Using the Definition of Geography to Develop Teaching Strategies

E. A. Fernald

Many teachers of pupils in grades K-12 have had little or no formal geography training. More importantly, they are even more unlikely to be aware of the methodology of geography, which, in fact, is the essence of the subject. This understanding of the approach of geography is critical to knowing how to set objectives, in choosing content, and in deciding what teaching strategies to use.

Many of you readers have heard me say that anyone who is a geographer, or who teaches the subject, should be able to give a definition, or description, of geography and state how it influences the way she teaches and conducts research. I maintain that this is a valid opinion and that the rejection of this position is the basic reason we geographers moan about how misunderstood our discipline and we are. It is the reason administrators in both the precollege and university institutions fail to support a subject that should be one of the most critical to a good general education. We fail to let them know what geography is and how it is a unique subject that allows a student to be educated in a way no other discipline does.

My first objective in this article is to help classroom teachers who have been assigned, voluntarily or not, to teach a geography course, or those who feel they should infuse some geography in the courses they are already teaching. I will explain my position and give concrete examples of what I am professing. These examples will be activities and content that may be used in the classroom next week. I will mention the *Geography for Life* report (National Geographic Research and Exploration 1994) and note how it may be utilized as a teacher aid and guide. Finally, I submit this article as a point of discussion for my academic colleagues who would wish to show me

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how a different or modified approach would be more correct, or clear, to help teachers in their task of teaching geography.

When teaching geography, each objective chosen, all content and the selected teaching strategies are best understood and best utilized within the context of having a clear understanding of what geography is as a discipline. Too many people, even some teachers of geography, feel the discipline can be defined by its content. They describe, or define, geography as "the study of man and his environment," or as "the study of the world's regions ." While geography does study these topics, it is not what is studied, but how the data is studied that defines the discipline. This is a very important distinction. I repeat, this is a very important distinction. If we accepted, by error, that the discipline can be defined by what is studied, it becomes an "all things to all people" exercise. It professes to examine subject matter that is already covered by other disciplines. More important to the teaching of geography, it does not identify a unique approach to thinking about, or learning about, the world.

In light of the above I maintain that geographers must accept, and teach, the understanding that geography is the unique discipline that examines the earth from the spatial point of view. After all, geo-graphy as it comes from the Greek, means "earth writing." We can accept the broader ideas of " writing about the earth," "earth study or description" and other variations but each one must include the idea of the "spatial" approach as our exclusive domain. In itself, even that definition doesn't meet the need for a clear, usable explanation of what geography is because the term spatial is not understood by most people. Of more importance to the teacher is the fact that such a definition does not help geography teachers understand how to develop lesson plans to help students "think geographically."

Logically, it takes several explanatory steps to adequately get a handle on a useable definition of geography. First, we must explain what the "spatial approach" is. It is the study of phenomena by looking at their areal distribution and interaction. The next reasonable question could be, "What does that mean?"

An analysis of the areal distribution of a phenomena means that geographers examine the location and distribution of phenomena in space, or place, by means of identifying their density, pattern, diffusion and dispersion. Density is the number of phenomena in a unit of area. Pattern is the discernable locational arrangement of the thing being studied and diffusion is the movement of phenomena

