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Curriculum Research in Marketing Education

Robert F. Wood

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CURRICULUM RESEARCH
IN MARKETING EDUCATION

by
Robert F. Wood

Bachelor of Science, University of North Dakota, 1971

A Thesis

Submitted to the Graduate Faculty

of the

University of North Dakota

in partial fulfillment of the requirements

for the degree of

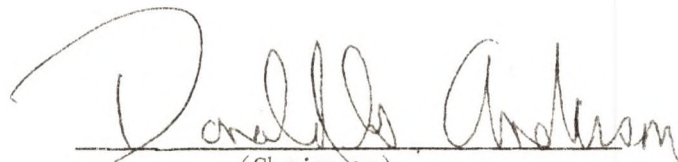
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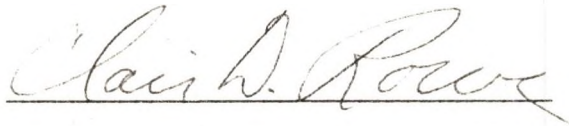
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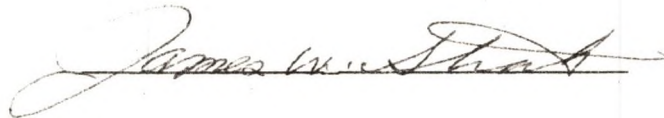
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This thesis submitted by Robert F. Wood in partial fulfillment of the requirements for the degree of Master of Science from the University of North Dakota is hereby approved by the Faculty Advisory Committee under whom the work has been done.


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Degree Master of Science

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ABSTRACT

This thesis deals with an evaluation of the University of North Dakota's marketing program. The evaluators are past marketing, retail merchandising, and distributive education students who graduated from UND during the years 1965 to 1974 and employers of these graduates.

Most graduates believed the objectives of marketing education had been accomplished. However, the graduates and employers of these graduates felt that more emphasis should be placed upon improving the communication and human relation abilities of students.

A majority of the graduates felt that their marketing courses benefited them to some degree and indicated only one course as having little or no benefit.

Sixty-nine percent of the graduates would again choose marketing as a major.

CHAPTER I
INTRODUCTION

This chapter introduces the entire study and indicates the approach used. This chapter is divided into five parts including the purpose and scope of the study, statement of objectives, methodology analysis, and limitations.

Purpose and Scope of the Study

This thesis dealt with an evaluation of the marketing program of the University of North Dakota. The evaluators were past marketing, retail merchandising, and distributive education students who graduated from UND during the years 1965 to 1974. Employers of marketing graduates were also asked for their evaluation of the concepts and techniques taught to UND's marketing students. The main purpose of these evaluations was to determine if UND students who had graduated with a degree in marketing, retail merchandising and distributive education felt that their marketing education had been relevant to their needs.

According to Dr. Lynn J. Loudenback, a pioneer in the field of using the recent graduate as a source for curriculum evaluation, the most valuable contribution the recent graduate can make to his undergraduate school is not his money but his information.¹

¹Dr. Lynn J. Loudenback, "The Recent Graduate: A Source for Curriculum Evaluation," Collegiate News and Views, Fall 1973, p. 5.

Dr. Loudenback preceeded to state that the graduates' performance is one of the tests of the relevance of a business school. Their opinions are excellent sources of guidance as to course content, curriculum and teaching.²

The Marketing Department at the University of North Dakota is a unit of the College of Business and Public Administration. Until 1975 the Department of Marketing offered two programs: Marketing and Retail Merchandising. The marketing program was designed to prepare students for managerial positions in advertising, marketing research, sales, and retail-wholesale distribution.³

The Retail Merchandising program was primarily designed for women who sought a comprehensive background in preparation for careers in such fields as retail management and fashion merchandising.⁴

The Distributive Education program is part of the Business and Vocational Education Department. It was designed to prepare individuals to teach marketing, merchandising and management in high schools, post-secondary schools, and adult education classes.⁵

² IBID.

³ University of North Dakota, Undergraduate Catalog, 1974-76 (Grand Forks, ND: University of North Dakota Printing Office, June 1974), p. 263.

⁴ IBID

⁵ University of North Dakota, Opportunity Available in Distributive Education, (Grand Forks, ND: University of North Dakota Printing Office) p. 4.

Statement of Objectives

The objectives of this study were to: (a) determine the opinions of marketing, retail merchandising, and distributive education graduates toward their marketing education; (b) the opinions of employers of these graduates toward the marketing education of these employees; (c) and to utilize these results to recommend changes in marketing curriculum and method of instruction. Answers were sought to the following guidelines:

1. Do marketing graduates believe the objectives of marketing education are being attained?
2. What subject areas are felt to be beneficial by the marketing graduates?
3. What do the marketing graduates and employers believe should be stressed in undergraduate marketing education?
4. What area of study would the marketing graduates choose to major in if they had to do it again?

