STATEMENT OF PERMISSION TO COPY

In presenting this paper in partial fulfillment of the requirements for an advanced degree at Montana State University, I agree that the Library shall make it freely available for inspection. I further agree that permission for extensive copying of this paper for scholarly purposes may be granted by my major professor, or, in his absence, by the Director of Libraries. It is understood that any copying or publication of this paper for financial gain shall not be allowed without my written permission

Signature Virginia Faye Hartman

Date July 30, 1980

ARTICULATION CONSTRAINTS AND LIMITATIONS OF STUDENTS ENROLLED IN BUAC 224, PRINCIPLES OF ACCOUNTING AT MONTANA STATE UNIVERSITY

by

VIRGINIA FAYE HARTMAN

A professional paper submitted in partial fulfillment of the requirements for the degree

of

MASTER OF SCIENCE

in

Business Education

Approved:

Chairperson, Graduate Committee

Head, Major Department

Graduate Dean

MONTANA STATE UNIVERSITY
Bozeman, Montana

August, 1980

ACKNOWLEDGMENTS

The writer wishes to express gratitude to Dr. Floyd Frost for his constant understanding, calm reassurance, undaunted patience, and valuable assistance, not only with this paper, but throughout the entire Master's program.

The writer also wishes to thank Dr. Norman Millikin and Dr. DeForest Rall for their encouragement and support of this endeavor. A special thanks to Dr. Daniel Hertz who first planted the idea of pursuing a Master's degree in this writer's mind. The writer also wishes to acknowledge members of the accounting staff for their support of this project: Dr. Paul Nix, Dr. Mel McFetridge, Dr. Harold Holen, and instructors of Principles of Accounting, fall quarter, 1979.

A very special thanks are extended to the writer's husband, Lloyd, and children for their understanding and encouragement during this undertaking.

Although the writer's father was unable to see this project through to completion, acknowledgment is given her parents, Bette and Vincent Kirscher, as well as an expression of gratitude for their constant love and support during this writer's lifetime.

The writer wishes to acknowledge the Word Processing Center at Montana State University for the final typing of this paper.

TABLE OF CONTENTS

Page

VITA ii

ACKNOWLEDGMENTS iii

LIST OF TABLES vii

ABSTRACT xi

Chapter

1. INTRODUCTION 1

STATEMENT OF PROBLEM 1

NEED FOR THE STUDY 3

LIMITATION OF STUDY 4

DEFINITION OF TERMS 5

SUMMARY 9

2. REVIEW OF LITERATURE 10

VALUE OF THE ARTICULATION PROGRAM 13

ARTICULATION PROBLEMS AND OBSTACLES 14

CRITERIA TO BE USED IN ARTICULATION DECISIONS 15

ACCOUNTING ARTICULATION PROGRAMS AND STUDIES 16

SUMMARY 20

3. PROCEDURES 22

NULL HYPOTHESES 23

SOURCES OF DATA 24

DETERMINATION OF POPULATION SIZE 25

Chapter Page

CONSTRUCTION OF THE SURVEY INSTRUMENT 25

ADMINISTRATION OF SURVEY 27

ANALYSIS OF DATA 29

4. DATA ANALYSES 34

COLLEGE ACCOUNTING PERFORMANCE/AMOUNT OF HIGH SCHOOL ACCOUNTING 34

COLLEGE ACCOUNTING PERFORMANCE/HIGH SCHOOL STANDING . . . 42

COLLEGE ACCOUNTING PERFORMANCE/TIME ELAPSED 45

COLLEGE ACCOUNTING PERFORMANCE/HIGH SCHOOL TEXTBOOK . . . 47

COLLEGE ACCOUNTING PERFORMANCE/HIGH SCHOOL RECORDKEEPING 49

COLLEGE ACCOUNTING PERFORMANCE/HIGH SCHOOL RECORDKEEPING GRADE 49

COLLEGE ACCOUNTING PERFORMANCE/STUDENT STANDING 52

COLLEGE ACCOUNTING PERFORMANCE/GRADE POINT AVERAGE . . . 52

COLLEGE ACCOUNTING PERFORMANCE/PREDICTED GRADE POINT AVERAGE 55

COLLEGE ACCOUNTING PERFORMANCE/QUANTITATIVE MATH SCORES 57

COLLEGE ACCOUNTING PERFORMANCE/VERBAL SCORES 60

COLLEGE ACCOUNTING PERFORMANCE/COLLEGE STATUS 63

COLLEGE ACCOUNTING PERFORMANCE/CURRICULUM 65

COLLEGE ACCOUNTING PERFORMANCE/TEXTBOOK USED IN BUAC 224 67

Chapter Page

COLLEGE ACCOUNTING PERFORMANCE/COURSE CONTENT 69

CURRICULUM FINDINGS 73

CURRICULUM EVALUATION/LECTURE APPROACH 73

CURRICULUM EVALUATION/NUMBER OF CLASS MEETINGS 79

CURRICULUM EVALUATION/COURSE IMPROVEMENT 82

CURRICULUM EVALUATION/COURSE REQUIRED FOR MAJOR 87

CURRICULUM EVALUATION/WHAT HELPED 88

CURRICULUM EVALUATION/WHAT HINDERED 90

CURRICULUM EVALUATION/COURSE TOO FAST OR TOO SLOW 92

5. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS 94

SUMMARY 94

CURRICULUM FINDINGS SUMMARY 102

CONCLUSIONS 103

RECOMMENDATIONS 104

BIBLIOGRAPHY 106

APPENDIXES 111

APPENDIX A: QUESTIONNAIRE 112

APPENDIX B: LETTER TO REGISTRAR AT MONTANA STATE UNIVERSITY . . 119

LIST OF TABLES

Table — Page

1. Number and Percent of Usable Returns by Survey Question 28

2. How much accounting/bookkeeping have you successfully completed (a D grade or better) at the high school level? (Question #1) 32

3. How much accounting/bookkeeping have you successfully completed (a D grade or better) at the high school level? (Question #1) 35

4. College accounting, BUAC 224, is what percent review of high school accounting and/or recordkeeping? (Question #10) 37

5. Percent of review of high school accounting/recordkeeping as compared to the final grade received in BUAC 224. (Question #10) 39

6. If you took one year of bookkeeping/accounting in high school, what was the grade you received? (Question #5) 41

7. If you took a second year of bookkeeping/accounting in high school, what was the grade you received? (Question #6) 43

8. If you enrolled in bookkeeping/accounting in high school, what was your student standing at the time? (Question #3) 44

9. How many years has it been since you were last enrolled in an accounting/bookkeeping course? (Question #4) . . 46

10. To the best of your knowledge, the textbook used in bookkeeping/accounting in high school was: (Question #8) 48

11. How much recordkeeping have you successfully completed (a D grade or better) at the high school level? (Question #2) 50

Table Page

12. If you took recordkeeping in high school, what was the grade you received? (Question #7) 51

13. If you enrolled in recordkeeping in high school, what was your student standing at the time? (Question #4) 53

14. High school grade point average as computed by Montana State University. (Question #27) 54

15. Predicted first year college grade point average as computed by the Testing and Counseling Service, Montana State University. (Question #28) . . . 56

16. SAT Quantitative Scores as recorded at Montana State University. (Question #25) 58

17. Verbal score as recorded at Montana State University. (Question #26) 61

18. What is your college status? (Question #22) 64

19. Results of test scores of Test #1 and Test #2 received by accounting majors and all other majors. (Question #29) 66

20. Indicate your rating of the current textbook being used for BUAC 224. Extremely Hard to read and understand, Hard to read and understand, Average to read and understand, Easy to read and understand, or Very Easy to read and understand. (Question #9) 68

21. Did you find accounting, BUAC 224, at Montana State University to be Extremely Difficult, Difficult, Average, Easy, or Very Easy. (Question #12) 70

22. Do you find accounting, BUAC 224, at Montana State University to be Extremely Difficult, Difficult, Average, Easy, or Very Easy. (Question #12) 72

Table Page

23. Do you feel the lecture method is adequate for this course? (Question #15) 74

24. Do you feel the lecture method is adequate for this course? Very Adequate, Adequate, Inadequate, Very Inadequate, No Opinion. (Question #15) 75

25. Do you feel the lecture method is adequate for this course? Very Adequate, Adequate, Inadequate, Very Inadequate, No Opinion. (Question #15) 77

26. In your opinion, how many class meetings a week are necessary for your successful completion of this class? (Question #16) 80

27. In your opinion, how many class meetings a week are necessary for your successful completion of this class? (Question #16) 81

28. In what ways would you like to see this course improved? (Question #17) 83

29. In what ways would you like to see this course improved? Instructional Approach, Content, Text, None, Other. (Question #17) 85

30. Would individualized instruction be appropriate for BUAC 224, Principles of Accounting? (Question #23) 86

31. Which of the following statements best illustrates your feeling about BUAC 224: should be required for all business majors, only accounting majors, only office administration majors, only two-year secretarial students? (Question #18) 87

32. What helped you the most in this course? (Question #19) 89

33. What hindered you the most in the course? (Question #20) 91

Table Page

34. Select the statement that best describes your thoughts: the course went too fast at times and too slowly at other times, went too fast, went too slowly, like the course just the way it is, no opinion. (Question #21) 93

35. Null Hypotheses Acceptance/Rejection Summary 97

ABSTRACT

The purposes of this study were (a) to determine articulation constraints and limitations that did not allow students to make a smooth transition and adjustment from high school accounting to college accounting (BUAC 224, Principles of Accounting) at Montana State University, (b) to develop a profile of a typical successful accounting student enrolled in BUAC 224 at Montana State University, and (c) to evaluate the present accounting course (BUAC 224) for possible curriculum revision and update.

To gather the data and information needed to complete the study, questionnaires were developed and administered to 497 students enrolled in BUAC 224, Principles of Accounting, fall quarter, 1979. The data collected was presented in tabular form so the responses of the students and their final grades earned in BUAC 224 could be compared and interpreted. Sixteen null hypotheses were tested to determine articulation constraints and limitations of students.

The conclusions of this study were that successful performance in college accounting (BUAC 224) was dependent upon (a) the time that has elapsed between high school accounting and college accounting, (b) the student's high school grade point average, (c) the student's predicted first year college grade point average, (d) the student's quantitative mathematics stanine score, (e) the student's SAT verbal stanine score, (f) the student's declared curriculum major/option at Montana State University, and (g) the student's perception of the ease or difficulty of the content of college accounting.

The recommendations that emanated from this study were: (a) Principles of Accounting, BUAC 224, should be reduced to three days a week with one day a week designated laboratory day. (b) Students with recent high school accounting background and/or high quantitative and verbal stanines should be given pretests and challenge tests to provide an opportunity for advancement through the sequence with the least disruption possible. (c) Communication must be improved between secondary accounting teachers and college accounting faculty with guidelines established for successful college accounting performance. (d) Alternative methods of instruction should be explored by the staff of BUAC 224. (e) Tests should be reviewed and updated. (f) Further follow-up and study should be undertaken to identify articulation constraints and limitations that may inhibit student learning and mitigate course quality.

CHAPTER I

INTRODUCTION

Approximately 1200 students enroll yearly in BUAC 224, Principles of Accounting, at Montana State University (MSU), located in Bozeman, Montana. The student's exposure to high school accounting had led to such a diversity of background that serious problems resulted for both instructors and students in BUAC 224, Principles of Accounting. Another important factor leading to the diverse student background was the variety of curriculums using BUAC 224 as a service course for degree requirements, such as Agri-Business, Two-Year Secretarial, Office Administration, Nursing, and Home Economics.

The Department of Accounting and Finance was concerned with the 40 percent attrition rate of students due to D's, F's, and drops from BUAC 224. This study was initiated in response to the Department's concern and the need for identifying articulation problems students encountered while enrolled in BUAC 224, Principles of Accounting.

STATEMENT OF THE PROBLEM

The problem was to determine articulation constraints and limitations that did not allow students to make a smooth transition and adjustment from high school accounting to college accounting (BUAC 224, Principles of Accounting) at Montana State University. Articulation constraints were identified to determine whether students were allowed

to maintain uninterrupted progress from high school accounting to college accounting at the least cost to students in terms of time and money, and the elimination of duplicated curriculum content.

The following articulation questions were answered:

1. Is college accounting performance dependent upon the amount of accounting the student had taken in high school?
2. Is college accounting performance dependent upon the student's grade received in high school accounting?
3. Is college accounting performance dependent upon the year recordkeeping was taken in high school (freshman, sophomore, junior, or senior)?
4. Is college accounting performance dependent upon the amount of time that had elapsed between high school accounting and college accounting?
5. Is college accounting performance dependent upon the text used in high school accounting?
6. Is college accounting performance dependent upon the amount of recordkeeping the student had taken in high school?
7. Is college accounting performance dependent upon the student's grade received in high school recordkeeping?
8. Is college accounting performance dependent upon the year recordkeeping was taken in high school (freshman, sophomore, junior, or senior)?
9. Is college accounting performance dependent upon the student's high school grade point average (UCHGPA)?
10. Is college accounting performance dependent upon the student's predicted first year college grade point average?
11. Is college accounting performance dependent upon the student's quantitative mathematics stanine scores?

12. Is college accounting performance dependent upon the student's SAT verbal stanine scores?

13. Is college accounting performance dependent upon the college status of the student (freshman, sophomore, junior, senior, graduate)?

14. Is college accounting performance dependent upon the student's declared curriculum major/option at Montana State University?

15. Is college accounting performance dependent upon the student's perception of the ease or difficulty of the current college accounting text?

16. Is college accounting performance dependent upon the student's perception of the ease or difficulty of the beginning college accounting course?

The articulation constraints and limitations were further defined and categorized to develop a profile of a typical successful accounting student enrolled in BUAC 224, Principles of Accounting.

Finally, through identification of articulation limitations, statistical evidence was available to support conclusions and recommendations for articulation practices and curriculum revision that would provide for the student's smooth transition and adjustment from high school accounting to BUAC 224, Principles of Accounting, at Montana State University.

NEED FOR THE STUDY

The 40 percent attrition rate of students enrolled in BUAC 224, Principles of Accounting, at Montana State University, Bozeman, Montana,

led the instructors in the Department of Accounting and Finance, School of Business, to study alternative methods of instruction other than the current lecture method. A high rate of attrition, among other things, indicates a possible lack of readiness on the part of the students. As the American Council on Education (Wattenberger, 1965) has stated, curriculum must be based on students' needs rather than on the requirements of the subject discipline, alternative methods of instruction should be explored to meet these needs, and there must be flexibility in the program and in the ability of teachers to teach students regardless of the students' state of readiness.

Out of the Department's study it became apparent that articulation from high school accounting to college accounting must be studied. Furthermore, problems of basic articulation constraints and limitations should be identified and documented to further explain the high attrition rate experienced in the beginning accounting course before alternative methods of instruction could be recommended.

LIMITATION OF STUDY

To determine articulation constraints and limitations of students enrolled in beginning accounting at Montana State University, it was necessary to make the following limitations:

1. This study was limited to those students enrolled in BUAC 224, Principles of Accounting at Montana State University, Bozeman, Montana, fall quarter, 1979.

2. This study was limited to those students who had SAT quantitative and SAT verbal stanine scores recorded with the Registrar at Montana State University.

3. This study was limited to those students who had a high school grade point average (UCHGPA) computed by the Testing and Counseling Service at Montana State University and recorded with the Registrar at Montana State University.

DEFINITION OF TERMS

The following terms have been defined through use of business education periodicals, the Testing and Counseling Service at Montana State University, the Montana State University Bulletin, the Dictionary of Education, and the Random House American College Dictionary.

Accounting/bookkeeping. Accounting is defined as the keeping and auditing of financial reports and records. Bookkeeping is defined as the theory and practice of keeping records of money transactions. However, for the purposes of this study, accounting/bookkeeping were used interchangeably when referring to the high school courses of accounting or bookkeeping. Through a current updating of terminology at the high school level, most schools are now using the term accounting.