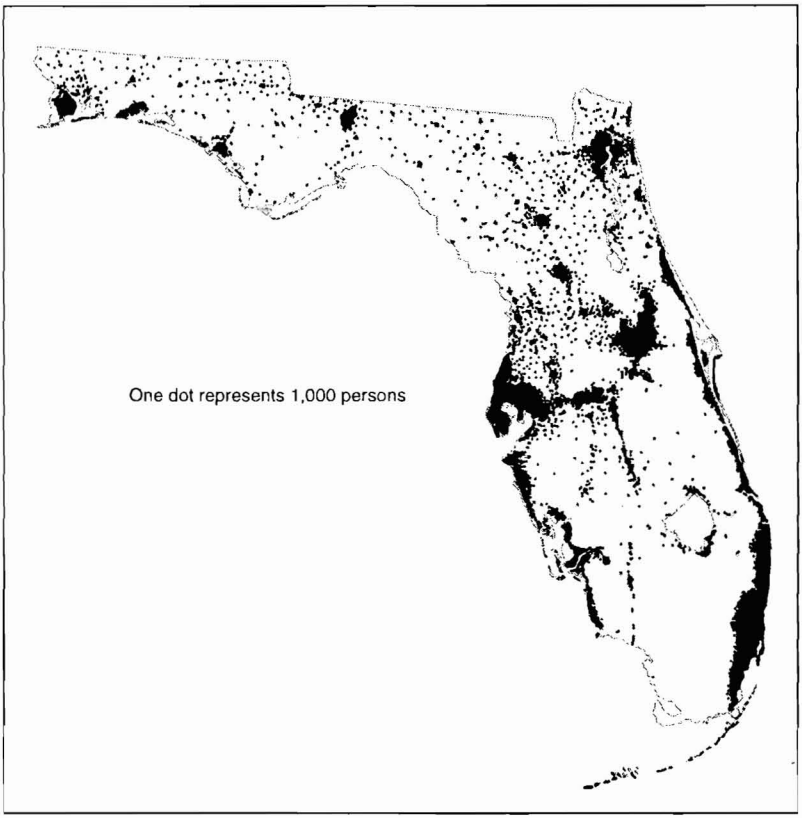
through space over time. Finally, dispersion is the measurable distance one, or more, phenomena is from one or more reference points, or the extent of the spread of a feature within an area. To study the spatial interaction of data, the second aspect of spatial analysis, requires us to analyze the relationships of phenomena within a single place and to gain an understanding of the more general relationships of places themselves.

It is learning how to think in terms of areal distribution (density, pattern, diffusion and dispersion) and the relationship of phenomena in place and the interaction of places that is geography. Interesting to me is the fact that few geographers would disagree with this idea. Certainly, none of the ideas are new, or unique to my way of thinking. Historians and philosophers of geography have long discussed, and agreed upon these ideas. The National Academy of Sciences publication, *The Science of Geography* (National Academy of Science 1965) gives geography's organizing concept as "spatial distributions and space relations." Geographers, at their peril, do not communicate this theoretical framework to other educators either at the pre-school or university levels.

Good geography teaching involves having the students "thinking geographically" and becoming active in the learning process. Of course these ideas are very, very old but are referred to as the "new" geography. When teachers understand the theoretical framework of geography it aids them in achieving the goal of student involvement. What follows are brief examples of using the "geographic approach" to study data.

A reasonable geographic study for our purpose could be an analysis of selected aspects of the population of Florida. First, the geographer would map her/his data. Then, she/he would look at the density of population at different scales in order to find important information about state, county or regional characteristics. Exact densities can be determined for individual counties and for the state from population census materials and from tables that give the area of each county. Estimates of density must be made for areas within a county. This exercise can use a dot map (*see* figure 1) or other information gained from the local planning office, the *Atlas of Florida*, or information from a source such as the Florida Department of Community Affairs. Such a map would suggest a discussion of the importance of the uneven spatial distribution of population, or other phenomena. This type of question is a primary task of the geographer. An understanding of the density of an area suggests to the teacher questions of infrastructure, support systems and the im-

Figure 1
Florida Population: 1990



pact of population pressure on the physical and cultural environment.