Methodology

After formulating the objectives of the study and using them as guidelines, two structured, non-disguised questionnaires were drawn up. One of these was prepared for marketing graduates and one was prepared for the employers of these graduates. The questionnaires were designed to be mailed to the respondents. This type of survey was used since it was felt to be the most efficient and economical method available to gather the needed information from the past graduates and employers. During March

1975 the questionnaires were pretested in the Grand Forks area. Six past marketing graduates and three business that hired marketing graduates were chosen on a convenience basis and interviewed using the questionnaires. As a result of this pretest, some minor changes were made in the wording of various questions.

In order to determine a sample size for the study, persons who graduated during the last 10 years were chosen from a list provided by the UND Alumni Office. It was felt that this group would give information most pertinent to the objectives of the study.

During April, 1975, 296 questionnaires were mailed to these graduates. Of the total mailed, 157 completed questionnaires were returned for a 53 percent return ratio.

The sample of employers was chosen from a list obtained from the UND Placement Center. This list contained the names of companies that interviewed marketing and retail merchandising graduates at the University of North Dakota during the period 1965-1974. During May, 1975, questionnaires were sent to 45 companies. Of the 45 questionnaires, 18 were returned for a 40 percent return ratio.

Analysis

In order to accurately analyze the information gathered from the two questionnaires, the statistical test of the Binomial Distribution was applied. This type of analysis enables the researcher to determine whether a significant difference exists between two sets of data.⁶ A .05 level of significance was

⁶N.M. Downie and R.W. Heath, Basic Statistical Methods, 2nd Ed., (New York, Harper and Row, 1965), p. 141.

chosen to analyze the data for this study.

The Statistical Test of Spearman Rank Order Correlation Coefficient (Rho) was also used, mainly to test the correlation significance of data that have been ranked in order of importance.⁷ A .05 level of significance was also chosen to analyze this data.

Limitations

There were two main limitations that were encountered during the study.

1) A large number of the graduates were listed with invalid addresses by the UND Alumni Office. The Alumni Office was most helpful in this graduate search, but many of the past graduates of this university have not kept the Office informed as to their current address. Consequently they could not be reached using the current Alumni Office address records.

2) The UND Placement Center listed 70 different companies as having interviewed marketing graduates over the past 10 years. Of these companies only 45 could be located using the Placement Center's records and various city telephone directories. As previously indicated, there was a 40 percent return ratio of questionnaires

⁷N.M. Downie and R.W. Heath, Basic Statistical Methods, 2nd Ed., (New York, Harper and Row, 1965), p. 206.

sent to these companies, thus only 18 employer questionnaires could be processed which resulted in a very small sample size.

CHAPTER II

PROFILE OF THE RESPONDENTS AND ANALYSIS OF MARKETING EDUCATION OBJECTIVES

Chapter II will identify the objectives of the educational program in marketing at UND, and present the graduates opinions regarding how marketing education is meeting these objectives.

Profile of Student Respondents

The starting point for this analysis of the past marketing graduates who responded to the questionnaire for this study is the question, why did these graduates become marketing majors initially? The answers to this question are presented in Table 1.

The greatest percentage of graduates, 31 percent, majored in marketing because they were interested in marketing as a career. Twenty one percent majored in marketing because it was a high interest field for them.

The majority of the respondents, 69 percent, were between 25-34 years of age at the time of the survey with 22 percent 24

TABLE 1

REASONS WHY RESPONDENTS MAJORED IN MARKETING^a

Reasons	Percent Respondents Choosing	Number of Cases
Interested in Marketing as a Career	31	41
High Interest Field	21	28
Business Field that Showed the Best		
Career Advancement	9	12
Most Complete Business Education	8	11
Interesting Curriculum	4	5
Miscellaneous Reasons	15	20
No. Response	<u>12</u>	<u>17</u>
TOTAL	100	134

^aSurvey by Robert Wood of past marketing and Distributive Education graduates of the University of North Dakota and employers of these graduates, April, 1975.

years and under and 8 percent 35 to 49 years of age.

Of the marketing graduates 80 percent were male and 20 percent were female.

The majority, 36 percent, were employed in a service type

industry while 35 percent were employed in retailing. Sixteen percent were employed in manufacturing and 8 percent were in wholesaling. The 1974 income of those respondents (excluding other members of their household) is presented in Table 2.

TABLE 2

1974 INCOME OF GRADUATES^a

Yearly Income	Percent	Number of Cases
\$0 - \$2999	2	3
\$3000 - \$4999	2	3
\$5000 - \$7999	8	11
\$8000 - \$9999	10	13
\$10,000 - \$14,999	28	38
\$15,000 - \$24,999	27	36
\$25,000 and over	19	25
No. response	<u>4</u>	<u>5</u>
TOTAL	100	123

^a Survey by Robert Wood of past marketing and Distributive Education graduates of the University of North Dakota and employers of these graduates, April, 1975.

Objectives of Marketing Education

In order to effectively evaluate a marketing education program, the objectives of this type of program were first identified. A determination was then made to ascertain if the graduates believed that marketing met those objectives.