Articulation. Articulation defined in the language of educationalists is the adjustment of relationship between the elementary and junior high school, between the junior and senior high schools, between the senior high schools and the colleges, and among the grades and subjects of those units which will permit students to make the

greatest progress possible along a path of uninterrupted continuity from the kindergarten through the college level. (Roja, 1965)

Articulation Horizontal. The relationship between programs, courses or activities which exist at any one educational competency level and provide a coordinated educational program for the student.

Articulation Vertical. Relationships which exist between institutions, programs, courses or activities to provide a coordinated program for a student moving from one educational competency level to the next.

Attrition. The loss of students from a course for any reason; but, in particular, loss of students for lack of readiness for that course.

BUAC 224, Principles of Accounting. The beginning sequence in principles of accounting (BUAC 224, 225, 226) for students in all curricula. No prerequisites are necessary. This course is taught by the Department of Accounting and Finance, School of Business, Montana State University.

College Accounting Performance. The final grade received by a student enrolled in BUAC 224, Principles of Accounting. The level of achievement will be recorded as A, B, C, D, F, or I (Incomplete).

Curriculum major/option. Within each curriculum area there are a number of majors or options available to the student. For example, the School of Business offers a degree of bachelor of science in

business, with specialization or options in accounting, basic business education, office education, distributive and marketing education, finance, management, marketing, and office administration. A two-year secretarial program is also available to the students.

Montana State University. Montana State University was established on February 16, 1893, as the Agricultural College of the State of Montana at Bozeman. In 1913, the name of the institution was changed to College of Agriculture and Mechanic Arts. In 1935, the name was changed to Montana State College and remained the same until July 1, 1965, when the new name--Montana State University--became effective.

PCGPA. The numerical grade predicting the student's first year college grade point average.

Recordkeeping. The course offered in some high schools in the clerical business sequence which refers to basic recording practices in business that the clerk-typist may encounter.

SAT quantitative mathematics stanine score. The results of the quantitative scholastic aptitude test reported in stanine scores. A stanine scale consists of nine categories with one being low and nine, high.

9 - exceeds 96 percent of freshmen
8 - exceeds 90 percent of freshmen
7 - exceeds 77 percent of freshmen
6 - exceeds 60 percent of freshmen
5 - exceeds 40 percent of freshmen
4 - exceeds 23 percent of freshmen
3 - exceeds 10 percent of freshmen

2 - exceeds 4 percent of freshmen
1 - lowest 4 percent of freshmen

SAT verbal stanine score. The result of the verbal scholastic aptitude tests reported in stanine scores. A stanine scale consists of nine categories with one being low and nine, high.

School of Business, Department of Accounting and Finance. The original Business Course started in 1893 at Montana State University. The work offered was in two fields--shorthand/typing and bookkeeping. After being recognized as the "Secretarial Department," the "Commercial Science Department," the "Department of Commerce," and the "School of Commerce," the school became known as the "School of Business." The Department of Accounting and Finance is one of three departments housed in the School of Business.

UCHGPA. The high school grade-point average computed by the Testing and Counseling Service at Montana State University. It is computed from the student's high school transcript and is the mean of mean grades received in the following high school courses: algebra, geometry, trigonometry, advanced math, chemistry, physics, foreign language, vocational studies, commercial (sic) studies, junior and senior years of history and social studies, and junior and senior years of English and speech.

SUMMARY

Chapter I established the direction and nature of the study to determine vertical articulation constraints and limitations that did not allow the student to make a smooth transition and adjustment from high school accounting to college accounting, BUAC 224, Principles of Accounting, at Montana State University.

Chapter II reviewed literature pertinent to this articulation study. Research indicated three main areas of articulation concerns: value of the articulation program, articulation problems and obstacles, and criteria to be used in articulation decisions.

Chapter III summarized procedures used in carrying out the study. Null hypotheses, determination of the population sizes, collecting the data, and treatment of the data are discussed.

Chapter IV was an interpretation of the data collected and reported the findings of the articulation study.

Chapter V summarized and served as a synopsis of the entire articulation study. Conclusions were drawn from the findings of the study and recommendations were presented.

A bibliography and appendix section were included for reference.

CHAPTER II

REVIEW OF LITERATURE

The purpose of this chapter was to review the literature most relevant to accounting articulation standards and practices among high school, post-secondary, and higher education sectors.

The findings of the review of literature indicated most business educators agree that overlapping curricula in secondary, post-secondary, and higher educational institutions is one of the most serious articulation problems. The result of extensive overlap is a waste of time and money for students and institutions. While some repetition is desirable, extensive overlap is an extravagance neither students nor institutions can afford.

Historically, the review of literature revealed a long span of interest and concern among administrators and educators regarding articulation and the relationship of the secondary, post-secondary, and higher education sectors. Prior to the 1900's, the National Education Association had several committees whose concern was with admission standards for incoming college students. (Rudolph, 1962:437) It was this need for admission standards that ultimately led to the development of accreditation programs for educational institutions. Accreditation was a direct outgrowth of the need for schools to articulate between levels. (Ebel, 1979:26)

In 1929 the National Education Association's Committee on Superintendents devoted the Seventh Yearbook to the discussion of articulation on all levels. (Strom, 1972:2) In 1932 an articulation conference was held in California between representatives of secondary and higher education. (Kintzer, 1968:155-161)

More recently, the Policies Commission for Business and Economic Education issued a "This We Believe Statement About Business Education in the Secondary School - 1970." The responsibilities that rest on the secondary business education curriculum were restated and reaffirmed with particular emphasis on articulation:

> We Believe That . . . Business education must assist students in preparing for professional careers requiring advanced study at the post-secondary and higher education levels. (Policies Commission, 1970:8)

Dr. Harms stated in Methods of Teaching Business and Distributive Education:

> It is the present-day climate of thought and need for serious appraisal of educational practices that causes us to study critically the business education curriculum. If ours is indeed the space age, the schools must accept the challenge to contribute generously to the preparation of youth for life in a complex and ever-changing world. (Harms, 1972:9)

If Dr. Harms' challenge to prepare youth for life is to be met, business education programs must be articulated at all levels.

Under Title X of the 1972 Educational Amendments, all states were required to conduct wide comprehensive planning which would link the various types and levels of secondary, post-secondary, and higher

education curriculums. This close articulation between grades 11/12 and 13/14 makes particularly good sense under normal student enrollments in higher education. However, in light of the ever-increasing population entering occupational programs in colleges around the nation, the need for better articulation becomes even more pressing. (Gillie, 1974:13-21) According to one report, the most wasteful and difficult step in the educational ladder is between the last year of secondary school and the first year of college. (Strom, 1977:3)

A sample of future articulation problems that will face secondary, post-secondary, and higher education sectors are all too apparent when considering the educational statisticians predictions: (Nistal, 1979:7-11)

- a sharp decrease in adolescent (18-21) and young adult (21-30) enrollment in colleges for at least the next twenty years
- an increase in male adult (30-45) and female (21-45) enrollment
- a drastic increase in part-time degree seekers at both undergraduate and graduate levels and similar increase in part-time nondegree continuing education students seeking to update, upgrade, and/or broaden their skills
- economists unanimously predict a slow-growth, high inflation economy characterized by a high degree of structural employment among white collar, skilled and technologically displaced workers

This implies the necessity for vocational/technical, paraprofessional and professional skills training and retraining capabilities at the post-secondary level and higher education levels. Furthermore, this

mandates the necessity for a well articulated program from secondary, to post-secondary, to higher education levels. (Nistal, 1979:7-11)

In general the literature focused on the importance of curriculum articulation (communication, cooperation, and coordination of curriculum) among vocational educators at the secondary, post secondary, and higher educational sectors; especially as articulation practices affect students making the transition. (Mandy, 1975:1-2)

The remainder of this chapter will chronicle articulation studies that 1) demonstrated the value of a well-coordinated articulation program, 2) identified articulation constraints and limitations, 3) delineated desirable criteria to be used in making articulation decisions, and 4) specifically addressed the accounting articulation program between high school accounting and elementary college accounting.

Value of the Articulation Program

In this age of inflation and increased costs for education, it is imperative that coordinated vertical articulation be employed to maintain the quality of education and increase the educational opportunities for students. Dorothy Lord reports in A Study of Selected Aspects of Articulation Among Public Post-Secondary Institutions that a more effective use of state funds for education can be accomplished by increased coordination of articulation among secondary, post-secondary, and higher education institutions. (Lord, 1975:3296)

In 1977 Dr. Spanbauer reported that curriculum articulation facilitates the transition of students between the vertical levels of instruction and ensures that programs meet the purpose for which they were established--educating students in the most efficient, well-planned manner possible. (Spanbauer, 1977:6511)

John Rojas, a veteran of articulation guidelines, reports in the Kern County Curriculum Bulletin:

> A well-articulated business education program will move students toward commonly accepted goals at their own rate and will build upon past learning and expand and broaden horizons in continuous progression. . . . (Rojas, 1966:6)

The American Vocational Journal reported in an article entitled, "Decision Making Powers: A Sign of Articulation," that the objective of the student is paramount in education, and through articulation programs, learning goals will be developed with the student uppermost in mind. (1971:31-35) To be operative, any articulation program must continuously monitor the student gain to ensure continuity within the educative process. Articulation should result in the least cost to the student in terms of time and money and elimination of duplicated of curriculum content.

Articulation Problems and Obstacles

Lack of communication among the various levels and types of secondary, post-secondary, and higher education sectors seems to be a significant obstacle to more effective articulation. Research tends

to reveal that colleges and universities involve their counterparts at the secondary and post-secondary level as little as possible in articulation studies or programs. (Delano, 1976:939) Educators at the post-secondary and higher education levels are cautious about advanced placement for students enrolled in basic classes. Each secondary school tends to have its own standards. An "A" in one school may not indicate the same level of student mastery of subject matter as an "A" in another school. This contributes to the cautious attitude of post-secondary and higher education staff regarding advanced placement of students. (Clynes and Briggamon, 1979:197-201)

Criteria to be Used in Articulation Decisions

Stanley Spanbauer developed A Model for the Articulation Implementation, and Evaluation of Curriculum Development in Secondary, Post-Secondary, Vocational-Technical Schools and outlined four basic criteria to use in making articulation decisions at any level of education. (Spanbauer, 1977:6511)

1. Colleges and universities must be flexible in instructional delivery systems to help limit unnecessary content duplication and respond more effectively to individual learning needs and readiness.

2. Competency-based instruction is the appropriate vehicle for curriculum articulation and vocational instructional materials should provide numerous alternatives for students.

3. Secondary and post-secondary schools should develop sequential curricula.

4. An articulation model should be developed that has as its objective the planning, development, implementation and evaluation of joint curriculum endeavors among staff from all vertical levels of instruction.

It is important to note that other studies found that legislation is not necessary to have a smooth transition of students from secondary, post-secondary, and higher education. Educators from within the systems can develop an effective articulation program. (Wasson, 1974:4955) Literature revealed that articulation was improved by requiring students to take proficiency exams to determine whether or not course content has been previously mastered. (AVA Journal, 1972: 58-59)

James Wattenbarger provided a summation for articulation criteria in Guidelines for Improving Articulation Between Junior and Senior Colleges: "Students should be encouraged to transfer through a program with a minimum loss of time and disruption of study." (1965:5)

Accounting Articulation Programs and Studies

Studies have been conducted to determine whether the study of bookkeeping/accounting in high school contributes to achievement in elementary accounting in college.

Musselman and Forkner have long been proponents of advanced college placement tests for those students with good bookkeeping/accounting skills. (Forkner, 1960:5 and Mussleman, 1979:11)

Norton provided some insight into contradicting views held by many educators regarding the benefits of a high school accounting course

as applied to the elementary college course. At one extreme are those who believe high school accounting is an absolute necessity for any student who wishes to take college accounting. At the other extreme are those who believe high school accounting is not beneficial; in fact, they believe it may be harmful since the student must unlearn bad habits before going on to college accounting. Between these two extremes, Norton said, are the majority of educators who agree that high school accounting does help but disagree about how much. Norton stated:

> The skeptic's view contains an element of truth. Some students who have had high school accounting do not perform any better than average in the first college accounting course. The high school accounting course is not a guarantee of success because the college course is a second course; not just a review of previous material. However, the positive aspects of high school accounting generally prevail. The student comes away from the high school accounting course with study habits, knowledge, attitude, and analytical ability that can be applied to many college courses including college accounting. (Norton, 1977:23-24)

In a 1955 study, Edna Barbour found that students who had taken bookkeeping in high school made significantly higher grades in the first semester accounting than students of equal ability and backgrounds who had not taken high school bookkeeping. It was also reported that students who had taken two years of bookkeeping appeared to have no advantage over students who had taken only one year of bookkeeping. The time lapse between the study of high school bookkeeping and the study of college accounting had no direct affect on either first or second semester accounting grades. (Barbour, 1955)

In 1962 Erling Lund conducted a study comparing selected high school bookkeeping textbooks with selected elementary college accounting textbooks. Lund recommended that further research was needed to determine what factors could be included in the high school bookkeeping course to make high school bookkeeping more acceptable by colleges and universities as preparation for college accounting. Specific practices and procedures included in elementary college accounting textbooks which were not included in high school bookkeeping textbooks needed to be identified and included in the high school bookkeeping course. (Lund, 1972:63)

In 1966 Charles Peterson conducted a study, The Prediction of Students' Success in College Accounting, in which factors were selected from personnel records of students enrolled in the first quarter of introductory accounting at the University of Minnesota to develop a multiple regression equation which could be used to predict the probable success or failure of students enrolled in the same course in the future. The following conclusions were reached from this study: (Peterson, 1966:61-A)

1. The basic contention of this study was that grades, achievement tests, interest tests and personality tests can be used collectively to predict students' success in college accounting. It was concluded that these factors are useful in predicting grades in the first course in college accounting.

2. The best single predictor of grades in the first course in accounting offered at the University of Minnesota was

grade-point average. Grade averages in economics, mathematics, and English were also useful. The common practice in colleges of using courses in economics as selector courses for enrollment in accounting were supported in this study.

3. More emphasis should be placed on grade records than on test instruments in predicting grades.

4. Students who did well in accounting tended to show personality test scores associated with social introversion and lack of normal adjustment to college life.

5. Students who did well in accounting tended to show a prior interest in the accounting field as a profession and a lack of interest in such fields as public administration, social work, the ministry, and teaching. This was interpreted as an indication that prior attitudes toward vocations and professions affect achievement in accounting.

6. Measures of verbal ability were found to be of significant value in predicting grades in accounting in this study.

Peterson recommended that further research be conducted to explore the relationship between measures of verbal ability and achievement in college accounting. (Peterson, 1966:61-A)

A study conducted by John Smith in 1968 supported much of Edna Barbour's findings but also indicated that students who had previous high school bookkeeping needed fewer class periods of instruction to successfully complete subject content in elementary college accounting than their counterparts with no previous high school bookkeeping. (Smith, 1968:1054)

SUMMARY

Articulation has been researched and studied for over eighty years with no clearly defined solutions to coordination problems among the secondary, post-secondary, and higher education sectors. However, with the cost of education becoming a monumental force, educators are again pursuing ways of cutting costs while maintaining quality education. If there is agreement that overlapping curricula is the most serious articulation problem today, then it follows that administrators and educators must seriously attempt articulation programs at all levels. Studies have shown the value of articulation programs. A more effective use of state funds for education can be accomplished by increasing articulation coordination among the secondary, post-secondary, and higher educational programs. Students also gain when learning goals are developed with the students' needs uppermost in mind.

There are serious articulation obstacles. Lack of communication seems to be the most significant obstacle. Designation of an advisory committee for articulation would seem to improve communication, especially if the advisory committee consisted of representatives at all levels of education. Also, uniformity of high school subject standards would seem to be a step in the right direction.

Criteria to be used in articulation decisions are within the realms of all educational levels. Flexibility in instructional delivery

systems at the college level would limit the unnecessary content duplication while at the same time effectively respond to individual learning needs. It is important to note that legislative action is not necessary, that educators from within each system can develop an effective articulation program through joint curriculum endeavors among staff from all vertical levels of instruction. As James Wattenbarger reports, "Students should be encouraged to transfer through a program with a minimum loss of time and disruption of study."