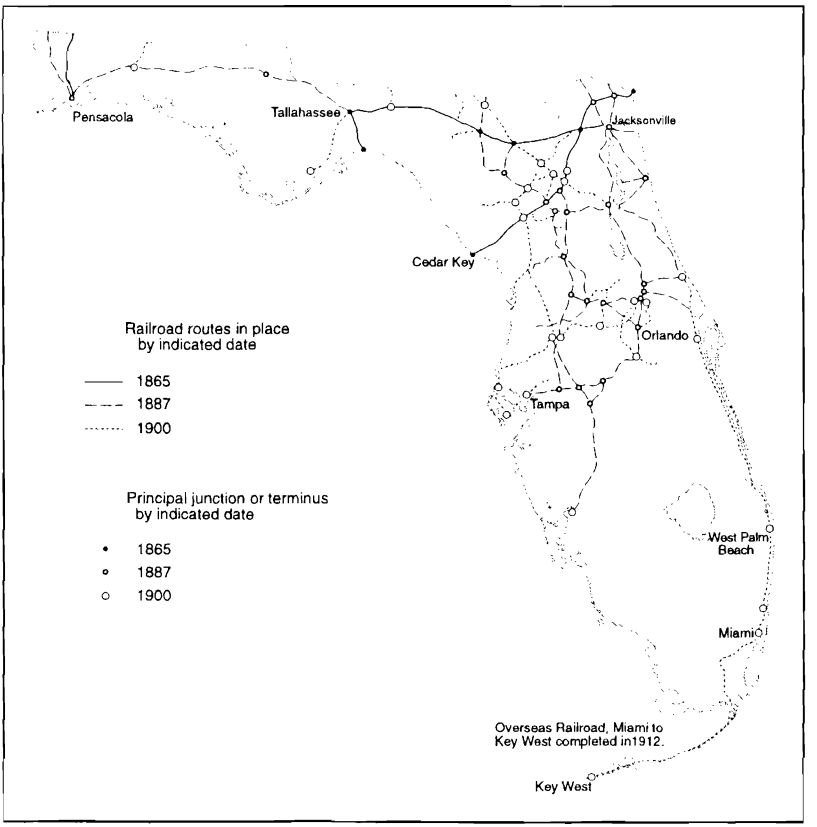
A second activity might involve the application of the pattern test. Once data is mapped, it is usually enlightening to identify patterns of spatial arrangement. The organization of phenomena may be linear, circular, rectangular, or in a star pattern. Other patterns are possible and if there is no discernable organization, the math term random is applied. This exercise, applied to Florida's population , would show that four linear bars, or bands of population exist. One band extends from Jacksonville south to the Keys, another from western Pasco County south to Naples, another from Pensacola east to Port Saint Joe and a final band from St. Petersburg

Figure 2
Florida Population Patterns: 1990

northeast to Volusia County (*see* figure 2). An analysis of these patterns shows, among other things that people are dispersed unevenly statewide, and they congregate close to the high energy coasts and to Interstate Four. This information invites a number of teaching activities such as asking, and answering, the questions about the significance of the patterns observed, why people live where they do and why there are so many relatively unoccupied areas of the state. Relationships of roads, natural environments, cultural amenities, etc. could be examined. Students could be encouraged to rearrange the population on a blank map of Florida and defend the population supporting potential of the newly occupied areas.

Maintaining the population of Florida as our topic, maps, research projects and other activities could measure the movement over time (diffusion) of people throughout the state from the 1500's. Students would find the early nodes of population at St. Augustine, Pensacola and Key West. Then, as military forts were built, followed by the building of roads, ports on rivers and railroads the population moved south generally along the coastlines. Maps (*see* figures 3 and 4 as examples) of the spread of roads, railroads, canals and other phenomena could be studied to answer questions such as, "Did the building of these structures follow the diffusion of population or precede, and therefore, cause it?" Figure 3 shows the early spread, or diffusion of railroads throughout the state by time period. Class-

