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Mind Mapping to Explore Farming and Food Systems Interactions

The process of mind mapping to illustrate complex systems has been described in great detail in the book by Buzan (2000) and by others, and there are multiple software programs available to organize the process. This method can be used for taking notes, for summarizing a meeting or seminar, or for making connections and bringing together key interacting elements on a white board or chalk board while a class is in session. We have found this activity especially valuable for students in agroecology who are studying complex farming and food systems, where much of the action results from key relationships and interactions that lead to emergent properties of the system.

Learning Objectives are for students to 1) capture and record key elements of a system during discussion or class, 2) explore principle interactions and duplications of these elements, 3) determine the importance of interactions and begin to uncover important emergent properties of current farming and food systems, and 4) reinforce the holistic nature of systems and their complexities. Although we have used mind maps primarily in class for recording and summarizing discussion, this method can also be used for taking notes in classes or seminars, for keeping key ideas together while reading, or for organizing important elements while searching on the web. The objectives and outcomes can be as varied as the imagination of the user can make them.

Methods for constructing mind maps are as varied and rich as the thinking of those who create them. Generally they are started with a major topic or word in the middle of the board, and this immediately distinguishes the method from more conventional, linear and orderly top to bottom notes from a meeting or class. As topics or themes or elements come up in the conversation, these are added to the diagram in logical places. As much as possible, mind maps made on the board during class should be written in the same words used by the one making the contribution, or reduced to a single or pair of meaningful words to represent the component or idea. The discussion leader can clarify or confirm a word by asking, "Did I hear you say.…? Or "To be sure I have this right, did you mean ….? Or to buy time and to share responsibility, "How do you spell that word, and where do you think it should go on the diagram?" These are all ways to stimulate involvement, encourage ownership of the process, and broaden understanding of the topic. It is useful to plan ahead enough to be sure that most ideas will fit on the board, and that there is some provision for recording the results later on a flip chart or using a digital camera.

The moderator or the person making the mind map should seek the most logical place for each addition to the board. The advantage of a white board or chalk board is that words can easily be erased and moved to another position in the mind map. This is less easy when words are recorded permanently on flip chart paper, although the permanence is useful to have as a record. Some white boards now have electronic potential to record and even to send images to other locations, increasing the flexibility and application of the method. The process can also be shared in an interactive video conference if the camera is capable of focusing on the screen and the moderator is careful to use large enough letters, write clearly, and ask for continuous feedback from a remote audience.

Another dimension of the method is the potential to connect the elements during or after recording them. There can be lines, arrows, circles or other shapes to connect, lines to unite or divide portions of the mind map, and simple drawings to depict relationships or ideas. Different colors can be used to indicate families of words or ideas, or words can be written at different angles on the board. One should be careful to not make too many connections in one figure, although it may be useful to illustrate the total complexity of a situation. When there are too many related elements in a certain area, an additional map could be drawn to one side or on another nearby board or flip chart. The potential options with this method are near limitless, and personal creativity can be brought in to best illustrate the key points in a conversation and their connectedness.

Outcomes of the construction of a mind map from a class, discussion, or reading exercise include a semi-orderly compilation of the elements, major ideas, and preliminary connections among these system components. At the very least, the method causes students to think "outside the box" and beyond the

traditional method of taking conventional notes in class or seminar. More importantly, it is possible to draw some relationships, to recognize and illustrate relative importance of different themes, and to begin to establish a foundation for the emergent properties of systems.

The method is related to another strategy for learning, a rich picture of the farm or community, that can be developed buy groups through discussion. This is described in another fact sheet in the series.

References

Buzan, Tony. (2000). The Mind Map Book, Penguin Books, 1996.

Submitted by:
Tor Arvid Breland, Geir Lieblein, Suzanne Morse and Charles Francis
UMB, Norway
cfrancis2@unl.edu or charf@umb.no

Tips for Teaching Adult Students

With the number of non-traditional students growing, many educators have discovered that adult learners are fundamentally different than their younger counterparts in many ways. Yet, most instructors have been left to their own devices to figure out how best to reach these students who come to class with an entirely different set of challenges, demands and expectations, and generally at a much different level of maturity.