Much has been found in the accounting articulation studies. Students who have taken high school accounting make significantly higher grades in the elementary college accounting course. Students who have had high school accounting need fewer class periods of instruction to complete subject content than those students without previous high school accounting. High school grade point average tends to be a predictor for the degree of success the student experiences in college accounting.

In essence, the primary objective of articulation is the continuation of communications, cooperation, and coordination for the student; and this continuation should be accomplished at the least cost to the individual involved in terms of time and money and elimination of duplicated curriculum content.

CHAPTER III

PROCEDURES

This study was to determine vertical articulation constraints and limitations of students enrolled in BUAC 224, Principles of Accounting, that did not allow students to make a smooth transition from high school accounting to college elementary accounting at Montana State University. Articulation constraints were identified to determine whether students were allowed to maintain uninterrupted progress from high school accounting to college accounting at the least cost to students in terms of time and money, and the elimination of duplicated curriculum content.

The articulation constraints were further defined and categorized to develop a profile of a typical successful accounting student enrolled in BUAC 224, Principles of Accounting.

Finally, through identification of articulation limitations, statistical evidence was available to support recommendations for articulation practices and curriculum revision that would provide for the student's smooth transition and adjustment from high school accounting to BUAC 224, Principles of Accounting, at Montana State University.

The purposes of this chapter were to (a) develop the null hypotheses, (b) describe the sources of data, (c) determine population sizes, (d) explain the construction of the survey instrument,

(e) describe the administration of the survey instrument, and (f) describe the methods of analyzing the data.

NULL HYPOTHESES

In order to determine the vertical articulation constraints and limitations of students enrolled in BUAC 224, Principles of Accounting, at Montana State University, the following null hypotheses were tested:

1. College accounting performance is independent of the amount of accounting taken in high school.
2. College accounting performance is independent of the accounting high school grade.
3. College accounting performance is independent of the year accounting was taken in high school (freshman, sophomore, junior, or senior).
4. College accounting performance is independent of the time that had elapsed between high school accounting and college accounting.
5. College accounting performance is independent of the text used in high school accounting.
6. College accounting performance is independent of the amount of recordkeeping taken in high school.
7. College accounting performance is independent of the high school recordkeeping grade.
8. College accounting performance is independent of the year recordkeeping was taken in high school (freshman, sophomore, junior, or senior).
9. College accounting performance is independent of the student's high school grade point average (UCHGPA).

10. College accounting performance is independent of the student's predicted first year college grade point average (PCGPA).

11. College accounting performance is independent of the student's quantitative mathematics stanine score.

12. College accounting performance is independent of the student's SAT verbal stanine score.

13. College accounting performance is independent of the college status of the student (freshman, sophomore, junior, senior, or graduate).

14. College accounting performance is independent of the student's declared curriculum major/option at Montana State University.

15. College accounting performance is independent of the student's perception of the ease or difficulty of the current college accounting text.

16. College accounting performance is independent of the student's perception of the ease or difficulty of the beginning college accounting course.

SOURCES OF DATA

Since this study was conducted to determine college accounting articulation problems of students at Montana State University who had previously taken high school accounting, the investigator, with the assistance of the graduate committee and faculty within the Department of Accounting and Finance, concluded it was necessary to survey those students currently enrolled in elementary college accounting, fall quarter, 1979, at Montana State University. The Department of Accounting and Finance identified fourteen sections of BUAC 224, Principles of

Accounting, offered fall quarter in the School of Business. The total enrollment in all sections as of October 15, 1979, was 526 students. This source was representative of the kind of articulation problems outlined in the review of literature.

DETERMINATION OF POPULATION SIZE

The population size chosen for this study had to represent all significant aspects of articulation problems as outlined in the Statement of the Problem in Chapter 1. Rather than attempt to stratify the population within each section of BUAC 224, the investigator chose to sample the entire population of each section. On December 7, 1979, the population size of the invited sample was 497 students enrolled in fourteen sections of BUAC 224, Principles of Accounting. The decline in enrollment from October 15 was a result of students dropping the course from their schedule.

CONSTRUCTION OF THE SURVEY INSTRUMENT

One survey instrument was used in conducting this study. (See APPENDIX A, page 112) The initial survey instrument contained ten items pertaining to articulation problems identified through the review of literature. After meeting with the investigator's graduate committee, staff within the Department of Accounting and Finance, the Department of Business, Office and Distributive Education, and business education

graduate students, the survey instrument was expanded to include 24 items which would provide a broader scope of articulation problems for in-depth study. To assist in curriculum revision, two items were added relative to individualized instruction. A mark sense form was included with each questionnaire for compiling data. A statement was included with the questionnaire allowing the research and findings to be published if necessary. The student signed the affidavit indicating permission for publication of documentation of research. The statement read:

> I give permission to the individuals involved in this study to have access to my permanent student records for the purpose of locating pertinent information that may validate this study through comparing quantitative and verbal scores, high school grades, and other information necessary to conclude this study. I understand that this information will be held as confidential. I understand that any published material regarding my student records and this study will be handled in an anonymous, confidential manner.
>
> Legal Name (Signed)_____
> Dated_____

A letter was also sent the Registrar at Montana State University securing permission for access to student files. (See APPENDIX B, page 119) Permission was granted by the Registrar.

After invaluable suggestions and recommendations offered by the investigator's major advisor, graduate committee members, and staff within the Department of Accounting and Finance, and the Department of

Business, Office and Distributive Education, the final form of the survey was adopted.

ADMINISTRATION OF SURVEY

The research instrument was completed during the month of November, 1979. The staff of the Department of Accounting and Finance were contacted and each gave approval for administration of the questionnaire during the regular class hours to all students enrolled in their BUAC 224 section. The accounting staff were further instructed as to the format of the questionnaire, use of the mark sense form, and delivery and pick up of the instruments. On December 7, 1979, 497 students were invited to complete the questionnaire. Of these, 132 students chose not to participate in the study. Of the 365 students who did participate in the study, several returns were deemed unusable for a variety of reasons; the more prevalent reason being the student's failure to include social security numbers on the mark sense form. The 365 students participating in the study represented a 73 percent return of survey instruments.

Table 1, page 28, shows the number and percent of usable returns for each question contained in the survey instrument as well as the returns and percent of information received from student's records as recorded by the Registrar at Montana State University. Usable returns and percent may differ from each question as some students

Table 1. Number and Percent of Usable Returns by Survey Question Number.

Survey Question Number	Usable Returns (By Question)		Percent
1	239	(365 Total)	65.4
2	236	"	64.7
3	239	"	65.4
4	235	"	64.4
5	236	"	64.7
6	237	"	64.9
7	238	"	65.2
8	195	"	53.4
9	239	"	65.5
10	137	"	37.5
11	139	"	38.1
12	240	"	65.8
13	239	"	65.4
14	231	"	63.3
15	240	"	65.8
16	238	"	65.2
17	227	"	62.2
18	224	"	61.4
19	224	"	61.4
20	218	"	59.7
21	238	"	65.2
22	237	"	64.9
23	107	"	29.3
24	105	"	28.8
*25 (Quantitative)	367	(497 Total)	73.8
*26 (Verbal)	366	"	73.6
*27 (HSGPA)	334	"	67.2
*28 (Predicted GPA)	334	"	67.2
*29 (Tests 1 & 2)	354	"	71.2
*30 (Curriculum)	305	"	61.4

*Not a question on survey instrument, information received from student's records as recorded by the Registrar, Montana State University.

returning the survey did not answer every question. For the purpose of this study, any questions that were answered were included in the usable return count for the appropriate question number. If a student chose not to answer a particular question, only the unanswered question was deemed unusable, not the entire survey instrument.

The percent of returns from the various sections of BUAC 224, Principles of Accounting, were determined to be adequate to justify their use in this study.

ANALYSIS OF DATA

The primary problem of this study was to determine articulation constraints and limitations that did not allow students to make a smooth transition and adjustment from high school accounting to college accounting.

In addition, articulation constraints and limitations were further defined and categorized to develop a profile of a typical successful accounting student enrolled in BUAC 224, Principles of Accounting, at Montana State University.

A Chi-square (x^2) test of independence was utilized to test sixteen null hypotheses regarding articulation constraints and limitations. A Chi-square (x^2) test of independence was computed to determine whether or not a significant dependence existed in the responses received from survey questionnaires and student records on file with

the Registrar at Montana State University. A significant dependence was found whenever a null hypothesis was rejected. A total of 528 Chi-square tests of significance were computed. The Chi-square formula

$$x^2 = \Sigma \frac{(O - E)^2}{E}$$

was used where O = an observed frequency and E = an expected frequency (Guilford, 1965:321).

In each case the formula (R-1)(C-1) = df where R equals rows and C equals columns, was used to determine the appropriate degrees of freedom for each table in which comparisons were made (Guilford, 1965: 235). The degrees of freedom tended to be different for a particular table when "other" or "no opinion" occurred.

The significance of the computed Chi-square (at the .05 level of confidence) was determined from the table of x^2 in Fundamental Statistics in Psychology and Education (Guilford, 1965:582). The x^2 Table was read by entering the row with the correct number of degrees of freedom and the column for the 0.5 percent level of confidence. The observed value for x^2 had to be equal to or greater than the tabled value in order to reject the null hypothesis thereby establishing a significant dependence. If the calculated value for x^2 was less than the tabled value, the null hypothesis was accepted.

A table was constructed for each of the thirty-three survey questions representing the sixteen null hypotheses that were to be

tested for acceptance or rejection. (See Table 2, page 32) The first information located on the table is the question from the survey instrument. The first column below the question number contains the type of response, and the next six columns represent the final grade received by students in BUAC 224, Principles of Accounting. Below each table the null hypothesis developed for the articulation study is listed. The appropriate degrees of freedom and computed Chi-square are listed also. An asterisk after the computed Chi-square indicates the hypothesis was rejected and a significant dependence was established. Tables in Chapter IV are arranged in order of null hypothesis being tested, not in order of questions presented on survey instrument.

Table 2 on page 32 shows the tabulations and comparisons which will be included in Chapter IV.

Phase Two of the study was to develop a profile of a typical, successful accounting student in BUAC 224, Principles of Accounting. By using the thirty-three survey questionnaire variables as indicators of achievement, a Chi-square (x^2) test was utilized to test areas of dependence regarding final grades achieved in BUAC 224. The significance of the computed Chi-square (at the .05 level of confidence) was determined from the x^2 Table. When the observed value for x^2 was equal to or greater than the tabled value, the variables of articulation were established as indicators of successful achievement by students in BUAC 224.

Table 2. How much accounting/bookkeeping have you successfully completed (a D grade or better) at the high school level? (Question #1)

Responses	Final Grade in BUAC 224						
	A	B	C	D	F	I	Ttl. Row
One Semester:							
Number by Grade	1	7	10	4	1	0	23
Percent by Grade	2%	13%	11%	9%	11%	0%	10%
One Year:							
Number by Grade	17	19	27	11	0	2	76
Percent by Grade	40%	35%	30%	27%	0%	67%	32%
Two Years:							
Number by Grade	7	5	3	3	0	0	18
Percent by Grade	17%	9%	3%	7%	0%	0%	8%
None (Control Group):							
Number by Grade	17	21	48	22	8	1	117
Percent by Grade	40%	38%	54%	54%	89%	33%	49%
Other:							
Number by Grade	0	3	1	1	0	0	5
Other by Grade	0%	5%	1%	2%	0%	0%	2%
Total Number	42	55	89	41	9	3	239
Total Percent	18%	23%	37%	17%	4%	1%	100%

Null Hypothesis #1	df	Chi-square*
College Accounting performance is independent of the amount of accounting taken in high school.	20	26.85

Null Hypothesis #1 was accepted.
*Significant at the .05 level of confidence

The programming and statistical computations relating to the analysis were done by the Montana State University Computer Center.

CHAPTER IV

DATA ANALYSES

The purpose of this study was to determine articulation constraints and limitations of students enrolled in BUAC 224, Principles of Accounting, which did not allow students to make a smooth transition from high school accounting to college elementary accounting.

Through the use of a questionnaire, sixteen null hypotheses were tested to determine the extent college accounting performance is dependent upon articulation from high school accounting. The following pages are the results of the findings of this survey.

College Accounting Performance/Amount of High School Accounting

Where final grades received in BUAC 224 represent college accounting performance, Table 3, page 35, found 40 percent of the students receiving a final grade of A had taken one year of high school accounting. An identical percent of A students reported no high school accounting. These findings suggested college accounting performance is not dependent upon enrollment in high school accounting. However, these findings indicated that students who had taken high school accounting received more grades of C and above.

The findings of Table 3 confirmed that students taking one or two years of accounting in high school had a 75 percent better probability of receiving higher grades in college accounting than their

Table 3. How much accounting/bookkeeping have you successfully completed (a D grade or better) at the high school level? (Question #1)

Responses	Final Grade, BUAC 224						
	A	B	C	D	F	I	Ttl.
One Semester:							
Number by Grade	1	7	10	4	1	0	23
Percent by Grade	2%	13%	11%	9%	11%	0%	10%
One Year:							
Number by Grade	17	19	27	11	0	2	76
Percent by Grade	40%	35%	30%	27%	0%	67%	32%
Two Years:							
Number by Grade	7	5	3	3	0	0	18
Percent by Grade	17%	9%	3%	7%	0%	0%	7%
None (Control Group):							
Number by Grade	17	21	48	22	8	1	117
Percent by Grade	40%	35%	54%	54%	89%	33%	49%
Other:							
Number by Grade	0	3	1	1	0	0	5
Percent by Grade	0%	5%	1%	2%	0%	0%	2%
Total Number	42	55	89	41	9	3	239
Total Percent	18%	23%	37%	17%	4%	1%	100%

Null Hypothesis #1:	df	Chi-square*
College accounting performance is independent of the amount of accounting taken in high school.	20	26.85

Null Hypothesis #1 was accepted.
*Significant at the .05 level of confidence

counterparts with no high school accounting. Although the Chi-square dependency test did not reveal a significance at the .05 level of confidence, the findings tended to support other research that found students who had taken accounting in high school received higher grades in the first semester of college accounting than students who had not taken high school accounting.

Other courses listed by five respondents were: one quarter of college accounting, one year of business college, one and a half years of high school accounting, and three years of high school accounting. None of these students received a final grade of A; but, as can be seen, none of these respondents failed the course either. Apparently post-secondary accounting courses and additional years of high school accounting do not provide students with an additional advantage toward achieving higher grades in college accounting.

Of all students surveyed, 32 percent reported taking one year of high school accounting, while 49 percent reported no high school accounting. Only 18 percent of the respondents had taken two years of accounting. The findings showed a majority of high school students did not enroll in two years of accounting.

The findings clearly substantiated claims that one semester of high school accounting was not adequate to meet articulation needs of students enrolled in college accounting.

Definite articulation limitations were encountered by students enrolled in college accounting, who had taken only one semester of high school accounting or recordkeeping. Conversely, Table 4 reveals possible articulation constraints for students with two years of high school accounting.

Table 4. College accounting, BUAC 224, is what percent review of high school accounting and/or recordkeeping? (Question #10)

Amount of High School Acctg/Recdkeeping	BUAC 224 Review of H.S. Accounting					
	0%	25%	50%	75%	100%	Ttl.
One Semester:						
Number Responding	4	16	6	5	1	32
Percent of Total	12%	50%	19%	16%	3%	19%
One Year:						
Number Responding	2	40	32	38	5	117
Percent of Total	2%	34%	37%	33%	4%	68%
Two Years:						
Number Responding	0	5	1	13	4	23
Percent of Total	0%	22%	4%	57%	17%	13%
Total Number	6	61	39	56	10	172
Total Percent	3%	35%	23%	33%	6%	100%

Of the 32 students who had only one semester of high school accounting or recordkeeping, 50 percent responded that college accounting was a 25 percent review of high school accounting. Of the 23 students who had taken two years of high school accounting prior to college accounting, 57 percent reported that 75 percent of the course was a review of high school accounting, while another 17 percent reported 100 percent review. This could represent serious articulation constraints for students pursuing a career in accounting if the continuous progression of learning were disrupted for one entire quarter.

