USING NEW TECHNOLOGIES IN THE TEACHING OF SPSS

Polyxeni- Jenny Pange, University of Ioannina, Greece

Statistical packages have been widely used by many scientists and not only statisticians. Students from the Dept. of Education learn how to use the statistical package SPSS. All these students had to learn the subject in a very short time and at the end of the course they have to apply the methods they have learnt to real data. In trying to teach such a lengthy course in a short time we have to find ways that will make the course understandable to all students. We used a multimedia program, written in Toolbook, in order to teach the SPSS statistical package. This multimedia program about the SPSS, has been presented in the classroom by a computer and a TV-video set simultaneously, for educational purposes. We found that all students did build on their knowledge using a computer and a TV set at the same time.

INTRODUCTION

New technologies are based upon the systematic, scientific development and delivery of instruction and they are widely used in education. They include videotapes, CD-ROM, computers and a wide array of sounds and images.

Educators have expressed concerns about benefits and obstacles to the use of technology for teaching. (Miller et al, 1994). The role of technology in the learning process is important as it makes the practice activities more effective. It improves the lecture and creates greater access to education by overcoming time. Both teachers and students benefit from technology in the teaching process. (Lajoie, 1997).

The aim of this study is to describe how computers and technology are used in the teaching of SPSS.

COURSE CONTENT

This course consisted of two parts: At first, this course taught in an “ordinary” classroom. The “book” in this course was available on PC’s. During the first part of the course, students had to understand the basic statistical concepts of the SPSS package using Multimedia, Web, and video. We used a simple program in Toolbook for instructions about how to apply SPSS. We wrote this simple manual for our students because the manuals of the computer centre were written assuming that you know computers already. As many of our students could not afford to have their own PC at home or at the place where they live, a group of students used the Web technology to overcome this problem. They decided to offer this multimedia program into Web. For

students with Internet connection this program was available in Web. The URL for this multimedia program is http://asp.lar.forthnet.gr/Toolbook/SPSS. Students could download the program and read it off-line any time. Considering the large number of students involved, during the first part of the course, students who were familiar with computers worked on PC's. They studied the manuals for SPSS using this multimedia program. Students who were not familiar with computers watched the whole process from a TV set. The course, which had also been recorded to a videotape (using the computer to video converter), was available to all students. All students, if they liked, could borrow the videotape and watch it, at their own TV set.

The second aspect of the course deals with real problem-solving using the SPSS software. Students had to work on real data, applying the appropriate statistical method and extracting the results.

THE MULTIMEDIA PROGRAM

Students from the Department of Education three years ago, had created a multimedia program in Toolbook for the SPSS package. Based on this program, another group of students, developed a multimedia program for the Web. Throughout the program there are screens from the SPSS package and comments about the instructions of the package. This program was written according to what students considered and expected as on-line help for the SPSS package.

THE TEACHING AND LEARNING PROCESS

In order to develop the ability of students to think critically, we used a TV-set and a video for the teaching process. Students who were familiar with multimedia worked on a PC following the instructions of the SPSS multimedia program and the rest of the students were attending the whole process via a TV-set. Then, the students who were attending the process, were asked to work on a PC and learn how to use the SPSS using this multimedia program. In this process students had the role of the teacher and the teacher was the supervisor of the whole project. So, they encouraged other students to use correctly such programs for their specific purposes. They were giving instructions to other students about the subject that they were not so much or so little of what was expected of them to know. This means that the students gained the appropriate information about this subject. Students who attended the projects of other students' from the TV-set, were

evaluating other students' performance and they were trying to make their own project the best. Additionally, each team of students worked cooperatively with other teams. Doing so, all students benefit by sharing a common understanding of the problem. They also provide this multimedia program as a "starter" in exploring new topics in Statistics and Web. At the end of this part of the course all students were prepared for real-data problem solving.

During the second part of the course, groups of students worked together using SPSS, in order to solve real data problems. At the end of the course, we wanted to test the level of the statistical knowledge that our students gained through this method. All students finished their project in a very short time and they are now trying to add their projects as examples into Web. They are also trying to put some other theoretical parts of Applied Statistics into Web as on-line help.

RESULTS AND CONCLUSIONS

It is important to help learners remember information relating new materials to their existing knowledge and experience. So, students after the completion of the course, can relate what they theoretically learned about using SPSS and how to apply them into real problem solving. This maximizes the utility of the computer in the Computer Assisted Learning process and this way of teaching affects the student's thinking and understanding process. Activities using Internet enable students to hone research and information-locating skills. It is interesting that all students liked the collaborative and interactive nature of the course. This facility has proved as very essential, effective and entertaining one. As all of the students' activities were recorded and evaluated by the teacher, the use of technology in the classroom can be a useful tool for improvements in instruction and statistical problem solving.

REFERENCES

Hannafin R. and Sullivan H.J. (1995). Learner control in full and lean CAI programs. *Educational Technology and Development, 43(1),* 19-30.

Lajoie S. (1997). The Assessment Challenge in Statistics Education. In Gal I. and Garfield J.B. (Eds). Technologies for Assessing and Extending Statistical Learning. ISI, IOS Press.

Miller L. and Olson J. (1994). Putting the computer in its place: A study with teaching technology. *Journal of Curriculum Studies, 26(2),*121-141.

Pange P. (1995). Statistics Computers and Education, 50th Session of ISI , ISI proceedings, 957-958.

Taylor R. (1980). Introduction. In R. Taylor (ed.) The computer in the school: tutor, tool, tutee (pp.1-12). New York: Teachers College Press.
Wood D. (1988).How children think and learn. (8th ed.) Blackwell Publ. UK
White J. (1994). Modern instructional technology and concepts of curriculum. In J. Willis, B. Robin and D. Willis (Eds.) Technology and teacher Education Annual 1994 (pp 404-407). Charlottesville VA: Association for the Advancement of Computing in Education.
Wiggins R. (1995). Spinning out documents: Web servers. *New Media, 5(8),* 43-46.