

Electronic Portfolios and Dimensions of Learning

By Frederick Conway

The infusion of technology in all academic areas makes it evident that schools of this new millennium will look quite different from the schools of the past. I feel electronic portfolios will be how students create and store information. This technology will bring new ways for students to document their progress through the course of a year, and even throughout their entire educational journey. So one might ask, why electronic portfolios? The answer is simple: Electronic portfolios will allow students to not only sharpen computer skills, but also give them a wider media to express their knowledge. Students are able to document knowledge through the traditional written text more powerfully by incorporating video clips, audio and animation. These new enhancements will challenge students to think more creatively and critically as they develop their portfolios. The following will show a direct link between electronic portfolios and the dimensions of learning.

Attitudes and Perceptions

Students usually have a positive attitude toward anything related to technology. They are not intimidated by computers and generally find them fun to explore. Their attitude has been enhanced by the introduction of the computer video game. The following five components help enhance positive attitudes and perceptions as they relate to the development of electronic portfolios:

1. Give students the academic freedom to help develop what makes a good portfolio, and include developing slides that apply to their own interests and goals.
2. Students will soon realize their portfolio is personal and unique, because they determine how it will look and select what enhancements to include.
3. The process of developing this complex product should be broken down into small parts to ensure understanding.
4. Provide individualized sessions for comments from the teacher.
5. Provide sessions that give students the opportunity to view and evaluate portfolios from their peers.

Acquiring and Integrating Knowledge

Students are highly engaged in learning procedural and declarative knowledge throughout the development of their electronic portfolio. I will begin with procedural knowledge.

Constructing Models. The teacher and students should frequently "think aloud" to build an initial model, and regularly verbalizing their thoughts while demonstrating the process. Initially, this should be done solely by the teacher. However, as the students gain more confidence, give them the opportunity to verbalize and demonstrate what they know. Students may soon be able to develop their own creative flowcharts to guide them through the process.

Shaping. Soon after students verbalize and create their own flowcharts, they naturally move into the next phase: shaping. Challenge students to seek other ways to achieve the same end result of a procedure ("tricks" and "shortcuts" are the terms used in dimensions), while pointing out common errors and pitfalls. Students should be allowed to share their tricks or shortcuts as they discover them, so everybody can see and begin to internalize, which is the next phase. Also, allow students the opportunity to apply this knowledge to other academic areas.

Internalizing. In order for students to internalize, they must be given opportunities to practice the skill or process they have learned immediately. Set up a schedule that allows students to work in pairs on their portfolios. Group time is critical to the student's needs; however, setting up a schedule will be one of the teachers' biggest challenges. Issues teachers will have to explore include; when would be an appropriate time to work and how long should teams be allowed to practice?

Declarative Knowledge

Declarative knowledge has three phases: constructing meaning, organizing and storing information. However, I will connect the portfolio to the first phase only.

Constructing Meaning. Students will apply what they have already learned about portfolios in prior grades. They will also look for links in requirements and technology. Links in requirements could include: What were the basic slides I used in the past and how d'es it connect to what I need now Are there additional slides to think about based on new knowledge related to this grade? Do I have more independent and creative choices to make? Technology links can include the similarities and differences in the portfolio software used last year compared to what is currently being used. So, how do I link this knowledge of what I already know to help me master the new portfolio software faster?

Extend and Refine Knowledge

Since extending and refining knowledge involves many phases, I will only address inductive and deductive reasoning. Inductive and deductive reasoning relate to the portfolio process in many ways. First, students are constantly looking at all the parts of old and new software, drawing generalized conclusions. Second, they are constantly looking at all software and drawing conclusions to the parts of each. This will become a consistent way of thinking throughout the entire process.

Using Knowledge Meaningfully

Using knowledge meaningfully involves many phases. I will address the process of decision making, investigation\experimentation, and problem solving.

Decision Making. Making decisions is a continual theme throughout the portfolio process. Students are constantly making decisions about: What will be in my portfolio? How do I decide what extra slides to add that reflect who I am? What color scheme do I choose? Where would technology enhancements (e.g., sounds, audio and video clips) be most effective in my presentation?

Investigation and Experimentation. Encourage students to make new discoveries through investigation and experimentation with other parts of the software not formally presented in the classroom. Questions to consider are: Can this new discovery enhance what I already know? Can I apply this discovery to my portfolio? Can this experimental discovery be applied to other subject areas and projects?

Problem Solving. Solving problems individually and cooperatively is a constant struggle for students. They should be encouraged to troubleshoot problems when the technology doesn't work as expected. Questions to think about are: What is the problem? How do I troubleshoot this type of problem? Should I retrace my steps? Should I experiment? Can I solve this alone or should I seek help on this one? Who are the classmates with the most expertise in using this software? Do I need to document how this problem was solved and share with others?

Habits of Mind

Here is where the whole picture comes together. This area involves three phases of which I will only discuss self-regulated thinking and creative thinking.

Self-Regulated Thinking. By this point, students will find it normal to be aware of their own thinking throughout the entire process from planning to the finished product. Their peers will help make them aware of necessary resources and sensitive feedback from frequent evaluations of each other's portfolios, which will then make them able to better evaluate the effectiveness of their own actions as they relate to the final product.

Creative Thinking. Students should constantly seek accuracy and clarity in their final portfolio. They should remain receptive to possible changes suggested by peers and sensitive to others' feelings and knowledge. Once students become engaged in the whole portfolio process this starts to become a natural occurrence.

Conclusion

Electronic portfolios are an excellent way to integrate the "dimensions of learning" because they document a student's growth over the year for the teacher, child and parent. In addition, the electronic portfolios make students excited and want to do more; therefore, they view electronic portfolios as fun.

Reference

Marzano, R. 1992. *A Different Kind of Classroom: Teaching with Dimensions of Learning*. Alexandria, VA: Association for Supervision and Curriculum Development.

* For a detailed account of using electronic portfolios in the classroom, log on to the author's Web site at <http://www.geocities.com/fkconway/index.html>. Here the author discusses topics such as getting started, requirements, evaluations and assessments.

About the Author

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