on campus”.

Related to immediacy is one final aspect that we think contributes to communication and to learning, and that is the student bonding, faculty bonding, and student/faculty bonding that occurs during the week together. This comes as no surprise to anyone who has been to summer camp for sports, to a religious camp, or to any other activity that brings people together for an extended period of intense learning and common task achievement. It is both amazing and heartening on the final day of class when the different university groups begin to load into their vans for the

trips home. The number of hugs that are exchanged, and even some tears that accompany the parting event, give us satisfaction each year that some serious learning community building has occurred during the week. And it is about the only occasion during our educational year when most of the students give the instructors hugs when departing at the end of the week. We consider this one more indicator of the intensity of the learning experience and the value that students place on this group education event.

A month after the departure from Dordt College, we have the privilege of reading each individual's 'learning document' that provides a reflection about the whole course experience. The document evaluation experience in retrospect gives us one more window on the student learning experience. Although we do read and evaluate these statements as part of the course grading, they are far more valuable as a method of evaluating learning in the course. We use these documents as one additional type of feedback from students in how the course can be improved, and we have made substantial changes over the 15 years of the course even though the basic structure has remained the same.

## **Conclusions**

We conclude that the Agroecosystems Analysis course has been successful in promoting communication skills and enabling students to better interact with farmer stakeholders. On three occasions, students have told us they learn as much in one week in the field visiting farms as they do in a semester on campus. We have no measure of this, but through conversations during travel, meals, and evening chats with individuals and teams it is obvious that some special learning takes place in this course. There are many other benefits we observe from the course experience, such as increased student knowledge about Midwest farming systems, better appreciation of the complexity of farming and decision making, and how to approach a research challenge such as gathering information and evaluating contrasting farms and farming systems.

In addition to the factual information about farms and systems, students acquire new skills in communication with other students in their teams and with their faculty mentors, and reflect on their own performance as a member of a small team and a larger learning community. Some of the learning process changes have been summarized in a doctoral dissertation by Kristin Harms, a UNL graduate student who attended the class three years in a row and surveyed all students who had participated from 1998 through 2008 (Harms et al., 2009). She found that there was great value to students in the personal exposure to farmers through the interviews, the opportunity to derive their own methods of analysis and evaluation in each team, and the multiple communication venues in which they presented their results. Dr. Harms herself is a testimony to one emergent property of the *Agroecosystems Analysis* course as this learning venue provided an exciting opportunity for her to do research and complete the PhD degree based on student feedback. Another student who took the course two years ago is now part of the Agroecology MSc program at the Norwegian University of Life Sciences, and at present (Spring 2004) is studying milk goat systems and ways to improve them in Madagascar. She is using interview techniques learned in agroecology, and has employed undergraduate students to do the interviews with more than 150 farmers in their native language. A number of other students have been stimulated by this exposure to systems thinking and practical learning, and have continued to pursue additional graduate education in fields related to agroecology.

We should note that several instructors from other universities have participated as visiting faculty over the past decade, including people from Cornell University, Pennsylvania State University, Utah State University, College of the Atlantic, University of Wisconsin – Madison, University of California – Davis, and Washington State University. Based on experience in this class, a similar course was designed as a joint activity of University of Idaho and Washington State University,

an educational opportunity that continues to this day in the Northwest U.S. There has been close communication and sharing of experiences with the Agroecology course in Farming and Food Systems at the Norwegian University of Life Sciences, and a number of publications with shared authorship that include examples from both programs (eg. Francis et al., 2011).

These experiences in designing and implementing practical learning landscapes for students in agroecology, and especially those that include an immersion in field activities and close communication with farmers, have proven attractive to students and fulfilling to us as instructors. We realize that much more can be done to evaluate learning, and that future courses can build on the current experiences. With the push for large class student numbers on campus for efficient credit hour accumulation, the low to modest budgets for teaching, the status attached to research in many universities, and the limited incentives for promotion resulting from quality teaching in landgrant institutions, there is growing need to consider alternatives such as the summer travel course in agroecology. This is one key activity in developing a knowledgeable and motivated cohort of graduates in agriculture who can not only deal with complexity of systems, but have the communication skills needed to communicate well with stakeholders.



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