Students with one year of high school accounting/recordkeeping provided an interesting dilemma. One third reported 25 percent review, while another third reported a 75 percent review. This would lead one to believe that the course content of high school accounting/recordkeeping has a definite bearing on whether the students are prepared for college accounting.

In Table 5, page 39, the final grade received by students in BUAC 224 was compared to the percent of review of high school accounting/recordkeeping reported by students taking college accounting. Of the A grades recorded, 67 percent were received by students reporting the college course was a 75 to 100 percent review of high school accounting.

Table 5. Percent of review of high school accounting/recordkeeping as compared to the final grade received in BUAC 224. (Question #10)

Responses	Final Grade, BUAC 224						
	A	B	C	D	F	I	Ttl.
0% Review:							
Number by Grade	1	2	9	5	1	1	19
Percent by Grade	4%	6%	18%	22%	50%	50%	14%
25% Review:							
Number by Grade	2	8	17	14	1	1	43
Percent by Grade	8%	23%	33%	61%	50%	50%	31%
50% Review:							
Number by Grade	5	7	12	3	0	0	26
Percent by Grade	21%	17%	24%	13%	0%	0%	19%
75% Review:							
Number by Grade	12	17	12	1	0	0	42
Percent by Grade	50%	48%	24%	4%	0%	0%	31%
100% Review:							
Number by Grade	4	2	1	0	0	0	7
Percent by Grade	17%	6%	1%	0%	0%	0%	5%
Total Number	24	35	51	23	2	2	137
Total Percent	18%	25%	37%	18%	1%	1%	100%

Of the D grades reported in Table 5, page 39, 61 percent of the students reported their high school accounting/recordkeeping course provided them with a 25 percent review of college accounting. Again, articulation concerns are apparent. Is high school accounting preparing students for college accounting? Is elementary college accounting meeting the needs of the students enrolled? Instructors of high school and college accounting courses must open lines of communication and explore these concerns of articulation.

As would be expected, students receiving an A or B in high school accounting represented 55 percent of the final grades of A as recorded in Table 6, page 41. However, those who had not taken high school accounting received 45 percent of the final grades of A. Again, the control group suggested that high school accounting was not a prerequisite for successful college accounting performance. Interestingly enough, only 9 percent of the final grades of A were received by students receiving C or D grades in high school accounting. Also, the students who received an A or B in high school accounting had a 75 percent better probability of successful college accounting performance than students who received a C or D. Articulation by grade received in high school accounting would appear to be criteria for successful college accounting performance.

Table 6. If you took one year of bookkeeping/accounting in high school, what was the grade you received? (Question #5)

High School Accounting/Bookkeeping Grade	Final Grade, BUAC 224						
	A	B	C	D	F	I	Ttl.
A/B:							
Number by Grade	22	30	32	14	0	2	100
Percent by Grade	55%	54%	36%	35%	0%	67%	42%
C:							
Number by Grade	0	1	5	4	0	0	10
Percent by Grade	0%	2%	6%	10%	0%	0%	4%
D:							
Number by Grade	0	0	1	0	0	0	1
Percent by Grade	0%	0%	1%	0%	0%	0%	1%
F:							
Number by Grade	0	0	1	0	0	0	1
Percent by Grade	0%	0%	1%	0%	0%	0%	1%
None:							
Number by Grade	18	24	50	22	9	1	124
Percent by Grade	45%	44%	56%	55%	100%	33%	52%
Total Number	40	55	89	40	9	3	236
Total Percent	17%	23%	38%	17%	4%	1%	100%

Null Hypothesis #2:	df	Chi-square*
College accounting performance is independent of the accounting high school grade.	20	24.44

Null Hypothesis #2 was accepted.
*Significant at the .05 level of confidence

The Chi-square dependency test did not establish significant dependency between high school accounting grade and college accounting grade. However, the A/B students outperformed the C students with 15 percent of the A/B students receiving an A in college accounting while none of the other C, D, or F students received an A in college accounting. Table 7, page 43, also showed that no student with two years of high school accounting received an F in the course; while nine students without high school accounting did. The findings indicated that students with two years of high school accounting had no difficulty successfully completing college accounting, BUAC 224.

College Accounting Performance/High School Standing

Of the students enrolled in college accounting, 5 percent had taken high school accounting in their sophomore year of high school; 23 percent, junior; 21 percent, senior. Table 8, page 44, revealed college accounting performance was not dependent upon the year accounting was taken in high school. Students taking high school accounting as a junior and those taking the course as a senior did not differ markedly in their final grades earned in college accounting. However, students taking high school accounting as a sophomore did reflect 11 percent of the F grades earned in BUAC 224. These findings would support other research showing more positive articulation from high school accounting to college accounting is obtained when accounting instruction is offered in the junior or senior year of high school.

Table 7. If you took a second year of bookkeeping/accounting in high school, what was the grade you received? (Question #6)

High School Bookkeeping/Accounting Grade	Final Grade, BUAC 224						
	A	B	C	D	F	I	Ttl.
A/B:							
Number by Grade	6	6	2	2	0	0	16
Percent by Grade	15%	11%	2%	5%	0%	0%	7%
C:							
Number by Grade	0	0	1	1	0	0	2
Percent by Grade	0%	0%	1%	2%	0%	0%	1%
D:							
Number by Grade	0	0	0	0	0	0	0
Percent by Grade	0%	0%	0%	0%	0%	0%	0%
F:							
Number by Grade	0	0	0	0	0	0	0
Percent by Grade	0%	0%	0%	0%	0%	0%	0%
None:							
Number by Grade	35	48	87	37	9	3	219
Percent by Grade	85%	89%	97%	93%	100%	100%	92%
Total Number	41	54	90	40	9	3	237
Total Percent	17%	23%	38%	17%	4%	1%	100%

Null Hypothesis #2:	df	Chi-square*
College accounting performance is independent of the accounting high school grade.	10	11.84

Null Hypothesis #2 was accepted.
*Significant at the .05 level of confidence

Table 8. If you enrolled in bookkeeping/accounting in high school, what was your student standing at the time? (Question #3)

Responses	Final Grade, BUAC 224						
	A	B	C	D	F	I	Ttl.
Sophomore:							
Number by Grade	2	2	4	3	1	0	12
Percent by Grade	5%	4%	5%	7%	11%	0%	5%
Junior:							
Number by Grade	10	18	14	11	0	2	55
Percent by Grade	25%	32%	16%	27%	0%	67%	23%
Senior:							
Number by Grade	10	13	22	4	1	0	50
Percent by Grade	25%	23%	24%	10%	11%	0%	21%
Did not Enroll:							
Number by Grade	18	22	48	23	7	1	119
Percent by Grade	45%	39%	53%	56%	77%	33%	50%
Other:							
Number by Grade	0	1	2	0	0	0	3
Percent by Grade	0%	2%	2%	0%	0%	0%	1%
Total Number	40	56	90	41	9	3	239
Total Percent	17%	23%	38%	17%	4%	1%	100%

Null Hypothesis #3:	df	Chi-square*
College accounting performance is independent of the year accounting was taken in high school (freshman, sophomore, junior, or senior).	20	26.85

Null Hypothesis #3 was accepted.
*Significant at the .05 level of confidence

College Accounting Performance/Time Elapsed

As seen by this survey, students with only one semester of high school accounting or recordkeeping incurred problems in college accounting. At the other end of the continuum, serious articulation constraints were experienced by students with two years of accounting. Another kind of articulation problem existed for students who had been away from accounting for more than four years. The survey findings were extremely significant regarding the number of years that had elapsed between college accounting and secondary/postsecondary accounting. Results demonstrated that students taking college accounting within two years of high school accounting received better grades than students who had no recent accounting courses.

When reviewing the distribution of students taking college accounting, 34 percent of the students had taken accounting in high school the previous year, 31 percent had taken accounting two years before; 10 percent, three years before; and 6 percent, four years before or longer. Eighteen percent of the students had been away from accounting for five years or more. Table 9, page 46, discloses no students failed the course when high school accounting had been taken within two years of enrolling in college accounting. However, when three or more years elapsed, students did receive failing grades. It would seem that articulation carryover from high school accounting to college accounting is highest within a two year span. The tabulation showed that A grades

Table 9. How many years has it been since you were last enrolled in an accounting/bookkeeping course? (Question #4)

Responses	Final Grade, BUAC 224						
	A	B	C	D	F	I	Ttl.
One Year:							
Number by Grade	14	12	15	6	0	0	47
Percent by Grade	58%	32%	30%	26%	0%	0%	34%
Two Years:							
Number by Grade	9	14	14	6	0	0	43
Percent by Grade	38%	37%	28%	26%	0%	0%	31%
Three Years:							
Number by Grade	0	5	5	2	1	1	14
Percent by Grade	0%	13%	10%	9%	50%	50%	10%
Four Years:							
Number by Grade	1	2	4	1	1	0	9
Percent by Grade	4%	5%	8%	4%	50%	0%	6%
Five Years or More:							
Number by Grade	0	5	12	8	0	1	26
Percent by Grade	0%	13%	24%	35%	0%	50%	19%
Total Number	24	38	50	23	2	2	139
Total Percent	17%	28%	36%	17%	1%	1%	100%

Null Hypothesis #4:	df	Chi-square*
College accounting performance is independent of the time that elapsed between high school accounting and college accounting.	20	34.83*

Null Hypothesis #4 was rejected.
*Significant at the .05 level of confidence

represented 17 percent of the total grades awarded. Of this percent, 58 percent were awarded to students who had taken high school accounting within one year of enrolling in BUAC 224 while only 38 percent of the A grades were awarded to students who had taken high school accounting within two years. It would appear that when a period of three or four years elapsed between high school accounting and college accounting, the grade paralleled the grades of those students with no high school accounting.

College Accounting Performance/High School Textbook

When students were asked to identify the textbook used in high school accounting, no significant dependence was found relevant to college accounting performance. The survey did indicate that the South-Western textbook was used by 25 percent of the respondents, while 7 percent used the Gregg textbook. Not surprisingly, the survey revealed 49 percent of the students surveyed could not remember the kind of high school accounting text used. Table 10, page 48, details the responses.

Table 10. To the best of your knowledge, the textbook used in bookkeeping/accounting in high school was: (Question #8)

Responses	Final Grade, BUAC 224						
	A	B	C	D	F	I	Ttl.
Southwestern - 20th Century:							
Number by Grade	12	13	14	8	2	0	49
Percent by Grade	38%	28%	19%	25%	33%	0%	25%
Gregg/McGraw Hill - 10-12 Series:							
Number by Grade	1	4	6	1	0	1	13
Percent by Grade	3%	8%	8%	3%	0%	33%	7%
Current College Text:							
Number by Grade	1	0	0	0	0	0	1
Percent by Grade	3%	0%	0%	0%	0%	0%	1%
Don't Remember:							
Number by Grade	16	23	37	16	2	2	96
Percent by Grade	50%	49%	49%	50%	34%	67%	49%
Other/No Accounting:							
Number by Grade	2	7	18	7	2	0	38
Percent by Grade	6%	15%	24%	22%	33%	0%	18%
Total Number	32	47	75	32	6	3	195
Total Percent	16%	24%	39%	16%	3%	2%	100%

Null Hypothesis #5:	df	Chi-square*
College accounting performance is independent of the text used in high school accounting.	20	20.69

Null Hypothesis #5 was accepted.
*Significant at the .05 level of confidence

College Accounting Performance/High School Recordkeeping

When students were asked the amount of recordkeeping they had successfully completed in high school, only 7 percent responded with one semester. Two percent of the students said they had taken one year of recordkeeping in high school.

One percent, or three respondents, reported taking a recordkeeping course at a private business college before enrolling in BUAC 224.

The Chi-square dependency test showed that the amount of recordkeeping taken in high school did not significantly affect college accounting performance. See Table 11, page 50, for comparisons.

College Accounting Performance/Recordkeeping Grade

High school recordkeeping grades were not found to be indicators of a student's success in college accounting. However, a pattern was shown whereby A/B students received 7 percent of the A grades; C/D students received none. Also, students taking high school recordkeeping reported no D or F grades, while 12 students with no high school recordkeeping reported grades of D or F in BUAC 224. Articulation patterns were not defined to show a positive relationship between high school recordkeeping and college accounting performance but there did seem to be some carryover to assist the student in successfully completing college accounting. (See Table 12, page 51)

Table 11. How much recordkeeping have you successfully completed (a D grade or better) at the high school level? (Question #2)

Responses	Final Grade, BUAC 224						
	A	B	C	D	F	I	Ttl.
One Semester:							
Number by Grade	2	4	7	3	0	0	16
Percent by Grade	5%	7%	8%	7%	0%	0%	7%
One Year:							
Number by Grade	1	0	1	3	0	0	5
Percent by Grade	2%	0%	1%	7%	0%	0%	2%
Two Years:							
Number by Grade	35	51	79	33	8	3	209
Percent by Grade	85%	93%	91%	82%	89%	100%	89%
Other:							
Number by Grade	1	0	0	1	1	0	3
Percent by Grade	3%	0%	0%	2%	11%	0%	1%
Don't Remember:							
Number by Grade	2	0	0	1	0	0	3
Percent by Grade	5%	0%	0%	2%	0%	0%	1%
Total Number	41	55	87	41	9	3	236
Total Percent	17%	23%	37%	17%	4%	1%	100%

Null Hypothesis #6:	df	Chi-square*
College accounting performance is independent of the amount of recordkeeping taken in high school.	20	25.05

Null Hypothesis #6 was accepted.
*Significant at the .05 level of confidence

Table 12. If you took recordkeeping in high school, what was the grade you received? (Question #7)

Responses	Final Grade, BUAC 224						
	A	B	C	D	F	I	Ttl.
A or B:							
Number by Grade	3	4	6	6	0	0	19
Percent by Grade	7%	7%	7%	15%	0%	0%	8%
C:							
Number by Grade	0	0	1	1	0	0	2
Percent by Grade	0%	0%	1%	2%	0%	0%	1%
D:							
Number by Grade	0	0	0	0	0	0	0
Percent by Grade	0%	0%	0%	0%	0%	0%	0%
F:							
Number by Grade	0	0	0	0	0	0	0
Percent by Grade	0%	0%	0%	0%	0%	0%	0%
None:							
Number by Grade	37	52	82	34	9	3	217
Percent by Grade	93%	93%	92%	83%	100%	100%	91%
Total Number	40	56	89	41	9	3	238
Total Percent	17%	24%	37%	17%	4%	1%	100%

Null Hypothesis #7:	df	Chi-square*
College accounting performance is independent of the record-keeping high school grade.	10	6.14

Null Hypothesis #7 was accepted.
*Significant at the .05 level of confidence

College Accounting Performance/Student Standing

The findings of Table 13, page 53, paralleled the findings of the accounting survey. Most students enrolled in recordkeeping as a senior, with junior standing next. This information suggested that when recordkeeping was offered in the high schools, more students took the course as a senior.

College accounting performance was shown to be independent of the year the student took high school recordkeeping. Reference must also be made to the fact that no student taking high school recordkeeping failed the college accounting course. Again, these findings may suggest some carryover from high school recordkeeping.

Other responses showed one student enrolled in recordkeeping at a business college, and one student took recordkeeping at a vocational-technical center.