How can instructors better accommodate and encourage adult student success in a classroom setting? Here are a number of ways to create a better environment for adult learners, no matter what the subject material.

Treat them like the adults they are. Adult learners are generally more sophisticated and experienced than their younger counterparts and they benefit from realistic examples of skills they can use in "real life." Adult learners will be empowered as they discover they have a great deal to teach their younger classmates, and the dynamic is mutually beneficial. Incorporate intergenerational discussions on issues that otherwise have a generational divide as appropriate for the subject matter to engage learners of all ages.

Be aware that their classroom skills may be "rusty." Some adult learners have not been in a classroom for 30 years, so you may need to remind them of basic rules and etiquette, such as raising a hand if you have a question. At the same time, reassure them that, as the instructor, you will not be judgmental of their life experiences or their perspectives, and that they will be evaluated only on their mastery of the content. Be generous when it comes to formatting issues such as APA writing guidelines. Instead, focus on content. Adult learners are often self-conscious, even apologetic, when it comes to being in the classroom. They might even exhibit some shame because they feel decades behind their classmates. The more you can break down these walls of insecurity, the better.

Consider and acknowledge the technology gap. Students in their 50s and 60s are generally not nearly as tech savvy—or tech dependent, as some would argue—as 18 or even 30 year olds. Assess each student's level of proficiency as it relates to class requirements and compensate. Provide help so adult learners can "catch up somewhat with the technology. Even if they are skilled with technology, adult learners tend to have dramatically different habits. While younger students may be tethered to technology, adults have longer attention spans and traditional classroom approaches appeal to them. This does not mean you can lecture to them for three hours, but you can expect the older learner to concentrate on complex material without feeling "withdrawal" of from a technology device.

Be efficient with lessons and activities. Move fast and don't waste anyone's time. Adult students have jobs, sometimes children and tons of responsibilities, so pack every class with information and useful activities. Consider balancing instructional time with "lab" time, giving students an opportunity to do modeling work or homework in class to give them a better chance of accomplishing all the requirements on time. Consider being "strictly flexible" — diligent in your expectations, yet understanding about busy lives, illness and working late. Like any job, it's not to be abused, but as grown-ups, they have priorities that sometimes take precedent over finishing assignments. Build in safety nets that allow a limited number of late assignments to maintain flexibility, accountability and expectations of excellent work.

Be creative. Use the unique vibe or personality of each class to teach the lesson and choose activities that engage, and even entertain to some degree. Pair highly motivated students with those less skilled on projects to create peer encouragement and mentoring. This strategy keeps students interested, attendance high and motivation strong.

Emphasize personal growth. While younger students are encouraged to do well on standardized tests and accustomed to being compared to their peers in this way, adult learners are challenging themselves. Consider making personal growth in ability and skills part of the actual grade; for example, compare first assignments with more recent ones to determine how they are personally improving. It helps build confidence

and give tangible areas for improvement. School is hard enough. We should point out the positives.

Submitted by:
Brooks Doherty
Rasmussen College, MN

Transect Walks across Farms and Landscapes

Learning to traverse and read the landscape is an essential capacity for agroecologists, and vital to the education of our MSc students. For students acquainted with farming and natural areas, it is important to learn to observe using all the senses and to put observations into the framework of prior experience. For those new to agroecosystems or the natural environment, it is essential to develop skills of observation to absorb details as well as view the macrocosm and context. For everyone in the field of agroecology – ecology of farming and food systems – it is an opportunity to acquire and practice observational skills that will help in later analysis and evaluation of current systems, as well as prepare them for envisioning improved and more sustainable systems for the future. The method has been especially valuable in Participatory Rural Appraisal as a tool for community leaders and citizens to assess their resources [FAO, n.d.], and there are many variations that are used in teaching and in research.