The objectives used in this evaluation were formulated by the marketing education panel at the Cincinnati Marketing Education Conference of 1969.⁸ Because the objectives formulated by this panel were intended as a model for marketing curricula, they were used instead of those which might have been provided by members of the UND marketing faculty. These objectives are contained in Table 3.

These same objectives as ranked in order of importance on the basis of responses of employers of marketing graduates are shown in Table 4. (The objective "Basis for Students' Future Development" was omitted since during the pretest this objective was the cause of some confusion among the employers surveyed).

⁸ David J. Luck, "Designing the Marketing Curriculum" in Philip R. McDonald ed. Marketing Involvement in Society and the Economy, (Chicago), Proceeding of the American Marketing Association, 1969, pp. 398-401.

TABLE 3

EDUCATIONAL OBJECTIVES FOR MARKETING CURRICULA^a

Educational Objectives	Rank in Importance
Learn Tools Useful in Careers	1
Understand Environment of Business	2
Basis for Students Future Development	3
Keys to Available Information	4
Aid in Choice of Career	5
Learning to Understand People	5
Improve Communication Ability	7
Building One's Personal Philosophy	8

^a Lynn J. Loudonback, "The Recent Graduate: A Source for Curriculum Evaluation." Collegiate News and Views, Fall 1973, p. 7.

TABLE 4
 EDUCATIONAL OBJECTIVES FOR MARKETING CURRICULA AS
 RANKED BY EMPLOYERS OF MARKETING GRADUATES^a

Educational Objectives	Rank in Importance	Number of Employers	Percent of Total Response
Improve communication ability	1	16	89
Understand environment of business	2	12	68
Learning to understand people	2	12	68
Learn tools useful in careers	4	8	44
Keys to available information	5	6	33
Building one's personal philosophy	6	5	28
Aid in choice of career	7	4	22

^a Survey by Robert Wood of past marketing and Distributive Education graduates of the University of North Dakota and employers of these graduates, April, 1975.

Another ranking in order of importance of these educational objectives was provided by the responses of marketing graduates surveyed and is presented in Table 5.

TABLE 5

EDUCATIONAL OBJECTIVES FOR MARKETING CURRICULA
AS RANKED BY MARKETING GRADUATES^a

Educational Objectives	Rank in Importance	Number of Graduates Ranking Each Objective	Percent of Total Response
Improve communication ability	1	113	84
Understand environment of business	2	78	58
Learning to understand people	3	72	54
Learn tools useful in careers	4	71	53
Basis for students future development	5	59	44
Keys to available information	6	43	32
Aid in choice of a career	7	38	28
Building one's personal philosophy	8	36	27

^a Survey by Robert Wood of past marketing and Distributive Education graduates of the University of North Dakota and employers of these graduates, April, 1975.

In order to compare the degree of similarity between the rankings provided by responses of the educators, employers, and graduates, a composite table was designed. This information is presented in Table 6.

TABLE 6
COMPARISON OF EDUCATIONAL OBJECTIVES FOR MARKETING CURRICULA
AS RANKED BY EDUCATORS, EMPLOYERS AND GRADUATES^a

Educational Objectives	Ranked by Educators	Ranked by Employers	Ranked by Graduates
Learn tools useful in careers	1	4	4
Understand environment of business	2	2	2
Basis for students future development	3	0	5
Keys to available information	4	5	6
Aid in choice of career	5	7	7
Learning to understand people	5	2	3
Improve communication ability	7	1	1
Building one's personal philosophy	8	6	8
0 Not Rated			

^a Survey by Robert Wood of past marketing and Distributive Education graduates of the University of North Dakota and employers of these graduates, April, 1975.

In comparing the information in Table 6 the Spearman Rank-Order Correlation Coefficient⁹ was used to test if there was any similarity or agreement in the ranking of the marketing objectives by the several groups.

The findings indicated there were significant differences between the ranking of the educators and the ranking derived from the responses of the graduates. The educators believed that "learning tools useful in careers" was the most important objective while the graduates believed "improving communication ability" ranked number one. The only objectives similarly positioned, based on responses of these two groups, were "understanding the environment of business" and "building one's personal philosophy."

Although the educators and graduates did not agree upon the rankings of these objectives, the employers and graduates did. There was a significant correlation in the rankings derived from these two groups. The responses of both groups identified "improving communication ability" as the number one objective of marketing education. "Understanding the environment of business" was ranked as the second objective.

Educational Objectives Actually Accomplished

Given the educational objectives the graduates preferred to have stressed in the marketing curriculum, they were asked which

⁹ David J. Luck, "Designing the Marketing Curriculum" in Philip R. McDonald, ed. Marketing Involvement in Society and the Economy, (Chicago), Proceeding of the American Marketing Association, 1969, pp. 398-401.

objectives they felt were accomplished. The graduates received a list of objectives and were asked their opinion as to whether or not these objectives were accomplished in their marketing curriculum. The results are summarized in Table 7.