College Accounting Performance/Grade Point Average

Of the 45 students receiving an A in BUAC 224, not one had a recorded high school grade point average lower than a three-point (B). Of the 37 students receiving an F in BUAC 224, 17 had high school grade point averages below a three-point (B). As shown by the Chi-square dependency test, college accounting performance can be predicted by the student's high school grade point average. Table 14, page 54, does not show all students enrolled in BUAC 224 fall quarter as some students

Table 13. If you enrolled in recordkeeping in high school, what was your student standing at the time? (Question #4)

Responses	Final Grade, BUAC 224						
	A	B	C	D	F	I	Ttl.
Sophomore:							
Number by Grade	2	0	1	1	0	0	4
Percent by Grade	5%	0%	2%	2%	0%	0%	2%
Junior:							
Number by Grade	0	3	3	2	0	0	8
Percent by Grade	0%	5%	3%	5%	0%	0%	3%
Senior:							
Number by Grade	1	2	3	4	0	0	10
Percent by Grade	3%	4%	3%	10%	0%	0%	4%
None:							
Number by Grade	34	50	81	34	9	3	211
Percent by Grade	89%	89%	92%	83%	100%	100%	90%
Other:							
Number by Grade	1	1	0	0	0	0	2
Percent by Grade	3%	2%	0%	0%	0%	0%	1%
Total Number	38	56	88	41	9	3	235
Total Percent	16%	24%	37%	18%	4%	1%	100%

Null Hypothesis #8:	df	Chi-square*
College accounting performance is independent of the year record-keeping was taken in high school (freshman, sophomore, junior, or senior).	20	14.34

Null Hypothesis #8 was accepted.
*Significant at the .05 level of confidence

Table 14. High school grade point average as computed by Montana State University. (Question #27)

High School Grade Point Average	Final Grade, BUAC 224						
	A	B	C	D	F	I	Ttl.
1 (D):							
Number by Grade	0	0	1	0	5	0	6
Percent by Grade	0%	0%	1%	0%	14%	0%	2%
2 (C):							
Number by Grade	0	7	23	18	12	0	60
Percent by Grade	0%	11%	17%	29%	32%	0%	17%
3 (B):							
Number by Grade	17	30	88	34	19	2	190
Percent by Grade	38%	46%	67%	55%	51%	67%	55%
4 (A):							
Number by Grade	28	28	20	10	1	1	88
Percent by Grade	62%	43%	15%	16%	3%	33%	26%
Total Number	45	65	132	62	37	3	344
Total Percent	13%	19%	38%	18%	11%	1%	100%

Null Hypothesis #9:	df	Chi-square*
College accounting performance is independent of the student's high school grade point average (UCHGPA).	28	131.88*

Null Hypothesis #9 was rejected.
*Significant at the .05 level of confidence

did not have a high school grade point average recorded with the Registrar.

College Accounting Performance/Predicted Grade Point Average

If college achievement were to be measured solely on the basis of the predicted college grade point average as computed by Montana State University's Testing and Counseling Service, the probable success rate would be high. The Chi-square dependency test revealed a strong dependency between college accounting performance and predicted grade point average. Of the 44 students receiving an A, 88 percent had a recorded predicted college grade point average of three-point and above.

Of the 36 students receiving an F, only 14 percent had a predicted grade point average of three-point and above. (See Table 15, page 56) Again, not all students enrolled in BUAC 224 were included in Table 15 as the information was not available.

Table 15. Predicted first year college grade point average as computed by the Testing and Counseling Service, Montana State University. (Question #28)

Predicted First Year College GPA	Final Grade, BUAC 224						
	A	B	C	D	F	I	Ttl.
1 (D):							
Number by Grade	0	1	2	3	7	0	13
Percent by Grade	0%	2%	2%	5%	19%	0%	4%
2 (C):							
Number by Grade	5	21	76	37	24	9	172
Percent by Grade	12%	33%	59%	63%	67%	75%	50%
3 (B/A):							
Number by Grade	39	41	51	19	5	3	158
Percent by Grade	88%	65%	39%	32%	14%	25%	46%
Total Number	44	63	129	59	36	12	343
Total Percent	13%	18%	38%	17%	10%	3%	100%

Null Hypothesis #10:	df	Chi-square*
College accounting performance is independent of the student's predicted first year college grade point average (PCGPA).	12	87.45*

Null Hypothesis #10 was rejected.
*Significant at the .05 level of confidence

College Accounting Performance/Quantitative Math Scores

Quantitative math scores appeared to be valuable indicators of success in college accounting. Only students with quantitative math scores recorded at MSU were included in Table 16, pages 58 - 59. Of the 49 students receiving an A in BUAC 224, 65 percent had quantitative math scores with recorded stanines of six and above; 44 percent of those receiving B grades had stanines of six and above. To lend further credence, 32 percent of C grades, 23 percent of D grades, and no F grades were received by students with recorded stanines of six and above.

It would seem that vertical articulation is not the only indicator of successful college performance. Horizontal articulation among subject areas can also provide a student with the necessary knowledge to successfully complete college accounting.

Table 16. SAT quantitative scores as recorded at Montana State University. (Question #25)

SAT Quantitative Stanine Scores	Final Grade, BUAC 224						
	A	B	C	D	F	I	Ttl.
Stanine 1:							
Number by Grade	0	4	9	9	8	0	30
Percent by Grade	0%	6%	7%	15%	19%	0%	8%
Stanine 2:							
Number by Grade	1	4	18	18	6	0	47
Percent by Grade	2%	6%	13%	29%	14%	0%	13%
Stanine 3:							
Number by Grade	4	8	25	7	7	1	52
Percent by Grade	8%	10%	18%	11%	17%	33%	14%
Stanine 4:							
Number by Grade	4	11	22	12	6	1	56
Percent by Grade	8%	15%	16%	19%	14%	33%	15%
Stanine 5:							
Number by Grade	8	14	19	2	8	1	52
Percent by Grade	16%	19%	14%	3%	19%	34%	14%
Stanine 6:							
Number by Grade	6	11	20	5	4	0	46
Percent by Grade	12%	15%	14%	8%	10%	0%	13%
Stanine 7:							
Number by Grade	8	9	15	7	3	0	38
Percent by Grade	8%	12%	11%	12%	7%	0%	10%

Table 16. (continued)

SAT Quantitative Stanine Scores	Final Grade, BUAC 224						
	A	B	C	D	F	I	Ttl.
Stanine 8:							
Number by Grade	17	10	6	2	0	0	35
Percent by Grade	35%	14%	4%	3%	0%	0%	10%
Stanine 9:							
Number by Grade	5	2	4	0	0	0	11
Percent by Grade	10%	3%	3%	0%	0%	0%	3%
Total Number	49	73	138	62	42	3	367
Total Percent	13%	20%	38%	17%	11%	1%	100%

Null Hypothesis #11:	df	Chi-square*
College accounting performance is independent of the student's quantitative mathematics stanine score.	63	134.35*

Null Hypothesis #11 was rejected.
*Significant at the .05 level of confidence

College Accounting Performance/Verbal Scores

Students with a recorded SAT verbal stanine score of six and above had a higher success rate in college accounting than students with stanines of five and below.

Of the 49 students receiving a final grade of A, 28 students or 57 percent had recorded stanine scores of six or higher, while 21 students or 43 percent had stanine scores of five and below. Of the 42 students receiving an F in BUAC 224, only 6 students or 15 percent had stanine scores of six and above; 36 students or 85 percent had stanine scores of five and below. This distribution clearly delineates the dependence of students' college accounting achievement upon the students' recorded verbal scores. (See Table 17, pages 61 - 62)

The value of this verbal score cognation to successful college accounting performance is further defined by categorizing the final grade students received by their recorded verbal stanine scores. Of all students receiving an A in BUAC 224, most had recorded stanine scores of five, six, seven, and eight. In the B grade category, a recorded stanine score of five was an indicator of corresponding achievement; in the C category, stanine four contained the most number of students; in the D category, stanine three; and F category, stanine two. A constant regression is noted in the final grade students received in college accounting when categorized by verbal stanine scores. These results suggest that a minimum verbal stanine score of four is

acceptable for successful college accounting performance, with a stanine score of five and above deemed more acceptable.

Table 17. Verbal score as recorded at Montana State University. (Question #26)

Verbal Stanine Score	Final Grade, BUAC 224						
	A	B	C	D	F	I	Ttl.
Stanine 1:							
Number by Grade	1	0	3	5	3	0	12
Percent by Grade	2%	0%	2%	8%	7%	0%	3%
Stanine 2:							
Number by Grade	1	4	15	11	10	0	41
Percent by Grade	2%	6%	11%	18%	24%	0%	11%
Stanine 3:							
Number by Grade	3	8	24	17	8	1	61
Percent by Grade	7%	11%	17%	27%	19%	33%	17%
Stanine 4:							
Number by Grade	7	10	38	12	8	0	75
Percent by Grade	14%	14%	28%	19%	19%	0%	20%
Stanine 5:							
Number by Grade	9	19	24	5	7	1	65
Percent by Grade	18%	26%	17%	8%	16%	33%	18%
Stanine 6:							
Number by Grade	9	11	16	7	4	0	47
Percent by Grade	18%	15%	12%	12%	10%	0%	13%

Table 17. (continued)

Verbal Stanine Score	Final Grade, BUAC 224						
	A	B	C	D	F	I	Ttl.
Stanine 7:							
Number by Grade	9	17	11	5	2	1	45
Percent by Grade	18%	24%	8%	8%	5%	34%	12%
Stanine 8:							
Number by Grade	8	3	5	0	0	0	16
Percent by Grade	17%	4%	4%	0%	0%	0%	5%
Stanine 9:							
Number by Grade	2	0	2	0	0	0	4
Percent by Grade	4%	0%	1%	0%	0%	0%	1%
Total Number	49	72	138	62	42	3	366
Total Percent	13%	20%	38%	17%	11%	1%	100%

Null Hypothesis #12:	df	Chi-square*
College accounting performance is independent of the student's SAT verbal stanine score	63	109.10*

Null Hypothesis #12 was rejected.
*Significant at the .05 level of confidence

College Accounting Performance/College Status

As seen in Table 18, page 64, of all students enrolled in Principles of Accounting, 48 percent were freshmen, 38 percent were sophomores, 9 percent were juniors, 4 percent were seniors, and 2 percent were graduate students. No significant dependence was established in linking college accounting performance and college status of the student. It is noted, however, that significantly fewer F grades were received by junior and senior students when compared to freshman and sophomore students.

Articulation does not appear to be a factor in this area. More likely it is the experience of the student, the age of the student, and the motivation of the student that would establish more dependency between performance and college status.

Further study of the information in Table 18 shows that of all A grades received, the majority were freshman; of all B grades, sophomores; of all C grades, sophomores; of all D grades, freshman; of all F grades, sophomores. Nothing is indicated here that would provide criteria for articulation other than the length of time elapsed since high school accounting. Another interpretation may be that those freshman receiving A grades may have had more college oriented high school accounting than those freshman receiving D and F grades.

Table 18. What is your college status? (Question #22)

Responses	Final Grade, BUAC 224						
	A	B	C	D	F	I	Ttl.
Freshman:							
Number by Grade	28	22	38	22	2	1	113
Percent by Grade	67%	40%	44%	54%	22%	33%	48%
Sophomores:							
Number by Grade	6	25	39	12	5	2	89
Percent by Grade	14%	46%	45%	29%	56%	67%	37%
Junior:							
Number by Grade	5	2	8	6	1	0	22
Percent by Grade	12%	3%	9%	15%	11%	0%	9%
Senior:							
Number by Grade	1	5	1	1	1	0	9
Percent by Grade	2%	9%	1%	2%	11%	0%	4%
Graduate Student:							
Number by Grade	2	1	1	0	0	0	4
Percent by Grade	5%	2%	1%	0%	0%	0%	2%
Total Number	42	55	87	41	9	3	237
Total Percent	18%	23%	37%	17%	4%	1%	100%

Null Hypothesis #13:	df	Chi-square*
College accounting performance is independent of the college status of the student (freshman, sophomore, junior, senior, or graduate).	20	30.85

Null Hypothesis #13 was accepted.
*Significant at the .05 level of confidence

College Accounting Performance/Curriculum

Of the two tests given in BUAC 224 prior to the final, test scores show Test #1 does not necessarily indicate dependence between curriculum and successful accounting performance; but Test #2 does.

Accounting majors were separated from all other majors for this survey. In Test #1, accounting majors had a 90 percent probability of receiving a higher grade in BUAC 224 than nonmajors. However, in Test #2, accounting majors had better than a 95 percent chance of receiving a higher grade than nonmajors. These findings do support articulation criteria that suggests previous accounting experience is helpful in successfully completing college accounting. However, it is only reasonable to suggest that a higher motivation exists for accounting majors than for nonmajors. This motivation could certainly be a very important factor in the high dependence found. (See Table 19, page 66)

Table 19. Results of test scores of Test #1 and Test #2 received by accounting majors and all other majors. (Question #29)

Responses	Final Grade, BUAC 224						
	A	B	C	D	F	I	Ttl.
Accounting Major/Test #1:							
Number by Grade	31	21	15	2	0	0	69
Percent by Grade	45%	30%	22%	3%	0%	0%	19%
Other Major/Test #1:							
Number by Grade	98	109	46	20	12	0	285
Percent by Grade	35%	38%	16%	7%	4%	0%	81%
Total Number	129	130	61	22	12	0	354
Total Percent	36%	37%	17%	6%	4%	0%	100%
Accounting Major/Test #2:							
Number by Grade	22	17	15	3	8	0	65
Percent by Grade	33%	25%	22%	8%	12%	0%	19%
Other Major/Test #2:							
Number by Grade	48	78	64	50	39	0	279
Percent by Grade	17%	28%	23%	18%	14%	0%	81%
Total Number	70	95	79	53	47	0	344
Total Percent	20%	28%	23%	15%	14%	0%	100%

Null Hypothesis #14:	df	Chi-square*
College accounting performance is independent of the student's declared curriculum major/option at Montana State University.		
Test #1:	4	8.05
Test #2:	4	10.55*

Null Hypothesis #14 was rejected.
*Significant at the .05 level of confidence

College Accounting Performance/Textbook Used in BUAC 224

No significant dependence was established to link the current textbook used in BUAC 224 with students' college accounting performance. As could be expected, those students receiving higher final grades reported the textbook was average to easy; those receiving lower final grades reported the textbook was average to extremely hard. (See Table 20, page 68)

Of the 41 students receiving an A in BUAC 224, 83 percent rated the current college textbook being used as average to very easy to read and understand. Of the 41 students receiving a D in BUAC 224, 93 percent rated the textbook as average to extremely hard to read and understand. It is only valid to suggest that the student's verbal scores could have some influence on their rating of the college accounting text. It would be expected that students having high verbal stanine scores would have less difficulty reading and understanding the text than those students having low verbal stanine scores.

Table 20. Indicate your rating of the current textbook being used for BUAC 224: Extremely Hard to read and understand, Hard to read and understand, Average to read and understand, Easy to read and understand, or Very Easy to read and understand. (Question #9)

Responses	Final Grade, BUAC 224						
	A	B	C	D	F	I	Ttl.
Extremely Hard:							
Number by Grade	0	1	3	2	0	0	6
Percent by Grade	0%	2%	3%	5%	0%	0%	3%
Hard:							
Number by Grade	7	11	21	12	1	2	54
Percent by Grade	17%	19%	24%	29%	11%	67%	22%
Average:							
Number by Grade	19	23	45	24	8	0	119
Percent by Grade	46%	41%	51%	59%	89%	0%	50%
Easy:							
Number by Grade	12	20	17	3	0	1	53
Percent by Grade	29%	36%	19%	7%	0%	33%	22%
Very Easy:							
Number by Grade	3	1	3	0	0	0	7
Percent by Grade	8%	2%	3%	0%	0%	0%	3%
Total Number	41	56	89	41	9	3	239
Total Percent	17%	24%	37%	17%	4%	1%	100%

Null Hypothesis #15:	df	Chi-square*
College accounting performance is independent of the student's perception of the ease or difficulty of the current college accounting text.	20	29.93

Null Hypothesis #15 was accepted.
*Significant at the .05 level of confidence

College Accounting Performance/Course Content

When students were asked to evaluate Principles of Accounting, BUAC 224, as to the ease or difficulty of the subject matter, a high dependence was found between their responses and their final accounting grades. Students who reported that the course was average to very easy received noticeably higher final grades than students who reported the course was average to extremely difficult.

