

The Foxfire Approach to Teaching Science: An Interdisciplinary Design

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In 1966, Eliot Wigginton began teaching ninth and tenth grade English in a 250-pupil high school in Northeastern Georgia. One of the projects he began with his students in those first English classes was a community magazine called *Foxfire*. Students collected oral recollections of their community's cultural history (folk remedies, community events, regional technologies, etc.), and sold subscriptions to *Foxfire* to the local residents. The Foxfire concept of using cultural heritage as a motivational force for learning has since been emulated by educators all over the country, and accounts for the title of this paper.

Choosing a Student Research Project

In the process of teaching both science and language courses on the college level in rural Mississippi, it soon became apparent that our students became most interested in theoretical concepts when they were related to the folkways of their local culture. Likewise, when teaching writing, we observed that students learned to write more effectively when they were asked to write about personal familial experiences as opposed to global or world-view writing assignments.

The term "folk" in anthropology means the "inside point of view" of the people under study and "folklife" refers to the process by which traditions endure and the social context in which they are found (Bartis 1980). From previous writing assignments, our faculty was aware that our students were

interested in "old-timey" folk remedies and curatives. We were able to secure funding from the National Science Foundation's Undergraduate Research Program to implement an ethnobotanical research project which was designed to assist underprepared college students in developing their substandard qualitative and quantitative basic skills.

Objectives of the Student Research Program

Folk medicine evolved through trial and error. Those remedies that showed immediate benefits were adopted first; those whose benefits were delayed took longer to identify. Curatives which proved beneficial have been passed on from generation to generation by word of mouth and imitation. With recent advances in medical/scientific knowledge, many beliefs associated with folk medicinals were exposed as superstition. Because of the superstitions associated with some folk medicines, there has also been a trend to view all folk curatives and remedies as worthless.

As science researchers we must always consider that the first research attempt, or even accumulated research results, may be erroneous. Since people still make and use folk medicinals in the rural south, we decided that the major thrust of our project would be to determine the medicinal value of the most popular remedies still in use.

In addition, we wanted our students to develop skills in research techniques and the rationale for their use. We hoped that our students would experi-

ence the excitement of the search and the joy of discovery, and through this experience come to love science and its practice.

The Ethnographic Investigation of the Geographic Area and Its Inhabitants

Research Skills

Students were trained in the search for, and use of, published and unpublished primary data. Some source materials that were particularly helpful at this point included Bartis' *Folklife and Fieldwork* (1980) and Yoder's *American Folklife* (1976). The ethnographic investigation was one of the most successful components of our instructional model. After weeks of searching through published books and journals, and unpublished plantation records and historical accounts, the students discovered that:

More than 85% of all the medicinal plants harvested in the United States are found east of the Mississippi River, and 75% of them are found in the Appalachian Region. Marshall County is located in that portion of Northern Mississippi that is included in the Appalachian Region.

The original inhabitants of Marshall County, the Chickasaw Indians, were one of the major chiefdoms of the Southeast and belonged to the Muskogean language family. The richness of their culture began to flourish along the Mississippi and its tributaries about 500 A.D. and was characterized by major mound-building efforts. When the first white settlers arrived in Northeastern Mississippi the Indians they encountered there were the descendants of this cultural tradition.

The early white settlers of Marshall County brought with them herbal remedies which were then commonly employed in Europe. A few even brought seeds and planted herbal gardens. They experimented with almost every new plant they encoun-

tered, and began to ask the Chickasaw to show them which plants cured illnesses.

African slaves brought their beliefs and practices with them to Mississippi and modified them to suit the new environment. They also used many of the cures espoused by the Chickasaw, and many slaves became renowned as healers.

The Indians were removed from Mississippi in 1830 and resettled west of the Mississippi. By 1840 the population of Marshall County consisted of 9,268 free whites, eight free Negroes and 1,250 slaves. By 1850 Marshall County had a larger population than any other county in the state, with 14,271 whites, 1 free Negro and 15,147 slaves. It was in this socio-cultural milieu that the folk medicine tradition grew, flourished and endured longer than in almost any other area of our country.

Using the Library

The students next participated in requesting a computerized literature search at the University of Mississippi. The research librarian showed them which Science Indices to use, and instructed them in developing "key words" for the computer. Through this exercise the students became familiar with some of the more common computer "languages" and really enjoyed "talking" to the computer. After receiving the computer print-outs the students checked the books and articles they wished to read in the area of folk healing (see Reference List for some key ethnobotanical references). We then ordered these materials at a very nominal cost through interlibrary loan. Our local public library also was very helpful and ordered many materials for us at no cost at all.

The students next were instructed in the skills necessary for writing a good library research paper. I had them use a Literature Data Sheet form for this purpose (Appendix Tear Sheet #1).