TABLE 7
OPINIONS OF THE MARKETING GRADUATES ACCOMPLISHMENT
OF EDUCATIONAL OBJECTIVES^a

Objectives Accomplished in Curriculum ^b	Rank in Importance	Agree %	Disagree %	Undecided %	Total %
Learn Tools Useful in Career	1	84	9	7	100
Basis for Students Future Development	2	79	6	15	100
Improve Communi- cation Ability	3	72	11	17	100
Keys to Available Information	3	72	14	14	100
Understanding Environment of Business	5	66	19	15	100
Learning to Under- stand People	6	57	19	15	100
Aided in Choice of Career	7	55	26	19	100

Note: The objective "Building one's personal philosophy" was omitted due to confusion caused by it during the pretest.

Number of Cases = 134.

^aSurvey by Robert Wood of past marketing and Distributive Education graduates of the University of North Dakota and employers of these graduates, April, 1975.

^bDifferences in all rankings were significant at the 1.96 level using the Binomial Distributive test.

Over one-half of the graduates agreed that each of the objectives of marketing education had been accomplished to some degree. More than three-fourths of them felt they had learned tools that were useful in their careers and that their education served as a basis for their future development.

There were significant differences between the opinions of male and female marketing graduates with regard to the objective, "learn tools useful in career." A significantly greater percentage of male graduates felt this objective was accomplished compared to females.

There were also significant differences in opinions between the various income groups in regards to the same question. Of the graduates with incomes in excess of \$4,999 per year, the greater percentage agreeing that they learned tools useful in their careers earned between \$10,000 to 14,999. This was followed closely by those graduates earning between \$15,000 to 24,999 per year.

Finally, there were significant differences between the opinions of the graduates in the various income groups in regards to the marketing education objective of "Basis for Students Future Development." Again of those graduates earning in excess of \$4,999 per year, the greatest percentage agreeing to this question earned between \$8,000-9,999 followed by those in the \$15,000-24,999 yearly income range.

In Table 8 on page 18, a comparison is shown between the ranking of educational objectives by importance and a ranking of these objectives on the basis of their attainment.

TABLE 8

EDUCATIONAL OBJECTIVES OF THE MARKETING CURRICULUM
 COMPARED WITH THE ACCOMPLISHMENT OF THESE
 OBJECTIVES^a

Educational Objectives	Ranked by Educators	Ranked by Employers	Ranked by Graduates	Felt Accomplished by Graduates
Learn Tools Useful in Careers	1	4	4	1
Understand Environment of Business	2	2	2	5
Basis for Students Future Development	3	Not Rated	5	2
Keys to Available Information	4	5	6	2
Aid in Choice of Career	5	7	7	7
Learning to Understand People	5	2	3	6
Improve Communication Ability	7	1	1	3
Building One's Personal Philosophy	8	6	8	Not Rated

^a Survey by Robert Wood of past marketing and Distributive Education graduates of the University of North Dakota and employers of these graduates, April, 1975.

Although neither the responses of employers of the marketing graduates nor those of the graduates agreed with the order of importance of the objectives of marketing education by the educators. There was a significant correlation between the objective rankings of the educators and the ordering of the objectives that alumni felt were accomplished during their formal marketing education.

Benefits of the Subject Areas in
Marketing Curriculum

The most common marketing education courses offered at the University of North Dakota during the past ten years were evaluated as to the benefit the past marketing graduates felt that they had received in terms of their careers. The results are presented in Table 9, on page 20.

The largest percentage of the graduates felt that nine of these marketing courses benefited them to at least some degree. These nine are: Principles of Marketing, Consumer and Market Behavior, Advertising and Sales Promotion, Marketing Research, Sales Management, Salesmanship, Field Work in Marketing, Quantitative Methods Seminar and Business Case Seminar.

TABLE 9

RATING OF BENEFITS OF MARKETING SUBJECT AREAS^a

Subject Area	Considerable or some benefit	Little or no benefit	Subject not taken	Undecided	Total
	%	%	%	%	%
Principles of Marketing ^b	81	10	0	9	100
Consumer and Market Behavior ^b	75	13	2	10	100
Advertising and Sales Promotion ^b	75	16	1	8	100
Marketing Research ^b	64	18	10	8	100
Sales Management ^b	64	7	15	14	100
Salesmanship ^b	57	17	19	7	100
Marketing Institutions	49	23	11	17	100
Advertising Management	43	18	22	17	100
Management of Marketing Institutions	43	17	25	15	100
Field Work in Marketing ^b	31	5	57	7	100
Quantitative Methods Seminar ^b	30	16	43	11	100
Business Case Seminar ^b	25	4	55	16	100
International Marketing ^b	16	18	58	8	100
Number of Cases = 134					

^a Survey by Robert Wood of past marketing and Distributive Education graduates of the University of North Dakota and employers of these graduates, April, 1975.

^b Significant at the 1.96 level using the Binomial Distribution Test.