Table 21, page 70, confirms this significant dependence. Eighty-eight percent of the 42 students receiving a final accounting grade of A rated BUAC 224 as average to very easy, while all of the 41 students receiving a final accounting grade of D rated BUAC 224 as average to extremely difficult. Again, reference must be made to the students' SAT quantitative and verbal stanine scores. It would seem reasonable to suggest that students with high quantitative and verbal stanine scores would have less difficulty with the college accounting course content than those students having low quantitative and verbal stanine scores.

Table 21. Did you find accounting, BUAC 224, at Montana State University to be Extremely Difficult, Difficult, Average, Easy, or Very Easy. (Question #12)

Responses	Final Grade, BUAC 224						
	A	B	C	D	F	I	Ttl.
Extremely Difficult:							
Number by Grade	0	1	5	6	0	0	12
Percent by Grade	0%	2%	5%	15%	0%	0%	5%
Difficult:							
Number by Grade	5	18	42	26	8	2	101
Percent by Grade	12%	33%	47%	63%	89%	67%	42%
Average:							
Number by Grade	16	24	36	9	1	1	87
Percent by Grade	38%	44%	40%	22%	11%	33%	36%
Easy:							
Number by Grade	17	11	7	0	0	0	35
Percent by Grade	40%	20%	8%	0%	0%	0%	15%
Very Easy:							
Number by Grade	4	1	0	0	0	0	5
Percent by Grade	10%	1%	0%	0%	0%	0%	2%
Total Number	42	55	90	41	9	3	240
Total Percent	18%	23%	37%	17%	4%	1%	100%

Null Hypothesis #16:	df	Chi-square*
College accounting performance is independent of the student's perception of the ease or difficulty of college accounting, BUAC 224.	20	81.95*

Null Hypothesis #16 was rejected.
*Significant at the .05 level of confidence

When the students' ratings of Principles of Accounting, BUAC 224, were compared to the amount of high school accounting students reported, the Chi-square test of independence indicated the amount of high school accounting students received was significant when compared to the students' perceptions of the ease or difficulty of the college accounting course. In Table 22, page 72, 139 students reported the college accounting course was difficult. Of these, 45 percent had never taken high school accounting; 42 percent had taken only one semester of high school accounting; 32 percent, one year; and 26 percent, two years. However, of the 45 students who rated college accounting as easy; 7 percent had never taken high school accounting; 19 percent reported one semester of high school accounting; 19 percent reported one year; and 26 percent, two years. Interestingly enough, an identical number of students with two years of high school accounting rated the college accounting course as difficult (6 students) and easy (6 students). One explanation could be a lack of course content standards for second year accounting courses at the high school level. The similarity also clearly demonstrates the varying backgrounds of students, that enroll in BUAC 224 and demonstrates the kinds of problems accounting instructors at MSU have inevitably come to expect.

Table 22. Do you find accounting, BUAC 224, at Montana State University to be Extremely Difficult, Difficult, Average, Easy, or Very Easy. (Question #12)

Amount of High School Acctg	Rating of College Accounting					
	ED	D	A	E	VE	Ttl.
One Semester:						
Number Responding	0	15	14	7	0	36
Percent of Total	0%	42%	39%	19%	0%	10%
One Year:						
Number Responding	3	38	55	20	2	118
Percent of Total	2%	32%	47%	17%	2%	34%
Two Years:						
Number Responding	0	6	10	6	1	23
Percent of Total	0%	26%	44%	26%	4%	7%
None:						
Number Responding	13	80	61	12	3	169
Percent of Total	8%	45%	36%	7%	2%	49%
Total Number	16	13	140	45	6	346
Total Percent	5%	40%	40%	13%	2%	100%

CURRICULUM FINDINGS

The questionnaire used for this study was developed to test null hypotheses which could indicate significant articulation constraints and limitations of students enrolled in beginning college accounting at Montana State University. Additional questions were included in the questionnaire to allow students to evaluate the accounting curriculum. This section of findings represents those survey questions asking students to provide input for accounting curriculum evaluation.

Curriculum Evaluation/Lecture Approach

Table 23, page 74, provides information of students' perceptions of the lecture method now utilized by instructors of BUAC 224 at Montana State University. As could be anticipated, students receiving grades of C and above rated the lecture method as adequate to very adequate. Students receiving lower grades replied negatively. Of all students responding, 12 percent rated the lecture approach as very adequate; 55 percent, adequate; 24 percent, inadequate; 4 percent, very inadequate.

Table 23. Do you feel the lecture method is adequate for this course? (Question #15)

Responses	Final Grade, BUAC 224						
	A	B	C	D	F	I	Ttl.
Very Adequate:							
Number by Grade	10	7	10	2	1	1	31
Percent by Grade	24%	13%	11%	5%	12%	33%	13%
Adequate:							
Number by Grade	21	36	49	22	4	1	133
Percent by Grade	50%	65%	55%	54%	44%	33%	55%
Inadequate:							
Number by Grade	8	11	24	10	4	1	58
Percent by Grade	19%	20%	27%	24%	44%	34%	24%
Very Inadequate:							
Number by Grade	0	1	3	5	0	0	9
Percent by Grade	0%	2%	3%	12%	0%	0%	4%
No Opinion:							
Number by Grade	3	0	4	2	0	0	9
Percent by Grade	7%	0%	4%	5%	0%	0%	4%
Total Number	42	55	90	41	9	3	359
Total Percent	18%	23%	38%	17%	3%	1%	100%

When quantitative math stanines were compared to the student's rating of the adequacy of the lecture approach used in BUAC 224, no distribution was found that would indicate students with high stanine scores rated the lecture approach adequate nor that students with low quantitative math stanine scores rated the lecture approach as inadequate. (See Table 24, pages 75 - 76)

Table 24. Do you feel the lecture method is adequate for this course? Very Adequate, Adequate, Inadequate, Very Inadequate, No Opinion. (Question #15)

Quantitative Stanine Score	Rating of Lecture Approach, BUAC 224					
	VA	A	I	VI	NO	Ttl.
0 (No Record):						
Number Responding	20	99	43	9	3	174
Percent of Total	11%	57%	25%	5%	2%	48%
1:						
Number Responding	1	10	1	0	2	14
Percent of Total	7%	71%	7%	0%	14%	4%
2:						
Number Responding	2	9	7	2	0	20
Percent of Total	10%	45%	35%	10%	0%	6%
3:						
Number Responding	6	14	2	1	1	24
Percent of Total	25%	58%	8%	4%	4%	7%
4:						
Number Responding	4	15	9	2	0	30
Percent of Total	13%	50%	30%	7%	0%	8%

Table 24. (continued)

Quantitative Stanine Score	Rating of Lecture Approach, BUAC 224					
	VA	A	I	VI	NO	Ttl.
5:						
Number Responding	7	14	5	0	1	27
Percent of Total	26%	52%	19%	0%	4%	7%
6:						
Number Responding	3	17	4	1	0	25
Percent of Total	12%	68%	16%	4%	0%	7%
7:						
Number Responding	3	6	7	2	2	20
Percent of Total	15%	30%	35%	10%	10%	6%
8:						
Number Responding	2	15	3	0	2	22
Percent of Total	9%	68%	14%	0%	9%	6%
9:						
Number Responding	0	4	1	0	0	5
Percent of Total	0%	80%	20%	0%	0%	1%
Total Number	48	203	82	17	11	361
Total Percent	13%	56%	23%	5%	3%	100%

However, when the lecture rating was compared to SAT verbal stanines, findings showed the higher the students' SAT verbal stanine scores, the more adequate the students rated the lecture approach. The lower the students' SAT verbal stanine scores, the less adequate was the lecture rating. Table 25 represents this cross tabulation.

Table 25. Do you feel the lecture method is adequate for this course? Very Adequate, Adequate, Inadequate, Very Inadequate, No Opinion. (Question #15)

Verbal Stanine Score	Rating of Lecture Approach, BUAC 224					
	VA	A	I	VI	NO	Ttl.
0 (No Record):						
Number Responding	20	100	43	9	3	175
Percent of Total	11%	57%	25%	5%	2%	48%
1:						
Number Responding	2	3	0	0	2	7
Percent of Total	29%	43%	0%	0%	29%	2%
2:						
Number Responding	2	9	3	2	0	16
Percent of Total	13%	56%	19%	13%	0%	4%
3:						
Number Responding	6	19	7	1	0	33
Percent of Total	18%	58%	21%	3%	0%	9%
4:						
Number Responding	4	21	12	1	3	41
Percent of Total	10%	51%	29%	2%	7%	11%

Table 25. (continued)

Verbal Stanine Score	Rating of Lecture Approach, BUAC 224					
	VA	A	I	VI	NO	Ttl.
5:						
Number Responding	6	19	4	0	0	29
Percent of Total	21%	66%	14%	0%	0%	8%
6:						
Number Responding	4	14	0	4	1	23
Percent of Total	17%	61%	0%	17%	4%	7%
7:						
Number Responding	2	12	7	0	0	21
Percent of Total	10%	57%	33%	0%	0%	6%
8:						
Number Responding	2	5	5	0	1	13
Percent of Total	15%	38%	38%	0%	8%	4%
9:						
Number Responding	0	1	1	0	1	3
Percent of Total	0%	33%	33%	0%	33%	1%
Total Number	48	203	82	17	11	361
Total Percent	13%	56%	23%	5%	3%	100%

Curriculum Evaluation/Number of Class Meetings

Students were asked how many class meetings a week they felt were necessary for the successful completion of the accounting course. Table 26, page 80, reveals students receiving grades of C and below responded that more class meetings were needed each week. Students receiving A or B grades indicated less class meetings were necessary for successful completion of the course. The general viewpoint expressed by the respondents was three class meetings a week were sufficient. Two percent of the respondents said one meeting a week was all that was necessary; 6 percent said two meetings; 67 percent, three; 16 percent, four; and 9 percent said five meetings were necessary.

As seen by Table 27, page 81, no relationship was found between the amount of high school accounting/recordkeeping and the class meetings necessary per week to successfully complete college accounting. Of all respondents, 247 said the course could be successfully completed in three class meetings per week. This represented 69 percent of the respondents and would be a good indication that the course could be restructured to include a fourth day seminar for those students needing additional assistance.

Table 26. In your opinion, how many class meetings a week are necessary for your successful completion of this class? (Question #16)

Responses	Final Grade, BUAC 224						
	A	B	C	D	F	I	Ttl.
One:							
Number by Grade	4	1	0	0	0	0	5
Percent by Grade	10%	2%	0%	0%	0%	0%	2%
Two:							
Number by Grade	3	3	2	5	0	0	13
Percent by Grade	7%	6%	2%	12%	0%	0%	6%
Three:							
Number by Grade	29	45	62	19	4	1	160
Percent by Grade	69%	83%	70%	46%	44%	33%	67%
Four:							
Number by Grade	4	3	19	7	4	1	38
Percent by Grade	9%	6%	21%	17%	44%	33%	16%
Five:							
Number by Grade	2	2	6	10	1	1	22
Percent by Grade	5%	3%	7%	25%	12%	34%	9%
Total Number	42	54	89	41	9	3	239
Total Percent	18%	23%	37%	17%	4%	1%	100%

Table 27. In your opinion, how many class meetings a week are necessary for your successful completion of this class? (Question #16)

Amount High School Accounting	Number Class Meetings					
	1	2	3	4	5	Ttl.
One Semester:						
Number Responding	0	2	29	3	2	36
Percent of Total	0%	6%	81%	8%	6%	10%
One Year:						
Number Responding	4	7	80	17	9	117
Percent of Total	3%	6%	68%	15%	8%	33%
Two Years:						
Number Responding	0	2	17	1	3	23
Percent of Total	0%	9%	74%	4%	13%	7%
None:						
Number Responding	3	8	115	32	13	171
Percent of Total	2%	5%	67%	19%	8%	48%
Other:						
Number Responding	1	1	6	1	0	9
Percent of Total	11%	11%	67%	11%	0%	2%
Total Number	8	20	247	54	27	356
Total Percent	2%	6%	69%	15%	8%	100%

Curriculum Evaluation/Course Improvement

When students were asked to comment on ways the course should be improved, students receiving final grades of A said no changes were necessary in the course. Students who received final grades of D and F said all three areas should be improved: instructional approach, content, and text. (See Table 28, page 83)

Other suggestions for course improvements included:

1. The course should be individualized or made Advance By Choice.
2. Laboratory sessions should be developed to provide more individual help for students.
3. Tests should relate to homework--tests should be reviewed and rewritten.
4. Worksheets should not be provided; or should be improved to adequately reflect tested material.
5. Instructional approach should be improved, and the text should be replaced.
6. Instructional approach, text, and content of the course should all be improved.
7. A course should be developed for nonaccounting majors.
8. More short quizzes should be introduced throughout the course to provide students immediate feedback of their understanding of the material.
9. A CLEP or challenge test should be provided students who have had high school accounting.

Table 28. In what ways would you like to see this course improved? (Question #17)

Responses	Final Grade, BUAC 224						
	A	B	C	D	F	I	Ttl.
Instructional Approach:							
Number by Grade	10	20	37	19	5	0	91
Percent by Grade	26%	36%	44%	49%	62.5%	0%	40%
Content of Material:							
Number by Grade	2	2	9	7	1	0	21
Percent by Grade	6%	4%	11%	18%	12.5%	0%	9%
Text:							
Number by Grade	5	6	12	3	1	0	27
Percent by Grade	13%	11%	14%	8%	12.5%	0%	12%
No Change:							
Number by Grade	16	19	13	4	0	0	52
Percent by Grade	42%	35%	15%	10%	0%	0%	23%
Other:							
Number by Grade	5	8	14	6	1	2	36
Percent by Grade	13%	14%	16%	15%	12.5%	100%	16%
Total Number	38	55	85	39	8	2	227
Total Percent	17%	24%	37%	17%	4%	1%	100%

From these comments came a strong appeal from students for a more individualized approach in BUAC 224. A few suggested the course should be totally individualized with the use of student labs, but the majority of students suggested that laboratory sessions should be developed with tutors and/or instructors in attendance to provide students with individual assistance. Of all respondents, 40 percent felt that the instructional approach should be improved, while 23 percent felt no change was necessary.

When a cross tabulation was made of suggestions for course improvement and amount of recordkeeping or accounting taken in high school, the findings revealed that most students who had taken one semester of accounting in high school recommended changing the instructional approach. Most students who had taken one year of high school accounting also favored changing the instructional approach. However, students with two years of high school accounting favored changing the text. Students who had not taken high school accounting said additional individual assistance was needed. (See Table 29, page 85)

Table 29. In what ways would you like to see this course improved? Instructional Approach, Content, Text, None, Other. (Question #17)

Responses	IA	C	T	N	O	Ttl.
One Semester/%:						
Number of Responses	18	3	1	8	6	36
Percent of Total	27%	18%	4%	17%	25%	20%
One Year/%:						
Number of Responses	42	10	16	34	10	112
Percent of Total	64%	58%	59%	74%	42%	62%
Two Years/%:						
Number of Responses	4	2	9	3	5	23
Percent of Total	6%	12%	33%	7%	21%	13%
None/%:						
Number of Responses	2	2	1	1	3	9
Percent of Total	3%	12%	4%	2%	13%	5%
Total Number	66	17	27	46	24	180
Total Percent	37%	9%	15%	26%	13%	100%

It is important to note that students did not respond favorably when asked if total individualized instruction would be appropriate for BUAC 224. Of all students responding to this question, Table 30 shows 65 percent were not in favor of individualized instruction.