Figure 3
Early Diffusion of Florida's Railroads: 1865 – 1900



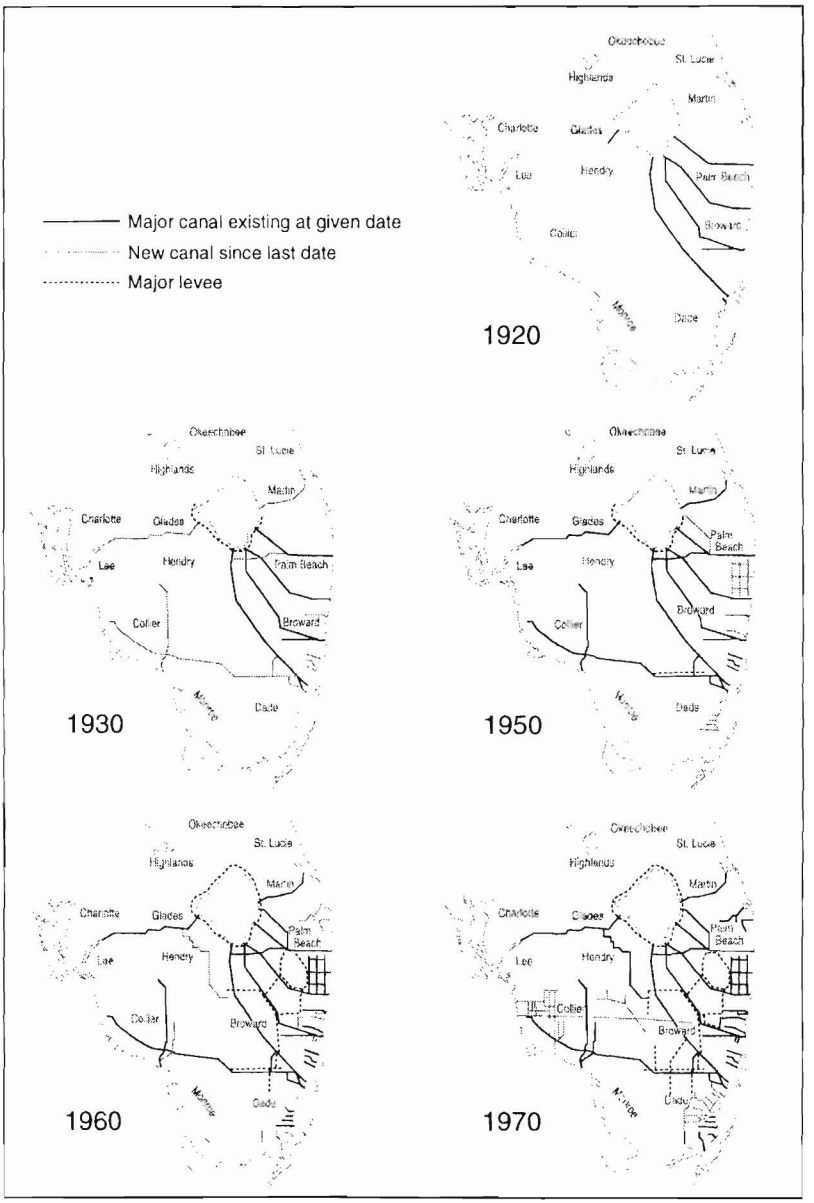
room activities could be based on student research identifying the reasons why the railroads were built and how they were used. Students could role play a group of regional planners during the period of the rail expansion to speculate on the impact of the change in transportation opportunities.

The overseas railroad story is a good geographic study of human's efforts to use technology to modify the natural environment and to shorten the time-distance ratio between Miami, Key West and, finally, Havana, Cuba. Every Florida school library would have several references on this subject. Figure 4 indicates human effort to modify the natural environment. From materials available from the South Florida Water Management District education office, reports can be made on the impacts of the canals on many subjects, such as: impact on Florida's economy; on the agricultural interests; on the Everglades; and, on the south Florida water supply. Each of the methodological aspects of geography would be applied in the spatial analysis of a topic such as this.

Dispersion is a final concept of areal distribution that a teacher could use to involve her students in geographic thinking. Again, using the dot map analyzing the dispersion of people from certain points such as a port, or from highways and roads, or from the coastline, encourages spatial thinking, teaching and learning. Activities are suggested by examining the dispersion of phenomena such as using local data to see what effect the building of a new school has on the community. Many articles have been written about the effect Disney World, Universal Studios and the other entertainment enterprises have had on the diffusion of population and economic activity in central Florida. Planners from city and county governments, as well as from regional planning councils and water management districts, will be happy to work with teachers through their education offices.

Spatial interaction as a methodological concept also suggests teaching activities. Spatial relationships have already been referred to as activities that have been developed to understand areal distribution. As noted in the definition of geography, the first activities could have the students research and discuss the relationship between and among phenomena in place. For example, the location of a major shopping center is related to factors such as relatively level land that is not subject to flooding, a site that is not too expensive, good access roads and reasonably near to a large population with a certain level of disposable, or discretionary income.

Figure 4
Diffusion of Canals in South Florida: 1920 – 1970



For more advanced classes, the understanding of the importance of advanced legal, banking and communications infrastructure to a mature economic system is necessary to a discussion of developing nations. Relationships and interaction of phenomena are a part of virtually every exercise of analysis. In teaching geography, we want to focus on the spatial aspect of this common exercise.

In physical geography, the relationships and interaction of base rock, vegetation, climate and animal activity provide an understanding of soil development. When any of the components of soil development is changed, for example more or less rainfall, the soil type changes. In each of these examples we see the relationships of factors which are different from place to place. However, students should seek to identify interactions which would let us note similarities from which generalizations and principles can be developed.