On the other hand, a significant percentage of the graduates felt that they received little or no benefit from International Marketing. However, this course was taken by less than one-half of the respondents. A greater percentage of the graduates felt all of the marketing courses, except International Marketing, benefited them; however, this difference was significant in only the nine mentioned courses.

There were significant differences between the opinions of the male and female graduates as to benefits received from the courses Marketing Research and Quantitative Methods course. A greater percentage of male respondents felt both of these courses benefited them as compared to females.

The percentage of graduates who felt these same marketing courses were of considerable benefit was compared with the percentage of those who felt these courses were of little or no benefit. This comparison is presented in Table 10.

A statistical comparison of the graduates' responses in Table 10 indicates that a significant percentage of these graduates felt the following subject areas were of considerable benefit to them: Principles of Marketing, Consumer and Market Behavior, Marketing Research, Sales Management, Salesmanship, and Field Work in Marketing.

TABLE 10

COMPARISON OF GRADUATES RATINGS OF SUBJECT AREAS: CONSIDERABLE
BENEFIT VS. LITTLE OR NO BENEFIT

Subject Area	Considerable Benefit %	No. of cases	Little or no benefit %	No. of cases
Principles of Marketing ^b	44	59	10	13
Consumer and Marketing Behavior ^b	36	48	13	17
Marketing Research ^b	31	41	18	24
Sales Management ^b	30	40	7	9
Advertising and Sales Promotion	28	37	16	22
Salesmanship ^b	25	33	17	23
Field Work in Marketing ^b	15	20	5	7
Advertising Management	14	19	18	24
Management of Marketing Institutions	14	19	17	23
Marketing Institutions ^b	12	6	23	31
Business Case Seminars	11	15	4	6
Quantitative Methods Seminar	10	13	16	21
International Marketing ^b	2	3	18	24
Number of Cases = 134				

^a Survey by Robert Wood of past marketing and Distributive Education graduates of the University of North Dakota and employers of these graduates, April, 1975.

^b Significant at the 1.96 level using the Binomial Distribution test.

There was also a significant percentage of the graduates who responded with "little or no benefit" when evaluating the courses, Marketing Institutions and International Marketing.

Educational Emphasis Desired by

Past Marketing Graduates

Graduates were asked if there were any other courses that would be of benefit which should be included in the marketing curriculum. Fifty-nine percent of the respondents felt there were other courses that should be added whereas only 9 percent felt there weren't any which would be added. The courses that 4 or more respondents felt should be included in the curriculum are presented in Table 11. Over 50 courses were requested, but the majority were suggested by only 1 or 2 respondents.

According to the 1974-1976 UND undergraduate catalog¹⁰ consumer behavior and business field experience type courses were in the marketing curriculum. There was no human relations course neither was there a financial analysis course listed in the marketing curriculum but they were both available through the Management Department. There was only one business communication course listed in the catalog, Business Reports and Letter Writing, in the Management Department, which was recommended

¹⁰N.M. Downie and R.W. Heath, Basic Statistical Methods, (New York: Harper and Row, 1965), pp. 206-207.

TABLE 11

COURSES WHICH RESPONDENTS FELT SHOULD BE INCLUDED IN
THE MARKETING CURRICULUM^a

Courses or Subjects	Percent of Total Respondents Requesting Courses	Number
Communications	19	13
Field Experience in Business	16	11
Financial Analysis	12	8
Human Relations	9	6
Consumer Behavior	6	4

^a Survey by Robert Wood of past marketing and Distributive Education graduates of the University of North Dakota and employers of these graduates, April, 1975.

for marketing majors.

Chapter Summary

This section contained a profile of the past marketing graduates that responded to the questionnaire for this study.

Thirty-one percent of the graduates majored in marketing because they were interested in it as a career. Twenty one percent stated it was a high interest field for them.

The majority of the graduates, 69 percent, were between 25 to 34 years of age and 78 percent of them were male. The greatest percentage of these marketing graduates, 36 percent entered a service industry following graduation while 35 percent accepted employment in retailing. The majority of the marketing graduates, 28 percent earned \$10,000 to \$14,999 per year.

The second section of this chapter dealt with evaluating the objectives and the benefits of the subject areas in the marketing education program.

The findings indicated there were significant differences between the rankings of these objectives by the educators and the rankings by the graduates. However, there was a significant correlation in the rankings of the marketing education objectives by employers and those of the graduates.

Of the subject areas in the marketing curriculum, nine were rated by graduates as having benefited them to some degree.

Fifty-nine percent of the graduates felt there were other

courses that should have been included in the marketing curriculum.

The two course areas named most often were communications and

field experience in business.

CHAPTER III
GENERAL BENEFITS AND USEFULNESS OF
MARKETING EDUCATION

This chapter presents the relevancy and usefulness of the respondent graduates marketing education.

Usefulness of Business Concepts and Techniques

A marketing major is exposed to, and encouraged to learn many business concepts and techniques during his or her college experience. Since these concepts and techniques comprise marketing education and will be used throughout a business career, an attempt was made to discover if marketing graduates had in fact found some of these concepts to be useful in their careers. These data are included in Table 12, page 28.