Table 30. Would individualized instruction be appropriate for BUAC 224, Principles of Accounting? (Question #23)

Amount of High School Accounting	Rate Individualized Instruction		
	Yes	No	Ttl.
One Semester/%:			
Number Responding	9	9	18
Percent of Total	50%	50%	11%
One Year/%:			
Number Responding	22	44	66
Percent of Total	33%	66%	41%
Two Years/%:			
Number Responding	1	8	9
Percent of Total	12%	89%	6%
None/%:			
Number Responding	24	44	68
Percent of Total	35%	65%	42%
Total Number	56	105	161
Total Percent	35%	65%	100%

Curriculum Evaluation/Course Required for Major

When asked which group of students should be required to take the course, the majority of students (204 students) responded all business majors. Table 31 shows the responses by final grades earned in college accounting, BUAC 224. One student wrote that the course should be required for all college students regardless of curriculum.

Table 31. Which of the following statements best illustrates your feeling about BUAC 224: should be required for all business majors, only accounting majors, only office administration majors, only two-year secretarial students? (Question #18)

Responses	Final Grade, BUAC 224						
	A	B	C	D	F	I	Ttl.
All Business Majors:							
Number by Grade	37	51	78	29	7	2	204
Percent by Grade	95%	94%	93%	78%	87%	100%	91%
Accounting Majors Only:							
Number by Grade	2	3	5	7	1	0	18
Percent by Grade	5%	6%	6%	19%	13%	0%	8%
Business Education Majors Only:							
Number by Grade	0	0	0	1	0	0	1
Percent by Grade	0%	0%	0%	3%	0%	0%	.5%
Office Administration Major Only:							
Number by Grade	0	0	1	0	0	0	1
Percent by Grade	0%	0%	1%	0%	0%	0%	.5%
Total Number	39	54	84	37	8	2	224
Total Percent	17%	24%	38%	17%	3%	1%	100%

Curriculum Evaluation/What Helped

Students were asked what helped them the most for successful completion of BUAC 224. Table 32, page 89, reveals high school bookkeeping was indicated as being the most helpful; and motivation was listed next.

Other comments included:

1. Outside assistance, such as tutor, friend, or roommate that could explain the problems.
2. Being employed as a bookkeeper.
3. Accounting course sequencing that demanded successful completion of BUAC 224 to allow steady progression through the next sequences.
4. Good study skills.
5. High school FFA Farm and Ranch Management contests.

Table 32. What helped you the most in this course? (Question #19)

Responses	Final Grade, BUAC 224						
	A	B	C	D	F	I	Ttl.
High School Bookkeeping:							
Number by Grade	23	28	28	12	1	2	94
Percent by Grade	55%	55%	32%	32%	17%	100%	42%
Good Math Background:							
Number by Grade	3	3	7	7	1	0	21
Percent by Grade	7%	6%	8%	19%	17%	0%	9%
Good Reading Skills:							
Number by Grade	7	6	16	5	1	0	35
Percent by Grade	17%	12%	19%	14%	17%	0%	16%
Motivation:							
Number by Grade	6	9	29	8	3	0	55
Percent by Grade	14%	17%	34%	21%	49%	0%	25%
Other:							
Number by Grade	3	5	6	5	0	0	19
Percent by Grade	7%	10%	7%	14%	0%	0%	8%
Total Number	42	51	86	37	6	2	224
Total Percent	19%	23%	38%	16%	3%	1%	100%

Curriculum Evaluation/What Hindered

Students were asked to identify obstacles preventing successful completion of BUAC 224. Reading skills were identified by 16 percent of the students as a serious hindrance to successful completion of BUAC 224. Lack of high school accounting was listed by 42 percent of the respondents. Motivation and understanding of the importance of taking the course were listed by 25 percent of the students. (See Table 33, page 91)

Other comments included:

1. Boredom, too much like high school accounting.
2. Tests didn't relate to the material covered in class.
3. Students giggled at my questions in class, and I couldn't bring myself to ask another question.
4. Impatient instructor made me feel like a fool when I asked a question.
5. Lack of pressure, easiest course I had so I tended to put off homework, etc.
6. Not enough class period for lecture and explanation.
7. Difficult text to understand.
8. Lectures emphasized less difficult material, complicated material was not covered sufficiently.

These findings suggest that students who had never taken high school accounting listed that factor as a main obstacle of successful completion of BUAC 224. Students who had taken high school accounting listed reading skills and motivation as their main obstacles.

Table 33. What hindered you the most in the course? (Question #20)

Responses	Final Grade, BUAC 224						
	A	B	C	D	F	I	Ttl.
Weak Math:							
Number by Grade	1	1	5	4	1	0	12
Percent by Grade	3%	2%	6%	10%	11%	0%	6%
No H.S. Accounting:							
Number by Grade	11	18	37	19	6	0	91
Percent by Grade	30%	37%	45%	49%	67%	0%	42%
No Reading Skills:							
Number by Grade	8	6	16	9	0	1	40
Percent by Grade	22%	12%	19%	23%	0%	50%	18%
Lack of Motivation:							
Number by Grade	5	11	14	5	2	0	37
Percent by Grade	14%	22%	17%	13%	22%	0%	17%
Other:							
Number by Grade	11	13	11	2	0	1	38
Percent by Grade	31%	27%	13%	5%	0%	50%	17%
Total Number	36	49	83	39	9	2	218
Total Percent	17%	22%	38%	18%	4%	1%	100%

Curriculum Evaluation/Course Too Fast or Too Slow

Table 34, page 93, shows the responses when students were asked to describe their thoughts about Principles of Accounting. Again, students who received high grades felt the course went too slowly; students who received lower grades felt the course moved too fast. Regardless of grade, the majority of students did report the course as progressing too fast at times (over difficult material) and too slowly at other times (over easier material).

Table 34. Select the statement that best describes your thoughts: the course went too fast at times and too slowly at other times, went too fast, went too slowly, like the course just the way it is, no opinion. (Question #21)

Responses	Final Grade, BUAC 224						
	A	B	C	D	F	I	Ttl.
Too Fast, Too Slowly:							
Number by Grade	23	25	40	18	0	1	107
Percent by Grade	55%	45%	45%	44%	0%	33%	45%
Too Slowly:							
Number by Grade	5	1	1	1	0	0	8
Percent by Grade	12%	2%	1%	2%	0%	0%	3%
Too Fast:							
Number by Grade	3	6	26	18	7	1	61
Percent by Grade	7%	11%	30%	44%	78%	33%	26%
Just Right:							
Number by Grade	8	17	16	4	2	1	48
Percent by Grade	19%	31%	18%	10%	22%	34%	20%
No Opinion:							
Number by Grade	3	6	5	0	0	0	14
Percent by Grade	7%	11%	6%	0%	0%	0%	6%
Total Number	42	55	88	41	9	3	238
Total Percent	18%	23%	37%	17%	4%	1%	100%

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

SUMMARY

This study was conducted to determine articulation constraints and articulation limitations of students enrolled in BUAC 224, Principles of Accounting, at Montana State University during the 1979-80 school year. Through use of a questionnaire, a survey was made of students enrolled in BUAC 224, fall quarter, 1979. The population size of the invited sample was 497 students enrolled in fourteen sections of BUAC 224. Of these, 365 students chose to respond resulting in a 73 percent return.

In order to determine the articulation constraints and limitations of students enrolled in Principles of Accounting, the following null hypotheses were tested:

1. College accounting performance is independent of the amount of accounting taken in high school.
2. College accounting performance is independent of the accounting high school grade.
3. College accounting performance is independent of the year accounting was taken in high school (freshman, sophomore, junior, or senior).
4. College accounting performance is independent of the time that had elapsed between high school accounting and college accounting.
5. College accounting performance is independent of the text used in high school accounting.

6. College accounting performance is independent of the amount of recordkeeping taken in high school.

7. College accounting performance is independent of the high school recordkeeping grade.

8. College accounting performance is independent of the year recordkeeping was taken in high school (freshman, sophomore, junior, or senior).

9. College accounting performance is independent of the student's high school grade point average (UCHGPA).

10. College accounting performance is independent of the student's predicted first year college grade point average (PCGPA).

11. College accounting performance is independent of the student's quantitative mathematics stanine score.

12. College accounting performance is independent of the student's SAT verbal stanine score.

13. College accounting performance is independent of the college status of the student (freshman, sophomore, junior, senior, or graduate).

14. College accounting performance is independent of the student's declared curriculum major/option at Montana State University.

15. College accounting performance is independent of the student's perception of the ease or difficulty of the current college accounting text.

16. College accounting performance is independent of the student's perception of the ease or difficulty of the beginning college accounting course.

A Chi-square (x^2) test of independence was utilized to test sixteen null hypotheses to determine articulation constraints and limitations of students enrolled in BUAC 224, Principles of Accounting. A

Chi-square test of independence was computed to determine whether or not a significant dependence existed in the responses received from the student survey. The observed value of x^2 had to be equal or greater than the tabled value in order to reject the null hypothesis. If a null hypothesis was rejected by the Chi-square (x^2) test, then a significant dependence was established between the null hypothesis and college accounting performance. A summary of the rejection or acceptance of the null hypotheses is found in Table 35, pages 97 - 99.

It was found throughout this study that college accounting performance was not dependent upon enrollment in high school accounting. However, a comparison of college accounting performance (final grade received in BUAC 224) and amount of high school accounting found that students with one or two years of high school accounting had a 75 percent better probability of receiving a higher grade in BUAC 224 than their counterparts without high school accounting. One semester of high school accounting was not found to be adequate preparation for a student's successful completion of college accounting, BUAC 224.

Fifty percent of the students who had only one semester of high school accounting or recordkeeping reported that college accounting provided a 25 percent review of high school accounting. Seventy-five percent of the students who had taken two years of accounting in high school reported that 75 percent to 100 percent of the college course was a review of high school accounting. Of the A grades recorded in

Table 35. Null Hypotheses Acceptance/Rejection Summary

	Null Hypotheses	Accept/Reject
1.	College accounting performance is independent of the amount of accounting taken in high school.	Accept
2.	College accounting performance is independent of the accounting high school grade. (First Year)	Accept
	College accounting performance is independent of the accounting high school grade. (Second Year)	Accept
3.	College accounting performance is independent of the year accounting was taken in high school, (freshman, sophomore, junior, or senior).	Accept
4.	College accounting performance is independent of the time that elapsed between high school accounting and college accounting.	Reject
5.	College accounting performance is independent of the text used in high school accounting.	Accept
6.	College accounting performance is independent of the amount of recordkeeping taken in high school.	Accept
7.	College accounting performance is independent of the recordkeeping high school grade.	Accept

Table 35. (continued)

	Null Hypotheses	Accept/Reject
8.	College accounting performance is independent of the year recordkeeping was taken in high school (freshman, sophomore, junior, or senior).	Accept
9.	College accounting performance is independent of the student's high school grade point average (UCHGPA).	Reject
10.	College accounting performance is independent of the student's predicted first year college grade point average (PCGPA).	Reject
11.	College accounting performance is independent of the student's quantitative mathematics stanine score.	Reject
12.	College accounting performance is independent of the student's SAT verbal stanine score.	Reject
13.	College accounting performance is independent of the college status of the student (freshman, sophomore, junior, senior, or graduate).	Accept
14.	College accounting performance is independent of the student's declared curriculum major/option at Montana State University.	
	Results of Test Score #1	Accept
	Results of Test Score #2	Reject

Table 35. (continued)

	Null Hypotheses	Accept/Reject
15.	College accounting performance is independent of the student's perception of the ease or difficulty of the current college accounting text.	Accept
16.	College accounting performance is independent of the student's perception of the ease or difficulty of college accounting, BUAC 224.	Reject

BUAC 224, 67 percent were received by students who felt the course was a 75 percent review of high school accounting. It was evident that students with two years of high school accounting had a better chance of receiving an A in BUAC 224 than students without two years of high school accounting.

No dependency was established between the high school accounting or recordkeeping grade and the college accounting grade. However, students who received an A or B grade in high school accounting had a 75 percent better probability of successful college accounting performance than students who received a C or D grade in high school accounting.

College accounting performance was not dependent upon the year accounting was taken in high school (i.e., freshman, sophomore, junior, or senior). However, it appeared students who took high school accounting as a sophomore received fewer A grades in college accounting than did students who took high school accounting as a junior or senior.

Students who had taken college accounting within two years of high school accounting received better grades than students reporting longer lapses of time.

The South-Western high school textbook was used by 25 percent of the respondents while the Gregg high school textbook was used by 7 percent of the respondents. No significant dependence was found between high school textbook and college accounting performance.

A strong dependence was evidenced between high school grade point average and college accounting performance. Of the 45 students receiving an A in BUAC 224, not one had a recorded high school grade point average lower than a three-point (B). A strong indication of student success in college accounting was also evidenced by the predicted college first year grade point average. Of those who received A grades, 88 percent had a predicted college grade point of three-point (B) and above.

College accounting performance showed a strong dependency upon the students' quantitative math stanine scores and SAT verbal stanine scores. Students with quantitative stanine scores of six and above

showed higher grades as did students with verbal stanine scores of five and above.

No significant dependence was established between college accounting performance and the year of the student (freshman, sophomore, junior or senior). However, when accounting majors and nonmajors were compared, accounting majors received higher grades than nonmajors. It was difficult to separate what dependence was measured, high school accounting experience or motivation through realization of the importance of the subject matter.

No significant dependence was established between the students' rating of the college textbook as to ease or difficulty and college accounting performance.

The student's perception of the ease or difficulty of the college accounting text was independent of the student's final grade in BUAC 224. However, a significant dependence was established between the student's perception of the ease or difficulty of the content of college accounting and college accounting performance. As would be expected, students who had taken one or two years of high school accounting reported the college accounting content to be average to easy. Students without high school accounting said the college accounting content was average to difficult.

CURRICULUM FINDINGS SUMMARY

The following summary details findings representing those areas where students were asked to provide input for curriculum evaluation for BUAC 224, Principles of Accounting.

When quantitative math stanines were compared to the students' rating of the adequacy of the lecture approach, no dependence was found. However, when the lecture rating was compared to SAT verbal stanines, it was found that the higher the SAT verbal stanine, the higher the student rated the lecture.

Students felt that three class meetings per week were adequate to successfully complete the course. When students were asked to give suggestions on how the course could be improved, the majority reported that both the instructional approach and the textbook used needed to be improved.

The survey revealed that most students favored requiring the course for all business majors.

Students listed high school bookkeeping and motivation as being most beneficial for successful completion of BUAC 224. Reading skills and lack of high school accounting were listed as being the greatest obstacles to successful completion of BUAC 224.

The majority of students reported that the course went too fast at times (over difficult material) and too slowly at other times (over easier content).

CONCLUSIONS

The following conclusions are based on the findings of this survey:

1. Successful performance in college accounting (BUAC 224) is dependent upon the time that has elapsed between high school accounting and college accounting.

2. Successful performance in college accounting (BUAC 224) is dependent upon the student's high school grade point average.

3. Successful performance in college accounting (BUAC 224) is dependent upon the student's predicted first year college grade point average.

4. Successful performance in college accounting (BUAC 224) is dependent upon the student's quantitative mathematics stanine score.

5. Successful performance in college accounting (BUAC 224) is dependent upon the student's SAT verbal stanine score.

6. Successful performance in college accounting (BUAC 224) is dependent upon the student's declared curriculum major/ option at Montana State University.

7. Successful performance in college accounting (BUAC 224) is dependent upon the student's perception of the ease or difficulty of the content of college accounting, BUAC 224.

8. Throughout this study an attempt was made by the investigator to develop a profile of a successful beginning accounting student. Based on the conclusions arrived at through this study, the profile of a successful college accounting student would be:

a. A student who has taken high school accounting within two years of enrolling in college accounting, BUAC 224.

b. A student who has a grade point average from high school of a three point (B) or above.

c. A student who has a predicted first year college grade point of three point (B) and above.

d. A student who has a quantitative mathematics stanine of six and above.

e. A student who has a SAT verbal stanine score of five and above.

f. A student who sees the importance of the course and is motivated to successfully complete college accounting.

g. As has been found throughout this study, high school accounting is not a significant factor for success in college accounting; however, students do receive a 75 percent better chance of receiving C grades and above than their counterparts without a high school accounting background.