The other aspect of spatial interaction shows us that there are very important relationships between and among places. These can be seen in the interaction of cities and the towns or suburbs where workers live, work, shop and worship. It includes the many functions, sometimes referred to as the cultural infrastructure, like banking, newspapers, telephone, hospital, etc., services the larger place provides for the smaller. The teacher can have maps, diagrams, and aerial photography exercises, as well as role playing activities in the classroom to study spatial interaction content.

Spatial interaction also covers the smaller scale relationships seen in intercourse among nations, or the effects of the Pacific El Niño and hurricanes along the Atlantic seaboard. Everywhere there are spatial relationships to be analyzed and understood. This is a important aspect of spatial planning at scales from the large, therefore local, to the small, or international scale.

The importance to the teacher of knowing what geography is, is that the definition itself provides the teacher with teaching/learning activities to utilize. Whenever a teacher makes up a lesson plan, she/he should seek to involve the students in thinking or taking an active part in the geographic activities (geography methods of analysis) noted above. Certainly, every lesson will not involve all or even most of these methodologies. Most lessons may focus on just one. But over a period of time a teacher should try to use each method of geographic analysis.

Now, since it has not been mentioned to this point, I recognize that much of the school geography teacher's lesson will be descriptive. It will describe facts and figures about places. This is acceptable, to a degree. Good place description is a desirable geography

skill. Students should be given a model, or frame of reference for studying a place. Properly described, of course, the writer will not just list facts about a place. A model for studying a place can be obtained from the Florida Geographic Alliance office (see end of article).

Students should be able to decide what cultural and physical factors are important and give a place its unique personality rather than trying to describe whatever comes to mind. If they can do this it will show that they can use the various analytical aspects of geography and their place description, or problem analysis, will exhibit the fact that they can "think geographically".

Briefly, I would now like to mention the national standards report on geography, *Geography for Life* (National Geographic Society 1994), and make a few comments about how that report and this article relate. First, I want to go on record as a supporter of the report. However, I feel it is necessary to point out a couple of characteristics of the report that I feel will make it more useful to the classroom teacher. First, the eighteen topics, called standards, are not really eighteen standards. They are a list of topics which the development committee feels covers the entire range of content of the

Table 1
Selected Teaching Strategies Taken from *Geography For Life*

Describe	Trace the spread
List or compile	Develop and test hypotheses
Read and summarize or compare	Explain
Construct diagrams and tables	Make relationships
Measure	Give examples
Identify, locate	Predict, infer, speculate
Use tables	Create maps, collage
Write a story, play or diary	Rank, categorize
Make a model, poster, etc.	Associate
Conduct interviews	Draw conclusions
Collect samples or data	Illustrate
Classify	Role play
Analysis of similarities and differences	Design
Research	Examine
Develop maps, ideas criteria, etc.	Interpret maps and airphotos

discipline of geography. I feel they did a good job. The entire list can be used as a standard, or measure, to evaluate a school curriculum to see if an adequate coverage of content has been achieved. Individual teachers should use the report to see if their class topics adequately cover the part of geography content for which they are responsible.

Several of the other strengths of the report are: the discussion of each of the eighteen topics as subject matter in Chapter 4; the discussion of each of the eighteen "standards" by grade level groupings,K-4,5-8,9-12 in chapters 5-7; and, specific evaluative standards are given in the Conclusions against which parents can measure their children's achievement. Basically, I think the report and this article are in agreement regarding what the content of geography is and how it should be taught. My feeling is that a stronger statement should have been made that geography is a methodologically defined subject. The spatial methodologies are described throughout the report and the suggested teaching strategies do encourage students to "think geographically." A list of these teaching methods can be seen in the accompanying Table 1. This is a good list of activities for getting students involved in geography learning.

I hope that teachers from K through graduate school will think more about the definition of geography. I hope they will let their students experience that definition through their classroom activity and move on out into society with the ability to practice applied, if not professional, geography in their daily living. Finally, I hope geographers and geography teachers will not let this discussion die. I would like to see many geography lessons developed so that the Florida Geographic Alliance can continue to serve as a clearinghouse which will make the teacher's job a bit easier.

References

National Academy of Sciences (1965) *The Science of Geography.* Washington DC. Publication 1277.

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