Learning Objectives are to 1) both open and hone the multiple senses to broaden observational skills to absorb as much as possible the complexity of farms and the rural landscape, 2) expose the details of these systems and learn how they are unique from other systems understood in other contexts, 3) provide a foundation for later discussion and analysis of farms and community food systems, 4) quickly orient the group to a new landscape and its features by sending people in different directions and later sharing observations, and 5) develop a capacity for social learning and interdependence as different people on a team observe unique details related to their prior study or experience that may be transparent to others, and share their experience with the group.

Methods that have proven useful in this activity early in a semester or short course have included two variations on "walking the landscape". We normally organize the class, course or workshop participants into pairs, with a goal of providing different perspectives on observations and to assure that each person will be a full and active participant in the exercise. Since people are often new to the immediate landscape and region where a course is held, we provide maps that include both topographic features and land use, as well as roads, trails, buildings, and other components of the built landscape. On these maps we designate a destination, with a distance from the classroom or other meeting venue depending on the time available; this is rarely less than one kilometer and may be up to three or four kilometers each way. We prepare for the exercise with key questions that are specific to the goals of the course. For example:

- What are the major observable consequences of geographic forces that have shaped the landscape?
- What are the most obvious human impacts on the natural resources and current land uses in the landscape?
- What features of the landscape appear especially valuable to provide ecosystem services?
- How is the landscape designed or managed to promote agricultural productivity? … to preserve biodiversity? … to provide resilience and stability to agriculture?
- Others unique to the goals of a course or workshop?

We normally discuss these learning goals and methods explicitly before people leave the class or meeting site, and ask in a general way what people are going to look for? The walks often provide an excellent venue for people to meet each other, discuss the landscape and its components, and compare the views and details with prior experiences. Another strategy we have employed on the walks is to urge people to walk quietly and not share observations on the outward bound trip, then to discuss their experiences on the return. We speculate that this will help each student enjoy a personal experience related to the landscape as well as a social learning situation on the return, but we have yet to decide which is best.

Outcomes that we have observed as well as gleaned from the subsequent discussions include an appreciation for the topography, principal land uses, and impacts of human development on the landscape. In Norway, one of our points in the orientation is that everyone in the country has access to the entire landscape, including tracts that are privately owned as well as those that are property of local or national government. This allemansreten policy guarantees everyone the right to follow trails or small roads, to pick berries or mushrooms (except in the vicinity of a dwelling), to cross forests or pastures, and to experience any area of the country as long as they are respectful of private property, close gates to keep livestock in or out, and refrain from walking through

cereal fields that are near harvest. It is also legal to go on skis, by cycling or jogging, and to camp without permission, as long as the owner's livestock and equipment is respected. This rule that goes back to Viking times is a welcome surprise to many students who come from cultures where the signs "keep out" or "no trespassing" are commonplace.

The observations on multiple routes across the landscape quickly bring a fuller understanding of the total landscape to the student community. This could require several days or weeks if each person were to explore the entire territory on their own. The experiences of some people encourage others in the group to pursue further study of areas of special importance, including farming and livestock systems, especially interesting forests or land forms, and particularly unique paths for walking or trails/roads for cycling. Listening to others recount their experiences, we have heard classmates exclaim, "Oh, I saw that too, but I really did not understand what it was." Or, "That is really different, and it reminds me of …." One variation on the same activity is for student teams to take shorter transect walks across their project farms without the farmer, observing crop and livestock enterprises and their integration and interactions. They begin to observe and assess the production potentials of the farm, its soils and biodiversity, and form ideas about intensity of land use and possible improvements for the future. This adds to their foundation of information when they later meet the farmer and learn in depth about the production, economic, and social strategies and connections that characterize the current situation.

In summary, we have found the transect walks to be a valuable form of orientation at the landscape and at the farm levels. We have used this activity to build and practice observational skills, and have received strong positive evaluations from students.

References

FAO. n.d. Transect walks. Informal Working Group on Participatory Approaches & Methods. http://www.fao.org/Participation/ft_more.jsp?ID=3581 [accessed 25 September 2011]

Submitted by:

Charles Francis, Suzanne Morse, Tor Arvid Breland and Geir Lieblein

UMB Norway

cfrancis2@unl.edu or charf@umb.no