RECOMMENDATIONS

In this age of inflation and increased costs for education, it is imperative that coordinated vertical articulation be employed to

maintain and increase the quality of education and increase the educational opportunities for students. Mindful that the most wasteful and difficult step in the educational ladder may be between the last year of secondary school and the first year of college, the writer offers the following recommendations:

1. Principles of Accounting, BUAC 224, should be reduced to three days a week with one day a week designated laboratory day. Tutors and/or instructors should be available during laboratory time for individual assistance.

2. Students with previous high school accounting background and/or high quantitative and verbal stanines should be given the opportunity to advance through the sequence with the least disruption possible. Students should be given pretests and challenge tests.

3. Communication must be improved between the secondary accounting teachers and college accounting faculty. Guidelines should be established for the secondary schools concerning accounting curriculum for successful college performance.

4. Alternative methods of instruction, other than the lecture approach now being used, should be explored by the staff of BUAC 224.

5. Tests used in BUAC 224 should be reviewed and updated.

6. Further follow-up and study should be undertaken to identify articulation constraints and limitations that may inhibit student learning and mitigate course quality.

BIBLIOGRAPHY

BIBLIOGRAPHY

"Allies or Adversaries? High School and Junior College," The Clearing House, Vol. 46, December 1971.

"Articulation Programming: A Factor in Career Education," American Vocational Journal, Vol. 47, March, 1972.

Barbour, Edna H. "The Effect of the Study of High School Bookkeeping Upon Achievement in Elementary College Accounting," Ph.D., The Ohio State University (Columbus), 1955, 304 pages.

Bender, Louis W. and James P. Murphy. "Articulation by Education Diplomacy," American Vocational Journal, Vol. 46, October 1971.

Bottoms, Gene. "Articulation and the Vocational Teacher," Business Education World, January-February 1980.

Buffer, Loretta. "Articulation in Education," Resources in Education (ERIC), April 1976.

California Advisory Council on Vocational Education and Technical Training. Feasibility Study of Career Ladder Curriculum and Guidance and Counseling, California State Printing Office, January 1971.

California Legislature, Select Committee on the Implementation of Career Education. Who Does What? Duplication, Supervision and Planning in Vocational Education, 1975.

Clynes and Briggamon. "Special Concerns of Articulation," The Balance Sheet, February 1979.

Daniel, David Nelson. "Registrars and Junior College Transfer Student's Perceptions of Articulation Practices and Difficulties in Five Oklahoma Private Colleges," Dissertation Abstracts, Ed.D., Oklahoma State University, 1974.

Donald, Betty Fynn. "An Identification and Analysis of the Curriculum Articulation Problems of Business Majors in Public Colleges and Universities of Mississippi," Ed.D., The University of Mississippi, 1971.

Ebel, Robert L. (ed.) Encyclopedia of Education Research, Fourth Edition, The MacMillan Company (New York), 1969.

Forkner, Hamden, Robert Swanson, and Robert J. Thompson. The Teaching of Bookkeeping, Monograph 101, South-Western Publishing Company (Cincinnati), 1960.

Gillie, Angelo C., Sr. "The Area Vocational Schools and Community Colleges: Cooperation or Confrontation?" Journal of Industrial Teacher Education, Vol. II, No. 2, Winter 1974.

Gleaszer, E. J. In an address at the "National Conference on Post-Secondary Vocational and Technical Education," San Antonio, Texas, November 5, 1979.

Guilford, J. P. Fundamental Statistics in Psychology and Education, McGraw-Hill, 1965.

Harms, Harm, B. W. Stehr, and E. Edward Harris. Methods of Teaching Business and Distributive Education, Third Edition, South-Western Publishing Company (Cincinnati, Ohio), 1972.

Hillestad, Mildred. Research: Process and Product, Delta Pi Epsilon, 1977.

Huus, Larry W. "The Relative Importance of Selected Course Offerings in Junior College Terminal Accounting Programs," Ph.D., University of North Dakota (Grand Forks), 1978.

"Is Articulation Possible," American Vocational Journal, Vol. 46, October 1971.

Kaliski, Burton S. "Accounting: Basic Accounting Should Be 'Taught' at the College Level," Business Education Forum, Vol. 34, No. 2, November 1979.

Kintzer, Frederick C. "California Plan for Articulation," College and University, Vol. 43, Winter 1968.

Knoell, Dorothy M. and Leland L. Medsker. From Junior to Senior College: A National Study of the Transfer Student, American Council on Education (Washington, D.C.), 1966.

Linson, M. G. and James W. Wilson and N. G. Hunt. "Is Articulation Possible?", American Vocational Journal, Vol. 46, October 1971.

Lord, Dorothy Lou. "A Study of Selected Aspects of Articulation Among Public Post-Secondary Institutions in Georgia," Ph.D., Dissertation Abstracts, Florida State University, 1975.

Lund, Erling. "High School Bookkeeping as Preparation for College Accounting Based on a Comparison of Selected High School Bookkeeping Textbooks with Selected Elementary College Accounting Textbooks," Masters Thesis, University of Washington, 1962, 63 pages.

Mandy, Russell M. "Articulation of Vocational Education Curriculum Between Secondary and Post-Secondary Levels in Wisconsin," Ph.D., Menomonie, Wisconsin, June 1975.

Merritt, Judy M. "Junior-Senior College Articulation: A Study of Admission Policies and Practices in Four Year Colleges and Universities in Alabama 1963-1973," Ph.D., Dissertation Abstracts, The University of Alabama, 1974.

Musselman, Vernon J., Marshall Hanna, David Weaver, and Henry Kaluza. Methods of Teaching Accounting, Second Edition, Gregg Division/ McGraw-Hill Book Company (New York), 1979.

National Education Association, American Association of School Administrators, Education Policies Commission, Higher Education in a Decade of Decision, Washington D.C., 1957.

Nistal, Gerard E. "Is Higher Education Responsive to the Needs of the Real World of Business?" Collegiate News and Views, Vol. XXXIII, No. 2, South-Western Publishing Company, Winter 1979-80.

North Central Association of Colleges and Schools. Fostering Articulation Within and Between Schools, Commission on School's Occasional Paper No. 1, Chicago, Illinois, 1974.

Norton, Curtis. "The Link Between High School and College Accounting," Business Education Forum, Vol. 31, No. 5, February 1977.

Olson, Jerry C. "Decision Making Powers: A Sign of Articulation," American Vocational Journal, Vol. 46, October 1971.

Peterson, Charles A. "The Prediction of Students Success in College Accounting," Ph.D., Dissertation Abstracts, University of Minnesota, 1966.

Policies Commission for Business and Economic Education. "This We Believe About Business Education in the Secondary School," National Business Education Association, Washington, D.C., 1970.

Rojas, John. Kern County Curriculum Bulletin: Guidelines to Articulation, 1965-66, Bakersfield, California, 1965.

Rudolph, Frederick. The American College and University, Alfred A. Knopf (New York), 1962.

Smith, John William. "Articulation of High School Accounting and College Accounting," Ed.D., Dissertation Abstracts, The University of Oklahoma, 1968.

Spanbauer, Stanley J. "A Model for the Articulation of Curriculum Development, Implementation, and Evaluation in Secondary and Post-Secondary Vocational-Technical Schools in Wisconsin," Ph.D., Dissertation Abstracts, University of Wisconsin (Madison), 1977.

Strom, Lawrence H. "A Study of Articulation Practices in Selected Industrial Education Programs Between Public Secondary Schools and Community Colleges in California, Resources in Education (ERIC), Bureau of Occupational and Adult Education, May 1, 1977.

Traxler, Arthur E. and Agatha Townsend. Improving Transition From School to College, Harper and Brothers (New York), 1953.

Warren, Douglas Delano, "An Assessment of the Articulation Efforts Between the Public Secondary School and Community College Occupational Programs in Virginia," Auburn University, Ed.D., 1976.

Wasson, Ruth Ann. "A Study of Selected Factors in Community College-Senior College Articulation in Education for Business," Ed.D., Northern Illinois University, 1974.

Wattenbarger, James L. Guidelines for Improving Articulation Between Junior and Senior Colleges, Washington, D.C., American Council on Education, 1966.

Wolfe, Ellsworth Rollin. "An Investigation of Articulation Processes in Occupational Education Among Selected High School, Regional Occupational Centers and Programs, and Community Colleges," Ed.D., Dissertation Abstracts, University of Southern California, 1975.

APPENDIXES

APPENDIX A

QUESTIONNAIRE

QUESTIONNAIRE
BUAC 224 - Fall Quarter 1979

Social Security No._____ Major:_____

The School of Business Department of Accounting and Finance at Montana State University is conducting a survey of students currently enrolled in BUAC 224. We ask that you complete the questionnaire to the best of your ability. We will be using this information to improve the course and to identify any transition problems between high school accounting and college accounting that incoming students to Montana State University may be finding. Thank you for your assistance. We will inform you of the study results should you so desire.

Please answer the following questions by filling in with a No. 2 pencil the appropriate blank on the Mark Sense Form.

1. How much accounting/bookkeeping have you successfully completed (a D grade or better) at the high school level?

   1. one semester of accounting/bookkeeping
   2. one year of accounting/bookkeeping
   3. two years of accounting/bookkeeping
   4. none
   5. other, please specify _____

2. How much recordkeeping have you successfully completed (a D grade or better) at the high school level?

   1. one semester of recordkeeping
   2. two semesters of recordkeeping
   3. no recordkeeping at the high school level
   4. other, please specify _____
   5. don't remember

3. If you enrolled in bookkeeping/accounting in high school, what was your student standing at the time?

   1. sophomore
   2. junior
   3. senior
   4. did not enroll in bookkeeping/accounting in high school
   5. other, please specify _____

4. If you enrolled in recordkeeping in high school, what was your student standing at the time?

   1. sophomore
   2. junior
   3. senior
   4. did not enroll in recordkeeping in high school
   5. other, please specify _____

5. If you took one year of bookkeeping/accounting in high school, what was the grade you received?

   1. A or B
   2. C
   3. D
   4. F
   5. did not take a year of bookkeeping/accounting in high school

6. If you took a second year of bookkeeping/accounting in high school, what was the grade you received?

   1. A or B
   2. C
   3. D
   4. F
   5. did not take a second year of bookkeeping/accounting in high school

7. If you took recordkeeping in high school, what was the grade you received?

   1. A or B
   2. C
   3. D
   4. F
   5. did not take recordkeeping in high school

8. To the best of your knowledge, the textbook used in bookkeeping/accounting in high school was:

   1. Southwestern - 20th Century Bookkeeping & Accounting
   2. Gregg McGraw Hill 10-12 series
   3. college text now used for BUAC 224
   4. don't remember
   5. other, please specify

9. Indicate your rating of the current textbook being used for BUAC 224.

   1. extremely hard to read and understand
   2. hard to read and understand
   3. average to read and understand
   4. easy to read and understand
   5. very easy to read and understand

10. Those of you who have had accounting/bookkeeping or recordkeeping in high school, indicate what portion of BUAC 224 at Montana State University has been review.

   1. 0% (none)
   2. 25% (about one-fourth)
   3. 50% (about one-half)
   4. 75% (about three-fourths)
   5. 100% (all)

11. How many years has it been since you were last enrolled in an accounting/bookkeeping course?

   1. last year 1978-79
   2. 1977-78 (2 years)
   3. 1976-77 (3 years)
   4. 1975-76 (4 years)
   5. 5 years or more

12. Did you find Accounting 224 at Montana State University to be:

   1. extremely difficult
   2. difficult
   3. average
   4. easy
   5. very easy

13. Grades in BUAC 224
    TEST #1

   1. 90-100
   2. 80-89
   3. 70-79
   4. 60-69
   5. 50-59
   6. 20-49

14. Grades in BUAC 224:
TEST #2

1. 90-100
2. 80-89
3. 70-79
4. 60-69
5. 50-59
6. 20-49

15. Do you feel the lecture method is adequate for this course?

1. very adequate
2. adequate
3. inadequate
4. very inadequate
5. no opinion

16. In your opinion, how many class meetings a week are necessary for your successful completion of this class?

1. one class meeting per week
2. two class meetings per week
3. three class meetings per week
4. four class meetings per week
5. five class meetings per week

17. In what ways would you like to see this course improved?

1. instructional approach
2. content of material
3. text
4. the course needs no change
5. other, please specify _____
_____
_____

18. Which of the following statements best illustrates your feeling about BUAC 224.

    1. BUAC 224 should be required for ALL business majors
    2. BUAC 224 should be required for ONLY accounting majors
    3. BUAC 224 should be required for ONLY business education majors
    4. BUAC 224 should be required for ONLY office administration majors
    5. BUAC 224 should be required for ONLY two-year secretarial students

19. What helped you the most in this course?

    1. having taken high-school bookkeeping
    2. having a good math background
    3. having good reading and comprehensive skills
    4. being motivated by understanding the importance of the course
    5. other, please specify _____

20. What hindered you the most in the course?

    1. a weak math background
    2. no previous courses in the accounting area
    3. lack of reading and comprehension skills
    4. lack of motivation for the subject
    5. other, please specify _____

21. Select the statement that best describes your thoughts.

    1. the course went too fast at times and too slow at other times
    2. the whole course went too slow
    3. the whole course went too fast
    4. I like the course just the way it was
    5. no opinion

22. College status:

    1. freshman
    2. sophomore
    3. junior
    4. senior
    5. graduate

Please answer the following questions only if you have ever been or are presently enrolled in Math 100 at Montana State University through the individualized instructional approach.

23. In your judgment would a similar individualized instructional approach be appropriate for BUAC 224?

    1. yes
    2. no

24. How would you rate the Math 100 individualized instruction at Montana State University in meeting your educational objectives?

    1. excellent instructional approach
    2. good instructional approach
    3. average instructional approach
    4. poor instructional approach
    5. very poor instructional approach

I give permission to the individuals involved in this study to have access to my permanent student records for the purpose of locating pertinent information that may validate this study through comparing quantitative and verbal scores, high school grades, and other information necessary to conclude this study. I understand that this information will be held as confidential. I understand that any published material regarding my student records and this study will be handled in an anonymous, confidential manner.

Legal Name (Signed) _____

Dated _____

APPENDIX B

LETTER TO REGISTRAR AT MONTANA STATE UNIVERSITY

MSU

SCHOOL OF BUSINESS
HARVEY A. LARSON, DEAN
ALFRED L. DAY, ASSISTANT DEAN
MONTANA STATE UNIVERSITY, BOZEMAN 59717

December 10, 1979

Mr. Joe Frazier
Registrar and Admissions Office
Montana State University
Bozeman, Montana 59717

Dear Mr. Frazier:

The School of Business Department of Accounting and Finance at Montana State University is conducting a survey of students currently enrolled Fall Quarter in Beginning Accounting, BUAC 224. The purpose of the study is to locate and identify those problems that hamper the student's smooth transition and adjustment from high school accounting to college accounting at Montana State University. The information will be used by the Department of Accounting and Finance to improve the beginning accounting course, BUAC 224, by identifying those transition problems between high school and college accounting that incoming students to Montana State University may be finding.

A copy of the questionnaire is enclosed that was used to survey students, and we ask your permission to include the following information to validate this study.

1. Quantitative and Verbal Scores of students surveyed
2. The High School Grade Point Average of students surveyed
3. The predicted college first year grade point average of students surveyed
4. The curriculum (declared major) of students surveyed

Bill Moore in the computer center will be assisting the department with tabulation of the questionnaire results.

This student information will be held in strictest confidence by the department and any published material regarding the study will be handled in an anonymous, confidential manner.

If you desire additional information, please contact Virginia Hartman, or Paul Nix at 4421.

We would appreciate yourassistance. We will hope to have all data compiled by early January as the department will be submitting a proposal for an instructional improvement grant--deadline January 11, 1980--to study the feasibility of individualized instruction should the survey indicate such an alternative instructional approach would be beneficial to students enrolled in BUAC 224.

Sincerely,

Harvey Larson
Dean

Virginia Hartman
Project Coordinator

TELEPHONE (406) 994-4421
Encl.

VH:cc