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ABSTRACT
                The College of Education at Valdosta State University
(Georgia) developed a followup course to their required entry-level
educational computing course. The introductory course covers word processing,
spreadsheet, database, presentation, Internet, electronic mail, and operating
system software and basic computer concepts. Students expressed a need for a
followup intermediate-level course covering a wide range of software and
topics appropriate for all education majors. The new course, Applied
Educational Computing, allows students to be creative and complete practical,
instructional-based projects in their own subject areas. The course teaches
skills that students need to create programs and publications; create mailing
labels and form letters; use spreadsheets; use database packages; use
presentation software; and use the Internet for specific tasks. The course
also teaches students about purchasing and evaluating computer hardware and
software and detecting and repairing malfunctions. The course meets twice
weekly for 10 weeks. Student projects require them to be creative and
generate practical, instructional-based materials suitable for use in their
own subject area. Results from the first three courses have shown that
students are highly motivated, and they are very positive on course
evaluations. Two appendixes describe applied educational computing projects.
(SM)

Applied Educational Computing: Putting Skills to Practice

J. D. Thomerson, Valdosta State University

Background

The College of Education at Valdosta State University (VSU), Valdosta, GA, has for over

ten years required all education majors to take an entry-level computer course entitled,

"Introduction to Educational Computing." Unlike many institutions, the introductory computer

course is taught by the College of Education rather than the College of Business. This allows the

focus of the course to be geared towards the type of computer applications most frequently

encountered by teachers.

While attempting to address the needs of future teachers, this 50-hour, entry-level course

covers word processing, spreadsheet, database, presentation, Internet, electronic mail, and

operating system software as well as basic computer concepts. The results of this course have

been an overwhelming success. Students consistently rate the course very high on course

evaluations and in-service teachers state that entry-level teachers graduating from VSU are very

computer literate. The course is so popular that it is required by many non-education degree

programs such as nursing, psychology, and sports medicine.

For many years, students who have taken this entry-level educational computing course

have often been more computer literate than many of their professors in the College of Education.

Thanks to a strong emphasis on faculty development workshops and funding for up-to-date

computer lab facilities, this situation is quickly changing. Faculty in the College of Education are

now beginning to incorporating computer technology into their courses as well as requiring

students to use the computer skills learned in their entry-level educational computing course to complete class projects.

Due to the ever-increasing emphasis placed on educational computing applications by faculty in the College of Education and the popularity of the required entry-level computer course, students have started asking about appropriate follow-up computer application courses in which to enroll. Although this is wonderful news, it has created a problem. Although the College of Education does offer many upper-level computer courses, each upper-level course generally focuses in-depth on one particular piece of software. In addition, these courses are usually designed for business education majors exclusively and are not as well suited for many other education majors. Also, most education majors have very few electives and can take only perhaps one upper-level computer elective. The need arose to offer a follow-up intermediate-level educational computing course that covers a wide range of software and topics that was appropriate for all education majors.

Planning the New Course--Applied Educational Computing

From the initial days of planning this new intermediate-level educational computing course, the desire to make it a project-based course was of top priority. Because such a wide mix of software is taught in such a short period of time in the entry-level course, instructors only have time to teach the basics of each software package. Unfortunately, most of the time is spent learning the software and working practice problems in class--little time is left for putting what has been learned to practice in any type of meaningful way. This is frustrating to students because by the time they begin to understand how to use a particular software package, it is usually time to move on to the next software package about which they know little or nothing. The entry-level

course has taught the student the minimum skills needed to use the computer in an educational environment but has not allowed the student to put his or her skills to practice. Too often, the skills learned in the introductory computer course are never put to use in any meaningful way after completion of the course. Even though it appeared that students had learned the skills needed to complete computer application projects assigned to them by College of Education faculty in other courses, the students often seemed at a loss as to how to get started on a project all by themselves. The need for a course that allowed students to be creative and complete practical, instructional-based projects in the students' own subject areas was of top priority. Based upon this emphasis, the new course was given the name "Applied Educational Computing."

<u>What Should be Taught</u>

Since only the basics of each software package (wordprocessing, spreadsheet, database, presentation, Internet, and e-mail) are taught in the 50-hour introductory level course, tremendous amounts of information are left that could be covered in the new follow-up course. However, if attempts were made to try to master all concepts of each package, the end result would be very similar to the problem encountered at the end of the introductory level course. Students would have learned a great many new skills but would not be able to put them into practice.

Before deciding upon which additional topics should be taught in the new course, a study was made to determine what types of computer application projects are most frequently being used by classroom teachers. For example, it was found that teachers, in addition to typing letters and tests, often use word processing software packages to create programs, brochures, newsletters, tables, and signs. Creating mailing labels and form letters by utilizing mail merges with either word processing or database software packages was also found to be very useful.

Teachers use spreadsheets to calculate grades, prepare budgets, keep track of fund raisers, and create charts and graphs to be used as overhead transparencies. Database packages were used to keep track of student records and also to display educational content arranged by subject and category. Presentation software packages were used to present class lectures, prepare class handouts, and create self-paced learning modules that students can work through at their own pace. The Internet was used not only to acquire research information needed by the teacher and students but also to create HTML homepages that can be used by students as a base to explore the Internet. These are just a few examples, but it was decided that the skills needed to complete these types of projects were the skills that would be taught in the new "Applied Educational Computing" course.