An analysis of the data in Table 12, indicates that a significant percentage of the graduates found all of the concepts and techniques useful except "How to Write a Marketing Report." Only 25 percent of the respondents felt this technique was useful.

Benefits of Being a Marketing Major

The marketing graduates were asked if they believed that a major in marketing, rather than some other business major, benefited

TABLE 12

ANALYSIS OF THE USEFULNESS OF MAJOR CONCEPTS AND
TECHNIQUES OF MARKETING EDUCATION^a

Concepts and Techniques	Percent of Respondents Rating Concept as Useful	Percent of Respondents Rating the Concept of Little Use	Percent No Response	Total Percent
Insight into Consumer Behavior ^b	78	8	14	100
How to Research a Problem ^b	60	18	22	100
How to Solve Business Problems ^b	56	16	28	100
Knowledge of How to Advertise ^b	50	22	28	100
Understanding of How to Sell ^b	43	25	32	100
How to Write a Marketing Report	25	42	33	100
Number of Cases = 134				

^aSurvey by Robert Wood of past marketing and Distributive Education graduates of the University of North Dakota and employers of these graduates, April, 1975.

^bSignificant at the 1.96 level using the Binomial Distribution test.

them in obtaining initial employment. Of these responding, 51 of the graduates (38 percent) felt it did benefit them. However, 66 of the graduates (49 percent) felt being a marketing major did not benefit them more than some other business major when obtaining initial employment.

The graduates were also asked if having been a marketing major benefited them in their job subsequent to initial employment. Of the 122 responding to this question, 72 percent responded affirmatively compared to a 20 percent negative response. The others did not know. Of the graduates answering affirmatively, a significantly greater percentage earned between \$15,000 and \$24,999 per year.

In addition the graduates were asked if they were given adequate preparation in their marketing education to effectively perform their initial career assignments. Of these graduates, 55 percent answered that they felt adequate preparation was provided while 28 percent felt it was not.

These marketing graduates were asked how much of what they learned in their marketing education was being used in their current position. Ninety-six respondents (72 percent) said they used at least some of what they learned while thirty-three (25 percent) said they used much of what they learned in their marketing education.

Finally, these graduates were asked if they were to get a college education all over again, would they again choose to be a marketing major?

Of past marketing graduates, 69 percent would again choose marketing as a major if they had it to do over again, as opposed to 22 percent who would not, 8 percent were undecided.

The 29 graduates who would not again choose marketing as their major were asked which major they would choose. Their responses are indicated in Table 13.

TABLE 13
PREFERENCES OF GRADUATES WHO WOULD NOT AGAIN MAJOR
IN MARKETING^a

Major	Number of Cases
Accounting	9
Engineering	3
Management	2
Education	2
Business Administration	2
Liberal Arts	2
Miscellaneous Majors	8
No Preference	<u>1</u>
TOTAL	29

^a Survey by Robert Wood of past marketing and Distributive Education graduates of the University of North Dakota and of employers of these graduates, April, 1975.

These 29 graduates who would not again choose marketing as their major were then asked why they would not. These results are presented in Table 14.

TABLE 14
REASONS WHY SOME GRADUATES WOULD NOT AGAIN CHOOSE MARKETING
AS THEIR MAJOR^a

Reasons	Number of Cases
Marketing field is too limiting	7
A marketing major was not important in gaining a position in business	4
There are more important fields of endeavour	4
Education was too general	3
Miscellaneous reasons	6
No reason given	5

^aSurvey by Robert Wood of past marketing and Distributive Education graduates of the University of North Dakota and employers of these graduates, April, 1975.

Chapter Summary

This section dealt with the relevancy and usefulness of the marketing education acquired by the graduates surveyed in this study.

A significant percentage of the graduates found the following concepts and techniques useful: insight into consumer behavior;

how to research a problem; how to solve business problems; knowledge of how to advertise; understanding of how to sell.

Of the graduates, 38 percent felt that being a marketing major benefited them in obtaining initial employment. However, 49 percent felt that it did not. After being employed, 72 percent of the graduates felt that being a marketing major aided them in their job, whereas 20 percent felt it did not.

With regard to the graduates initial career assignments, 55 percent felt they were given adequate preparation while 28 percent believed their education was inadequate. In the graduates current position, 72 percent said they used at least some of what they learned while 25 percent felt they used much of what they learned in their marketing education.

CHAPTER IV

OPINIONS OF MARKETING EDUCATION BY DISTRIBUTIVE EDUCATION GRADUATES

An objective of this study was to record the opinions of the Distributive Education graduates concerning the marketing education they received. Also an attempt was made to determine if there were any significant differences between their opinions and those of the graduates who majored in marketing. Only twenty-three Distributive Education graduates or 15 percent of the total Distributive Education group sampled returned questionnaires for this study. Consequently no quantitative comparisons could be adequately made of this group with the marketing majors.

