PROBLEM SOLVING AND COMPUTERS

Ed. TE 233 (3 units)

Fall, 1999

Semester Project: Problem Solving Investigation and Web Page Presentation (50%)

Investigate a problem relevant to the curriculum you teach. The problem may be non-curricular in nature, but it must be useful to students in your teaching area. Use of technology should be an integral, essential part of the solution to the problem for the student. The problem and possibly its solution will be presented through your web site at the end of the semester.

Required reading:

- A Whack on the Side of the Head, Roger Von Oech
- The Non-Designer's Web Book, Robin Williams and John Tollett
- More required reading: "<u>The Thornburg Articles</u>"

Background reading: "Thinking in Education" Democracy and Education Dewey

Overview:

As part of your research, specify any particular knowledge and skills students initially must have in order to solve the problem. Also identify the grade level, describe any unique characteristics of the target group, and list resources available.

What's the problem?

"...an unsettled question or a source of perplexity or vexation often thought of as having an initial state and a goal state" (Halpern, *Thought and Knowledge*. Hillsdale, New Jersey: Lawrence Erlbaum Associates. 1984) As part of the investigation, decide which thinking skills are relevant to the solution: convergent and divergent thinking, deductive and inductive reasoning, conditional arguments, syllogistic and logical reasoning.

Types of problems :

- Non-curricular problems that are relevant to learning in general. Problems that teach thinking skills and strategies are good examples of non-curricular problems. The game of NIM is an excellent reference. Social and aesthetic problems may also be considered as part of this category provided they are relevant and advance a student's learning.
- Software-driven problems that are curricular and presented in commercially available titles. *Civilization II* (MacSoft) or Broderbund's Carmen Sandiego software are good examples.

- Application-driven problems can be generated from manipulating information in data-bases and spreadsheets.
- Curriculum-driven problems are problems that arise specifically from the subject being taught and may also include social, aesthetic or technological problems.

Presentation:

The project will be presented as the main subject of a web site constructed and uploaded during the semester. It is essential that students in Ed. T.E. 233 become very familiar with web publishing either through learning HTML or Adobe PageMill.

Here are a few examples of previously submitted web sites. Example Projects