

# Developments in Business Simulation & Experiential Exercises, Volume 13, 1986

## HOW TO USE MICROCOMPUTERS IN HUMAN RESOURCE MANAGEMENT COURSES

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### ABSTRACT

Microcomputers require business people to have new skills. Business education must consequently adapt if it is to remain appropriate. There are few examples of how to adapt education in human resource management to microcomputers. This paper suggests criteria for selecting topics for microcomputer exercises in HRM, lists topics found suitable during an initial survey of ten texts and provides one example of a HRM microcomputer exercise.

### INTRODUCTION

#### Relevancy Problem

Changing technology demands new competencies. At a recent national conference one discussion centered around an issue of how to make business courses more relevant to the microcomputer business environment. As the discussion turned to how to do this, two problems emerged. First, there was a lack of information about which course topics lend themselves to microcomputer applications. Second, there were few examples of business oriented microcomputer exercises in text books and journals.

#### Purpose and Outcomes of Paper

This paper presents the results of an analysis of human resource management topics for opportunities to develop relevant microcomputer exercises for classroom use and proposes a list of exercises. The paper also provides one example of a classroom tested microcomputer exercise which is readily adaptable from this paper to the classroom.

### DISCUSSION

#### Criteria For Effective Microcomputer Exercises

What conditions must be met for an exercise to be an effective microcomputer exercise? I would like to suggest several. In selecting criteria, I had two major concerns. The first was, "Would the exercise be relevant to the types of microcomputer skills and knowledge businesses are expecting of graduates?" and the second, "Would the exercise assist me in teaching the content being addressed?". Figure 1. lists those criteria. The "R" connotes a relevancy concern while the "C" depicts a content concern. The list is in the order of priority. For this initial selection, a topic did not have to meet all of the criteria to be selected but did have to meet at least one relevancy and one content criterion.

#### Discussion of Criteria

Contained in the relevancy criteria are the advantages of the microcomputer for managers. With appropriate software, the microcomputer can quickly perform major tasks of management such as periodic reports. One time reports often are not efficiently done on microcomputers because of high start up costs of data base and spreadsheet preparation. Repetitive reports are an important use of microcomputers. The microcomputer also excels at quick, accurate and powerful computations. Wide ranges of visual displays are available for comparative analysis.

Data base management skills have become important to businesses because complex problems are most often shrouded in raw data not relevant information. Learning to problem solve in ambiguity and to efficiently use and manage data bases is a key microcomputer business skill.

Each exercise should be examined to see if it is capable of being integrated into another exercise. Microcomputer systems are very adept at developing small subsystems that interact with each other. For example, the outcomes of a series of individual problem analyses can be automatically made to provide a summary report for a Quarter. Quarterly

#### CRITERIA FOR MICROCOMPUTER EXERCISE SELECTION

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R	o	Management report oriented
R	o	A repetitive requirement in organizations
R	o	Requires data analysis and computation
R&C	o	Use of common data base
R&C	o	Capable of integration with other exercises
C	o	Establishes important teaching relationships

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Figure 1.

R = Relevancy concern  
C = Content concern

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reports can be tied automatically together for Annual reports.

Does the exercise help demonstrate important relationships in the teaching material? Can a microcomputer exercise be a better teacher or a stronger reinforcer at this point? For example, I found that lecturing on Material Requirements Planning required the utmost of my showmanship skills just to keep things moving. After several semesters of not winning an Oscar for these lectures, I developed a short classroom demonstration on the microcomputer. I had the students first try to guess and or quickly calculate requirements, then I showed how my program could compute requirements as fast as they could shout out new data. Then I would assign a requirements problem that was far too complex for solution by hand and wait for them to discover for themselves the logic of the material requirements matrix as they build it on the microcomputer. This approach is now a success from both the students' and the teacher's perspective.

With these criteria in mind, I analyzed the subject areas covered in current human resource management textbooks. I used 10 textbooks and any accompanying workbooks, study guides and teacher's manuals for this preliminary analysis. (See Appendix A for list) Each text was covered chapter by chapter, examining all of the subjects, the problems, the work book exercises and cases, looking for topics which met the criteria.

### FINDINGS

The findings follow a sequence of topics found in many texts. This sequence also provides a meaningful order for developing exercise interactions. The items with single asterisks denote a selection of exercises that tie text material together with practical exercises that develops a small subsystem. The double asterisks denote exercises that could be assigned as term projects. Topics missing from the list indicate that initially, no suitable exercises were found.