Objectives of Marketing Education

The Distributive Education graduates were asked to rank possible marketing education objectives as to degree of importance to their careers. The results are presented in Table 15.

TABLE 15

EDUCATIONAL OBJECTIVES FOR MARKETING CURRICULA AS RANKED BY
DISTRIBUTIVE EDUCATION GRADUATES^a

Educational Objectives	Rank in Importance	Number Responding
Understand the Environment of Business	1	16
Basis for Students Future Development	2	14
Improve Communication Ability	2	14
Learn Tools Useful in Careers	4	12
Learning to Understand People	5	11
Aid in Choice of a Career	6	8
Keys to Available Information	7	7
Building One's Personal Philosophy	8	3
Number of Cases (23)		

^a Survey by Robert Wood of past marketing and Distributive Education graduates of the University of North Dakota and employers of these graduates, April, 1975.

Distributive Education graduates were also asked what objectives they felt were accomplished. The results are presented in Table 16.

TABLE 16

DISTRIBUTIVE EDUCATION GRADUATES OPINIONS OF THE ACCOMPLISHMENTS OF
THE MARKETING EDUCATION OBJECTIVES^a

Objectives Accomplished in Curriculum	Rank in Importance	
	Rank	Number Responding
Learn Tools Useful in Career	1	21
Basis for Students Future Development	1	21
Understanding Environment of Business	3	20
Improve Communication Abilities	4	18
Aided in Choice of Career	5	15
Keys to Available Information	6	14
Learning to Understand People	7	13
Number of Cases (23)		

^aSurvey by Robert Wood of past marketing and Distributive Education graduates of the University of North Dakota and of employers of these graduates, April, 1975.

Benefits of the Subject Areas in the Marketing

Curriculum

The Distributive Education graduates were also asked to evaluate the marketing courses as to the degree of benefit that they felt

they received from these courses in terms of their careers. The results are presented in Table 17.

TABLE 17
BENEFITS OF MARKETING SUBJECT AREAS^a

Subject Area	Number Finding Considerable or Some Benefit	Number Finding Little or no Benefit	Number not having taken subject	Number Undecided
Consumer and Market Behavior	19	1	1	2
Principles of Marketing	18	2	1	2
Salesmanship	17	3	2	1
Advertising and Sales Promotion	16	5	1	1
Marketing Institutions	15	2	5	1
Sales Management	9	3	10	1
Marketing Research	7	1	12	3
Management of Marketing Institutions	6	1	14	2
Advertising Management	3	1	15	4
Field Work in Marketing	3	0	17	3
Business Case Seminar	3	15	0	5

TABLE 17--(Continued)

Subject Area	Number Finding Considerable or Some Benefit	Number Finding Little or no Benefit	Number not having taken Subject	Number Undecided
International Marketing	2	18	0	7
Directed Studies in Marketing	2	0	17	4
Quantitative Methods	1	1	17	4
Number of Cases (23)				

^a Survey by Robert Wood of past marketing and Distributive Education graduates of the University of North Dakota and of employers of these graduates.

Usefulness of Business Concepts and Techniques

The concepts and techniques taught in marketing education were also evaluated by the Distributive Education graduates as to their usefulness.

TABLE 18
 ANALYSIS OF THE USEFULNESS OF MAJOR CONCEPTS AND TECHNIQUES
 TAUGHT IN MARKETING EDUCATION^a

Concepts and Techniques	Number Finding Useful	Number Finding Little Use	Number of Responses
Insight into Consumer Behavior	20	0	3
Understanding of How to Sell	16	2	5
Knowledge of How to Advertise	14	3	6
How-to Solve Business Problems	12	3	8
How to Research a Problem	9	8	6
How to Write a Marketing Report	7	10	6
Number of Cases (23)			

^a Survey by Robert Wood of past marketing and Distributive Education graduates of the University of North Dakota and employers of these graduates, April, 1975.

CHAPTER V
SUMMARY AND CONCLUSIONS

This thesis dealt with an evaluation of the marketing program at the University of North Dakota. The evaluators were past marketing, retail merchandising, and distributive education students who graduated from the University of North Dakota during the years 1965 through 1974.

The objectives of this study were to: (a) record the opinions of marketing, retail merchandising and distributive education graduates toward their marketing education; (b) record the opinions of employers of these graduates toward the marketing education of these employees; (c) use these results to recommend changes in marketing curriculum and method of instruction. Among the specific questions for which answers were sought were:

1. Do graduates believe the objectives of marketing education are being attained?
2. What subject areas are felt to be beneficial by the graduates?
3. What do the graduates and employers believe should be stressed in undergraduate marketing education?
4. If the graduates had to do it again, what area of study would they choose to major in?

Two structured, non-disguised questionnaires were used. One was sent to the graduates and the other to the employers of these graduates. Two hundred ninety-six questionnaires were mailed to the graduates resulting in a 53 percent return or 157 completed questionnaires. Forty five questionnaires were sent to the employers with 18 being returned or 40 percent.

