

# COMPARING A PROCESS-BASED TO AN APPLICATION-DRIVEN INSTRUCTION METHOD IN TEACHING INFORMATION TECHNOLOGY TO BUSINESS STUDENTS

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## ABSTRACT

Six sections of a skills-based course in computer spreadsheets were taught using a traditional computer manual. Afterwards students were unable to critically design, implement, and use spreadsheets in solving problems other than the type outlined in the manual. In six other sections, students were given a series of real-world application problems to solve, while the computer manual became merely a reference tool. Abilities to independently analyze, and to create spreadsheets to solve real-world business problems was greater under the critical thinking and problem analysis methodology, as was student satisfaction with the course and student performance on common course exams.

## INTRODUCTION

Much thought and analysis has been given to comparing the lecture method versus case method of instruction for business students. Recently, the authors have had an opportunity to examine an analogous issue in a particular skills-based course, by comparing an instruction method orientated towards processes with a method orientated towards applications.

## METHODOLOGY AND RESULTS

The Business School at the Plattsburgh campus of the State University of New York initiated a series of short courses designed to instruct students in the uses of information technology. One of these courses concerned the use of computer spreadsheets in the business environment. During the first year the course was taught, six sections of the spreadsheet course used a traditional computer textbook/manual containing instruction and techniques for developing and manipulating data in spreadsheets. In a typical class, students first listened to a brief lecture, then worked through sections of a computer text/manual, in a lab environment, reading the lab manual's text and performing the lab exercises contained in the manual. In general, the learning objectives of the course were not successfully achieved at the end of the course. Students were unable to transfer concepts in order to critically design, implement, or use spreadsheets in solving problems other than those outlined in the manual.

In the following year, the pedagogy of the spreadsheet course was changed in an attempt to enhance the students' abilities to critically interpret problems in business environments and to implement their solutions using spreadsheets. In the redesigned course, students were given a series of real-world application problems, and asked to approach and solve these problems using spreadsheets. The computer manual became merely a reference tool. (Examples of these types of problems, as well as performance data, are available at <http://faculty.plattsburgh.edu/ray.gurdosh/wdsi2001>.)

An assessment of student learning showed greater attainment of course objectives using the critical thinking and problem analysis methodology. Students' abilities to independently analyze problems, and to create spreadsheets and other applications to solve real-world business problems was considerably greater. The assessment also suggested a higher level of student satisfaction with the course, while student performance on exams was higher under the newer methodology based on solving model business information problems.

## CONCLUSIONS

Several pedagogical approaches are available to teach any skill-based, tool-oriented course, such as statistics, quantitative methods, or computer applications. Some of these approaches are centered on the processes involved in using skills or tools. Other approaches are instead centered on the applications or problems which the skills or tools might be used to solve. The authors believe that the differences in the above course approaches suggest the value of comparing these different approaches in other skills-based courses.