Additional Topics

It is very probable that the students electing to take this new "Applied Educational Computing" course will be the future leaders in regard to computer technology in their respective schools. With this in mind, the students must be up to date on relevant issues when purchasing and evaluating computer hardware and software to be used in an educational environment. It was also determined that students must be knowledgeable about topics such as adaptive hardware and software devices available to special populations. They must also be able to demonstrate knowledge and skill in detecting, diagnosing, and repairing computer hardware and software malfunctions. Valdosta State University is predominately a Windows-based computer campus. However, many school labs in the South Georgia region are equipped with Macintosh platform computers. It was decided that students should be taken to one of the Macintosh labs on campus

to learn basic Macintosh platform operations. These are just a few of the additional topics that were included in the content to be covered in the "Applied Educational Computing" course.

Course Structure

The first Applied Educational Computing course was taught Spring Quarter, 1996. Since, it has also been taught Winter and Spring Quarters, 1997. Each time the course has been offered, it has met twice a week for 2 1/2 hours each day for ten weeks. The first week is mainly spent reviewing old information learned in the introductory course. Handouts and notes are used extensively due to the fact that a textbook is not required or used in the course. In order to learn the new skills, the students and teacher complete example problems together using the aid of a projection device. Students are then required to complete class exercises assigned to them by the instructor in much the same way they did in the entry-level computer course. Next, students have to be creative and create a couple of their own exercises and problems similar to the class exercises that the teacher has assigned. Once the new concepts have been successfully learned, the individual student projects are assigned (see Appendix A and B). These projects require the students to be creative and complete practical, instructional-based materials suitable for use in their own subject area.

Course Evaluation

Two examinations over course content account for 30% of the overall course grade. The two exams, one given at midterm and the other on the final exam date, are mainly composed of hands-on computer exercises but also contain objective questions dealt with during the quarter. Classwork/homework assignments assigned by the instructor account for 30% of the course grade. The two projects combine to count for 30% of the overall course grade. The remaining

10% of the course grade is accounted for by two oral presentations. One oral presentation is a short mini-lesson which the student is required to complete in his/her future teaching area, using Microsoft PowerPoint. The other oral presentation is required to be on using adaptive hardware and software with special needs populations.

Results and Conclusions

The results of the first three "Applied Educational Computing" courses are very encouraging. The students who have taken these courses have been highly motivated and have done outstanding work. The most encouraging part of the new course is the outstanding job the students do on their individual projects. The creativity and professionalism shown on these projects prove that the course is a success. Students are very positive on course evaluations and state that they will recommend the course to their friends.

Appendix A

APPLIED EDUCATIONAL COMPUTING -- PROJECT #1

General Guidelines:

Be creative. Pick a topic in your teaching area or major area. Since you will be required to create tables and graphs, make sure the topic area you choose has a certain amount of numeric or statistical content. The topic area might be a unit of study for a particular course you might one day teach. Perhaps you are planning a big event at your school or business and you want to promote and educate the public. These are just a couple of examples--you decide. The more creative you are the better!

Requirements: Listed below are the minimum requirements that must be included in your project. All of the exercises you create should relate to the same topic area you are presenting or promoting.

PowerPoint:

A 12 slide presentation. The presentation must include at least one graph. Use transitions and builds as you see fit. Save your work on your disk and print handouts -- 3 slides per page.

Excel:

Create and print on paper three original graphs of any kind that you could use as transparencies to present information on your topic.

Create a spreadsheet that could be used to help keep track of information, budgets, finances, data, related to your selected topic.

Word:

Create at least two tables that could be used as handout information to your targeted audience.

Create a newsletter with columns and graphics--the newsletter must fill up at least two pages. An example might be a monthly or quarterly newsletter updating parents or others about what is going on in your classroom, school, or business. It could be a weekly reader full of information you want your students to read and study.

Create a program like the one you worked in class. Plan a banquet, meeting, or occasion where a program is needed. It could be a PTO meeting or a promotional dinner for something. It could be an outline of events that will take place at your school or business during the day, week, or month you present your topic. It should be printed on front and back of a sheet of paper.

Appendix B

APPLIED EDUCATIONAL COMPUTING -- PROJECT #2

1. Create Microsoft Word Form Letters for a minimum of six records that illustrate how you might use this word processing feature in your subject area. Also, print mailing labels for each of these six letters.

2. Create a Microsoft Access database table that contains educational content that can be browsed and studied by individuals trying to learn about the topic you choose. The table must contain at least ten records and seven fields including one memo field. Create an attractive Form for the information and create and Print a Report that displays all records and fields.

3. Create a Microsoft Access database table that contains mailing address information as well as some other meaningful data for at least six records. Create a form letter using Word dealing with a topic in your subject area. You should use the Access table as the source file for this form letter. Make sure that every field is represented in the form letter. Merge the two files and print a copy of the form letter for each record in your table. In addition, print mailing labels for each record.

4. Create an original HTML Home Page that contains educational information about a particular topic in your subject area. The page must include at least two links to other related sites. Use the example we created together in class as a guide.

NOTE: Please turn in your diskette containing all project files as well as a sheet of paper listing filenames used for each part of the project.

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September 24, 1997

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