LITERATURE SEARCH DATA SHEET

Disorder _____

Student _____

Remedy	Ingredients	Preparation	Literary Citation

Appendix Tear Sheet #1

Questionnaire Construction and Interviewing

We used the Housen's manual *How to Use and Design Questionnaires* (1983) and Sudman's and Bradburn's *Asking Questions: A Practical Guide to Questionnaire Design* (1982) as guides for questionnaire design and construction. The first questionnaire we decided we needed was in reference to sociodemographic data. Through designing this questionnaire the students became familiar with many concepts relating to demography, population genetics, race and ethnicity, socio-economic parameters and status and role (Appendix Tear Sheet #2).

The students next designed a fieldwork data sheet (Appendix Tear Sheet #3). The first attempts at using this data were somewhat disastrous because

the informants usually could respond only if asked about a remedy for a specific complaint. Since our intrepid investigators had rarely been ill, and only for minor causes, they were at a loss as to what complaints or disorders to ask about. So, next we decided we needed a "disease checklist" for them to refer to as they conducted the interviews. This checklist became modified through use and generally was very helpful. The students soon learned that their informants had cures for "high blood", but rarely knew what hypertension was.

Each student was provided with a "how-to" book on interviewing techniques (Ives 1980) and given additional instruction regarding interviewing and recording oral data. The students learned many things from this exercise. For example, never approach

SOCIODEMOGRAPHIC QUESTIONNAIRE

Investigator _____ Date _____

1. Name of informant _____

2. Sex _____ 3. Age _____ 4. Race _____

5. Place of Birth _____

6. Ethnic Heritage of Mother _____ Father _____

7. Occupation _____

8. Income _____ 9. Marital Status _____

10. Number of Children _____ 11. Formal or Informal Leadership Positions _____

12. Reason for use of Folk Medicinals _____

13. Length of Time using Folk Medicinals _____

14. Source of Knowledge of Folk Medicinals _____

15. Do You have Healing Powers? If Yes, Explain _____

16. Type of Formal or Informal Training in the Preparation and Use of Folk Medicinals _____

17. Suggested Contacts for Additional Information Regarding Folk Medicine

these people wearing a suit, or carrying a briefcase or tape recorder. Prospective informants will think you are from "welfare" or "food stamps". Soon the students learned that wearing casual clothes would gain the confidence of the informant before conducting an interview, and that they should always ask permission before using a tape recorder. Upon completion of the interviewing segment, the students knew they had to come up with another data sheet that would reduce the raw data to more manageable proportions. A master data sheet was designed that allowed the students to record their remedies according to complaint or disorder.

Botany and Biochemistry

As the informant data came in, the students became more and more aware of their inadequacies in reference to natural plant substances. Although many remedies consisted of natural ingredients such as clay, soot, and cobwebs, the bulk of them contained natural plant substances. Several informants took our students to the fields and woods and showed them what the various plants and roots looked like. Our folk medicine class sponsored several assembly programs in which they demonstrated the preparation and use of actual plant parts (i.e., peach tree leaf compresses for headache, cow chip tea for colds, blackberry root tea for diarrhea). At the same time, because they had to record the common and scientific names for the plants, they came to have a substantial knowledge of local flora.

The botanical component led naturally to a phytochemical literature search. If thousands of people for hundreds of years had been drinking cow chip tea and swearing to its efficacy in curing colds, reducing fever and sore throat; then the students reasoned that there must be something beneficial in the

brew. During this part of the research process they discovered that many folk remedy ingredients exhibit highly antiseptic, antibiotic and/or antifungal activities. Some examples of commonly used ingredients possessing such properties include: 1) animal waste that has mold growing on it, 2) poke weed leaves and shoots (*Phytolacca americana*), 3) golden seal root (*Hydrastis canadensis*), 4) black walnut hulls (*Juglans nigra*), 5) catnip leaves (*Nepeta cataria*), 6) mullein leaves (*Verbascum thapsus*), 7) mayapple root (*Podophyllum peltatum*), 8) cherry bark (var. spp. of *Prunus*) 9) blackberry root (*Rubus villosus*), 10) ginger root (*Asarum canadense*), 11) yarrow leaves and tops (*Achillea millefolium*) and 12) yellowdock leaves and roots (*Rumex crispus*).

Conclusion

Upon completion of the project and their course of study the students didn't want to stop. They were so caught up in the excitement of scientific investigation that they had completely forgotten that they were signed up for 6 hours of college credit (*Research Methods I and Survey of Anthropological Literature*), and that they were to receive a grade. They loved all aspects of the research project.

As an instructor, I feel that the students now have an excellent grasp of many of the theories, concepts, and methodologies basic to the following disciplines: history, anthropology, sociology and botany. In addition, they have developed research skills and the motivation to use these skills in pursuing careers in science.

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FIELDWORK DATA SHEET

Informant _____ Date _____ Student _____

Disorder	Remedy	Ingredients	Preparation	Dosage

Appendix Tear Sheet #3

can Folklife Center.

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