

Using Technology in Science Education

Paper/Projects

In addition to the class discussion and smaller task assignments (worth 30%), each student will complete two papers/projects which will count 20% each towards the final grade, and a final paper/project worth 30%. Both a brief individual plan (paragraph) for each of the papers/projects (submitted via email) and the papers themselves are due on the dates specified in the Course Outline/Calendar.

(Note- the ideas below will be possibilities, however, after we meet and I start to understand your interests-I will update both on the Blackboard site and in this document other possibilities).

Papers/Projects will be worked out individually. The idea is to have you choose an activity that is OF INTEREST and RELEVANT TO YOU.

A paper is defined as:

- Minimum of 5 double spaced pages - 12 font with standard 1" margins (not including the title page and bibliography or other references)
- A bibliography **MUST** be included at the end of the paper. You need to include at minimum 7 references which must include BOTH electronic AND hard copy resources. These should tie to the reading suggestions assigned or referenced.
- Although the paper can be of something of interest to you-please relate to the material/resources/discussions from class

Paper/Project 1:	
May 21:	description/idea due via email
May 28:	paper/project I due
Paper/Project 2:	
June 9:	description/idea due via email
June 16:	paper/project II due
Final Reflection Paper/Project:	
June 18:	description/idea due via email
June 30:	Final Paper/Project Due

Listed Below are possible ideas from past sessions. You may choose from the following list or discuss possible alternatives:

Papers/Projects

Examples of previous papers/projects can be found on the [ETPRO website](#).

- *Standards*. Compare the technology standards for either teachers or students for Maryland, Virginia and DC. How are they alike? different? How do they compare to the National standards? Are there areas that are missing? How easy/hard will teachers/students be able to meet these standards?
- *Word/PPT Basics*: Craft a PPT (minimum 7-10 slides) AND 1-2 activities created in Word (quiz or test or notes etc.) that apply the protocols discussed in class
- *IT profession*: Interview three professional (list names and contact information) working in the IT field. Compare and contrast their duties and responsibilities-- OR survey the content of several (3 or more) technology journals and summarize the types of articles and information covered in each.
- *History of Computers in Education: People and Projects*. Prepare a paper on one of the following topics:
 - Five people who changed education with technology (choose your own top five)
 - Five things we learned from the mainframe era of educational technology
 - Five ways microcomputers changed the face of education
 - Five important lessons we (should have) learned from past uses of technology in education
- *Open Research Paper*. Discuss the growth of IT in the workplace/work force. What are the most important skills needed for the workplace? How have (and will) students learn? How can the education system better teach and expose students to these skills?
- *Examining and Evaluating Existing IT listserv services*. This assignment involves:
 - Locating and joining at least 3 IT listserves (ones you are already a subscriber to, ones provided in class, or ones you have been thinking about joining)
 - Participating for an extended period of time as a subscriber and learner
 - Prepare a paper analyzing the 3 listserves of choice. For example: compatibility, usability (of the site and the information), how often is the listserv sent, target population, who would benefit, timeliness (for example, several listserves I have seen send out information related to grants and conferences with only a day or two before the deadline), discussion of relative merits and demerits of teacher resources, ways they could improve their services

Brainstorming for Paper II and Final Projects

- Select three substantial Internet based learning environments (3 web quests; 3 educational lesson plans or activities; or 3 Scavenger hunts etc...)
 - Discuss if and how these activities are effectively using IT

- Comparatively analyze the design of the sites on criteria such as (but not limited to): content quality; usability; core curriculum; content; motivation; state and national content and technology standards; navigational issues; procedural/usability issues and pedagogy
- How effectively are the sites meeting the needs and expectations of the major stakeholders
- Present "lessons learned" about the websites' quality and ways they can improve their services
- How would you change or improve their activities. (include discussions from class and readings)
- Develop a lesson or training activity incorporating a Webquest to engage learners.
 - Also include a written narrative explaining how the Webquest changes the manner in which you accomplish the lesson or training activity? What changes did you need to make in the design of the lesson to incorporate the Webquest? What internet safety issues had to be addressed? What learner skills and assessment considerations do you need to address when including a Webquest?
- Courseware evaluation.
 - Select one of the types of software functions described in chapter 4 of the text (i.e. drill and practice, tutorials, simulations, games etc...). Using Robyler's Minimum Criteria Checklist, locate and evaluate a courseware package with that function. Prepare a description (include information from chapter 4 on "recommendation courseware evaluation criteria", a completed criteria checklist (from page 108 in text) and demonstrative/descriptive evaluation of the software
- Lesson plans for instructional software.
 - Select one of the types of software functions described in chapter 4 (i.e. drill and practice, tutorials, simulations, games etc...). Then locate a software package and prepare a lesson that integrates it into classroom activities in one of the ways described in the chapter. The lesson plan should indicate what age group, criteria checklist for evaluating instructional courseware (your own or from page 108 text), and what content standards it addresses.
- Rubrics
 - Reformulate this course's grading rubric (see grading rubric in course content) to justify the meaning of "deeper understanding". You will have to break it down so that it can be used to assess papers, multimedia products and projects- since each has a different framework.

Other possibilities past participants have discussed

- Interactive survey related to digital divide/access issues
- Assessing A Learning Experience in a Text-based or Graphical Shared Synthetic Environment
- Studying website-based Learning Environments (comparing 3 different tutorials or one line activities related to the same topic)

- Evaluating Educational vendors (i.e. through attending a conference or exhibit)
- Evaluating/comparing 3 different existing distance education programs (on-line courses, PD activities and/or tutorials)

Attending a conference or speaker session.

This assignment would involve:

- Gaining admission to a presentation
- Comparatively analyze the speaker presentation to information gained through our class discussions and readings
- Preparing a paper that discusses your findings, lessons learned and what impact your findings might have on your future work

These are only ideas. I am always open to creative ideas of high quality that are of interest to participants.