#### Employment Planning

- \* forecast manpower requirements
- \* construct skill inventory data base
- \* construct EEO applicant data base

#### Recruiting

- \* design and use weighted application blank

#### Selection

- test for criterion validity and test reliability
- \* analyze interview rating scales

#### Training

- cost benefit analysis
- \* training impact analysis
- \* analyze weighted job inventories for training requirements

#### Job Analysis

- \* point method job evaluation

#### Compensation

- salary survey

determine wage curves

- \* incentive plan cost computations salary computations

#### Benefits

- \* cost analysis of program alternatives

#### Performance Appraisal

- \* paired comparisons analysis
- computations of weighted rating scales
- statistical analysis for appraisal bias

#### Career Development

- \* replacement charting

#### Safety and Health

- \* accident and incident rate computation accident and illness data analysis
- OSHA 200 report

#### Equal Employment opportunity

- work force analysis
- complete compliance survey of data base
- \* EEO-1 reporting to include Forms P, Q, R& S

#### Labor Relations

- \* cost analysis of proposed wage settlements

#### Personnel Research

- turnover analysis
- \* absenteeism analysis
- \* productivity analysis test validation
- \*\* develop small information systems
- \*\* attitude questionnaire analysis
- personnel records research

### EXAMPLE MICROCOMPUTER EXERCISE

#### Exercise Description

This exercise is an analysis of the selection processes of the ALASKA ABC'S COMPANY for adverse impact. This is the first microcomputer exercise used in class. Students are required to analyze a small data base containing the EEO data collected from qualified applicants for a labor's job, Job L007. The criterion used for this analysis is the 4/5ths rule for disparate rejection rates.

#### Class Organization

This exercise is one of several currently being used in an undergraduate personnel class of 53 students in one section. The exercise is assigned after the topic has been covered in class. Requirements of the exercise are discussed at the end of the lecture. The approach is to stress practical outcomes of the exercise. Students are told that they must also write a covering memo directing my attention to any problems that they have discovered, along with practical recommendations for the resolution of the problem. Currently, there is a mix of computer skills in this 300 level class as we integrate the microcomputer into our courses. The

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software used for this exercise is LOTUS 1-2-3. Students are told that a disk is available in the computer lab with the data base under the file name DBADVERSE. The data base used in the most recent exercise is shown in Figure 2. Before placing copies of this data base in the computer lab, I protect the data so that less experienced users will not inadvertently destroy the data as they learn.

### Guides to Preparation

This exercise takes experienced users four hours of lab time to complete if they have not planned their work before hand. Very experienced users have satisfactorily completed the exercise in about one hour; however, many of them spend more time "souping up" the spreadsheets and graphics. Less experienced users are warned that they might need as much as eight hours of lab time on this their first Lotus exercise. The Lotus Tutorial works well in providing new users with an efficient introduction to the techniques and normally takes about four hours to complete. Preparation times rapidly diminish on following exercises.

Reference books are essential for effective learning of Lotus 1-2-3. Two books that I recommend are, Using 1-2-3, by David Ewing, a Que publication and ABC's of Lotus 1-2-3, by Bill Kling, from Scott, Foresman and Company.

One additional requirement that students are given is to hand in the print out of the cell contents of all of their work. This is accomplished by using the cell formulas option in the Lotus print program. This document is used to assist grading and critiquing student's work. The cell printout allows you to see all the imbedded formulas, how sophisticated and flexible the formulas are, if there are mistakes, what formats have been used in cells and in general see behind the spreadsheet. This exercise takes me an average of four minutes per student to grade.

### Feedback to Student

The students are given a handout to attach to the back of their exercise when they turn it in. This handout has the grading criteria. These criteria have been discussed in class. I use the handout attached to the back of each student exercise to record my grading comments on their exercise and then return it with their paper.

For this exercise, the following criteria are used:

#### A. Readability--30% of grade

##### Formats used

- Do titles stand out
- Visually appealing
- Important information easily identifiable

##### Graphs

- Best type of graph for data
- Fully described in legends
- Correct data displayed

##### Memo

- Concise

- Problem clearly identified
- Action recommended
- B. Useability--70% of grade
- Report
  - Spreadsheet concept
  - Reusable for another report
  - Use of macros for speed and ease of use
  - Efficiency of formulas
  - Protection of data base
- Problem solution
  - Accurate
  - Conclusions supported
  - Recommendations appropriate

### Grading System

Currently there are six graded exercises in the course. Each exercise is weighted according to it's complexity and difficulty. This exercise has a weight of 5 points while more advanced problems carry 10 points. All six exercises carry a 40% weighting in the course, replacing the term project. The other 60% of the course grade is allocated to the mid term and final exam.

