

SELF-PACING TECHNOLOGY APPROACH: THE PRESERVICE COURSE AS A CATALYST FOR LEARNING

Dr. John Wm (Jay) Sanders, Dr. Dorothy Valcarcel Craig *

PREPARING THE PRESERVICE EDUCATOR FOR THE CLASSROOM

One of the major problems facing teachers in K —12 classrooms today is finding enough time to teach students who have an ever-widening range of academic abilities. In addition, with the recent nationwide accountability movement by state boards of education, classroom teachers are under increasing pressure to identify the academic level of their students and then proceed to assist them in “moving forward” to reach their full potential. Although these goals are worthy, it gets increasingly more difficult for teachers to help each and every student meet their individual learning needs. Among technological applications available to classroom teachers are the Internet-connected computer, networked computer labs, and the world wide web—all of which assist in individualizing educational experiences (ERIC doc. 94-6, 1999).

By carefully designing preservice technology courses that model instructional strategies and that enable students to work at their own pace, teacher educators are providing an avenue for students to engage in practices that they can later take to their own classrooms. In addition, many of the technology courses required within teacher education guidelines model utilization of the World Wide Web, assist students in integrating web-based materials in lessons and instructional units, and enable students to observe classroom practices which model technology-infused instruction.

SELF-PACING TECHNOLOGY APPROACH

In the “teacher-in-training” technology courses offered by the Department of Educational Leadership at Middle Tennessee State University, web-based instruction has successfully assisted the process of training preservice students for the challenge of the academically diverse classroom. By facilitating instruction in a way that mirrors the self-pacing so desperately needed to meet the needs of students within a classroom, the preservice course enables students to work at their own pace by beginning at their individual level of technological literacy and moving forward. The course—designed to train the preservice student as well as the practicing teacher—utilizes the Internet in order to help students integrate technology into lesson plans and units of instruction. Over the past four years, we have experimented in our *SPSE 322 -Technology in Teaching* course with how to vary the rate of instruction in order to produce the highest rate of learning for academically diverse groups of future teachers. Not surprisingly each semester, students enrolled in the technology classes are similar to what can be found in the typical public school classroom. The preservice students can usually be categorized into three distinct learning groups with regard to technological literacy levels and pacing: a) beginners who typically move at a slow pace, b) intermediate students who move at a moderate pace when completing assignments, and c) advanced users who usually progress forward at a relatively fast pace. The beginners and the advanced users are usually the smallest in number with each group representing approximately 10—15% of each class population.

* Department of Educational Leadership Middle Tennessee State University

In order to allow self-pacing, we have facilitated the Sanders Self-Pacing Model for Classrooms with Varying Student Abilities. Components of the model include:

1. *Web-based Materials* —scheduled in-class instruction time and non-scheduled instruction where students work on their own using website instructions and e-mail.
2. *Criterion-Based Assessment System* –Employing a criterion-based assessment system, which enables students to submit materials in printed form or via email, which is then examined by the instructor.
3. *Reflective Feedback* —students complete each “portfolio” section and resubmit each section in order to reach an acceptable or mastery level which allows students to rethink, rework -reflect
4. *Pacing* —students to work at their own pace—even working ahead
5. *Peer Sharing and Conferencing* –
6. *Alternate Computer Stations* —enables students to work at off-site computers The site assists the instructors in: 1)Providing examples of each project and assignment, 2) Developing a course calendar for scheduling specified times for in-class instruction and due dates for projects, 3) Enabling students to view course materials from alternate computer stations, 4) Making available animated PowerPoint presentations which are utilized throughout in-class instruction as well as at alternate computer sites.

The outcome of the course is a professional technology portfolio, which the final grade is based on. The technology portfolio becomes part of the larger professional portfolio, which is required to complete the student teaching experience.

PERFORMANCE AND EFFECTS OF SELF-PACING

Through the four years that the course has been offered, instructors have kept field journals and completed informal reflections on observations as students engage in computer-assisted activities, complete assignments, and conference with peers. Using the three types of learner groups mentioned above, the following recorded observations are offered for teacher educators.

During the semester, the class is structured into: a) one-third “in-class instruction mode,” and b) two-thirds “lab mode.” Typically 90—95% of the instructor’s time is spent assisting the slow-paced learners who make up approximately 15—20% of the each class. With extra instruction provided by the instructor and more capable peers, the beginning computer user-slow-paced learner usually struggles to keep up with assignments and projects. However, most complete the course and submit a professionally designed technology portfolio. The drop-rate for the course is less than 5% and usually occurs within the first two weeks of the semester.

Throughout the early part of the semester, the class sessions are very structured, but transitions into a very unstructured environment as students become comfortable working on the computers and conferencing with each other. Similar to previous research findings (Craig, 1997), the male students share ideas in a very loose, unorganized manner—beginning early on and continuing throughout the semester. The female students, however, tend to write down problems and solutions

and are more apt to share suggestions slowly as work progresses.

All three groups of learners generally meet the target due dates for each section of the technology portfolio. The advanced group/fast-paced learners usually turn in completed portfolios early—ranging from a few days early to several weeks before the semester ends. The intermediate group/average-paced learners as well as the beginner group/slow-paced learners submit completed technology portfolios usually on the last day of class. The overall quality and professional appearance is similar for all three groups. The use of creative images, animation, and additional features is scattered with no obvious pattern and seems to be based on the individual student's interest level rather than their pacing group.

In general, the self-pacing approach has been successful and appears to work well for all three groups of students. The end products—student knowledge gain, technological literacy, and computer skills—are evenly distributed across all three levels of learners. The big difference between this approach and a more traditional approach to technology instruction where a strict schedule for submitting assignments is adhered to is that the amount of assistance and time the instructor is able to provide each student can be altered to meet the needs of individual learners.

REFERENCES

Craig, D.V. (1997). When the learner is in charge: Technological literacy patterns in student generated inquiry projects for fifth graders. Dissertation Abstracts International, D-1341.

Infusing technology into preservice teacher education. (1999). ERIC Document #94-6. [Online] Available: <http://www.ericsp.org/news3.html>

Teachers and technology: making the connection. OTA report summary, (1995). Washington DC: U.S. Government Printing Office.

ADDITIONAL RESOURCES

Technology in the Classroom —SPSE 322 website URL: <http://www.mtsu.edu/jsanders> and click “SPSE 322” for regular class and “322 OnLine” for the online class.

Full text of an expanded paper on this topic is available at: <http://www.mtsu.edu/~jsanders/Self-Pacing.htm>