### Experience With The Exercise

This is the fourth consecutive semester that I have used microcomputer exercises in my personnel classes. This particular exercise I have used twice in its current form. I intend to expand the size of the data base to thirty applicants, introduce additional jobs and carry this data base into the personnel data base for the ALASKA ABC'S COMPANY as I am doing with other exercises. I will create other inputs for the same data base so that there will be different solutions, different problems. My intention is to be able to provide numerous jobs and data bases for analysis in each exercise.

### Description of Exercise Materials

Figure 2. is the data base which is furnished to the students. This information is typical of the EEO data that is collected from prospective employees. This data can be easily changed to reflect any different situation the instructor wishes as well as providing numerous different cases for each class.

Figure 3. depicts a student solution which can be used by the instructor to debrief the exercise in the classroom. I have this exercise on a disk and bring it into the classroom and use a computer and a wide screen projector to show the students what one possible approach to the problem might look like. I do this on the day that the students turn in their exercise.

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## SUMMARY

For human resource management classes, there are numerous opportunities to effectively use the microcomputer in a way that closely duplicates the tasks, skills and knowledge required in business today. At the moment, there is little support in text books and journals for assisting the instructor to accomplish this task. My experience has shown me that the effort to create microcomputer exercises is time consuming but pays substantial dividends in the classroom.

## APPENDIX A

1. Beach, Personnel
2. Beatly & Schneier, Personnel Administration
3. Carrel & Kuzmits, Personnel
4. Flippo, Personnel Management
5. Heneman & et al., Personnel/Human Resource Management
6. Mathis & Jackson, Personnel Human Resource Management
7. Megginson, Personnel-A Human Resource Approach
8. Miner & Miner, Personnel and Industrial Relations
9. Werther & Davis, Personnel Management Human Resources
10. Whatley & Kelley, Personnel Management In Action

ALASKA ABC'S COMPANY								
<u>HIRE DATA BASE FOR JOB L007</u>								
QUALIFIED APPLICANT'S NAME	**NOTE...1=YES, 0=NO	MALE	FEMALE	NEGRO	ORIENTAL	AMERICAN INDIAN	SPANISH SUR-NAME	HIRED
ABRAHAM, TOM	1	0	1	0	0	0	1	0
ADAMS, PETE A.	1	0	0	0	0	0	0	1
ADANGALOOK, LEWIS	1	0	0	0	0	1	0	0
BENSON, JO C.	0	1	0	0	0	0	0	0
CHANDLER, JIM A.	1	0	0	0	0	0	0	1
CHARLIE, JOE	1	0	0	0	0	1	0	0
COLE, RUTH E.	0	1	1	0	0	0	0	1
DALTON, FRED	1	0	0	0	0	0	0	0
DARLING, SAMUEL C.	1	0	0	0	0	0	0	1
DELGADO, C.C.	0	1	0	0	0	0	1	1
EDWARDS, EARL P.	1	0	0	0	0	0	0	1
EPSTEIN, ALEXANDER Q.	1	0	0	0	0	0	0	0
FAULKNER, JILL U.	0	1	0	0	0	0	0	0
GOLD, ETHEL C.	0	1	0	0	0	0	0	0
HAMILTON, EDWARD	1	0	1	0	0	0	0	0
HARVEY, JOE	0	1	0	0	0	1	0	0
HERNANDEZ, RAMON F	1	0	0	0	0	0	1	0
JOHNSON, WILLIAM W.	1	0	0	0	0	0	0	1
KIM, MEE	0	1	0	1	0	0	0	0
MONG, FU	1	0	0	1	0	0	0	0
WOODEN, RICHARD	1	0	0	0	0	0	0	1
TOTALS	14	7	3	2	3	2	8	
TOTAL PERSONNEL INTERVIEWED IS 21								

FIGURE 2 -- DATABASE

DISPARATE IMPACT RATE TEST  
 JOB-L007  
 DATE PREPARED 01-JAN-80  
 PREPARED BY \_\_\_\_\_

DISPARATE IMPACT COMPUTATIONS				SUMMARY DATA TABLES			
		ADVERSE IMPACT		APPLIED		HIRED	
SELECTION RATES FOR:	MEN =	42.86%		MEN	14		6
	WOMEN =	28.57%	YES	WOMEN	7		2
	NEGRO =	33.33%	YES	NEGRO	3		1
	ORIENTAL =	0.00%	YES	ORIENTAL	2		0
	AMERICAN INDIAN =	0.00%	YES	AM-INDIAN	3		0
	SPANISH SURNAMED =	50.00%	NO	SPANISH	2		1
80% SELECTION RULE =		34.29%		TOTAL	21		8

FIGURE 3 -- STUDENT REPORT