Two statistical tests were used to analyze the data for this study. One was the Binomial Distribution test which was used to determine the significance between two sets of data. The other was the Spearman rank order correlation coefficient (Rho), which was used to test the significance of data that was ranked in order of importance.

The objectives of the marketing education program were the first area to be evaluated by the study. The marketing objectives were then ranked in order of importance by educators as formulated at the Cincinnati Marketing Education Conference.¹⁰ These objectives were: improve communication ability; understand the environment of business; learn to understand people; learn tools useful in careers; serve as a basis for students future development; aid in building one's personal philosophy; serve as keys to available information; aid in the choice of a career. These objectives

¹⁰ David J. Luck, "Designing the marketing curriculum" in Philip R. McDonald, ed. Marketing Involvement in Society and the Economy (Chicago), Proceeding of the American Marketing Association, 1969, pp. 398-401.

were ranked in order of importance by employers of marketing graduates. Finally, the marketing graduates themselves ranked these objectives by order of importance.

The findings indicate there were significant differences between the objective rankings of the educators and the rankings of the graduates. However, there was a significant correlation in the ranking of the marketing education objectives by the employers and the graduates.

Given the educational objectives the graduates would prefer to have stressed in their marketing curriculum, they were also asked what objectives they felt were actually accomplished. Of the graduates surveyed, over one-half agreed that each of the previously mentioned objectives of marketing education had been accomplished to some degree. More than three-fourths of them felt they had learned tools that were useful in their careers and that their education served as a basis for their future development.

Of the subject areas in the marketing curriculum, eight were rated by the graduates as having benefited them to some degree.

Fifty nine percent of the graduates felt there were other courses that should have been included in the marketing curriculum. The two course areas named most often were communications and field experience in business.

In order to test the relevancy of the graduates' marketing education, they were asked to evaluate the usefulness of major concepts and techniques that are taught in marketing courses. These concepts and techniques were: an understanding of how to

sell, insight into consumer behavior, knowledge of how to advertise, knowledge of how to research a problem and knowledge of how to write marketing reports.

A significant percentage of the graduates found all of the concepts and techniques useful except, "the knowledge of how to write a marketing report." The concept that was felt to be useful by the largest percentage of graduates was "insight into consumer behavior."

Only 38 percent of the graduates felt being a marketing major benefited them in obtaining initial employment. Forty-nine percent felt there was no benefit. However, 72 percent of the graduates felt their marketing education benefited them in their jobs subsequent to employment.

Seventy-three of the marketing graduates or 55 percent felt they were given adequate preparation in their education in order to effectively perform their initial career assignments. Twenty-eight percent said they were not.

Seventy-two percent of the graduates felt they used at least some of what they learned in their current position while 25 percent felt they used little or none.

Finally, the graduates were asked if they had it to do again would they choose marketing as a major. Ninety-two respondents or 69 percent said they would again choose marketing as a major while 29 respondents or 22 percent would not.

Among those graduates that would not major in marketing, the largest percentage chose accounting and next engineering as the

field they would prefer to major in.

The reason most often mentioned by these graduates for not again choosing marketing as a major was that the field was too limiting, with regard to employment opportunity.

The graduates were asked why they originally majored in marketing and the reason given most often was that they were interested in marketing as a career.

The main conclusions that can possibly be drawn from this study center around the four questions which were presented in the statement of objectives.

First did graduates believe the objectives of marketing education were being attained? A significant percentage of the past marketing graduates felt the objectives of marketing education had been accomplished to at least some degree. However, there was a disagreement as to the order of importance which should be placed upon the objectives of marketing education. There was a definite correlation between the ranking of objectives by the marketing graduates and the employers of these graduates. But there was no significant correlation between the ranking of objectives by marketing educators and those of employers and graduates. Consequently, possible recommendations resulting from this study would be to place more emphasis on methods of improving the students' ability to communicate. Also, more emphasis placed on teaching students how to understand people as these two objectives were ranked very high by the graduates and employers but substantially lower by the educators.

Second, what subject areas were felt to be beneficial by the graduates? A significant percentage of the marketing graduates felt that nine courses benefited them to at least some degree. These nine are: Principles of Marketing, Consumer and Marketing Behavior, Advertising and Sales Promotion, Marketing Research, Sales Management, Salesmanship, Field Work in Marketing, Quantitative Methods Seminar, and Business Case Studies.

Third, what did the graduates and employers believe should be stressed in undergraduate marketing education? They indicated that more stress should be placed upon improving the communication ability of marketing students and teaching them to better understand people.

Fourth, if the graduates had to do it again, what area of study would they choose to major in? A significant 69 percent of the graduates would again choose marketing as a major. Twenty-two percent would not. Since a majority of 69 percent of the graduates would again choose marketing as a major and only 22 percent would not, it is concluded that graduates are generally satisfied with the marketing education they received at the University of North Dakota.

Appendix A

Graduate Questionnaire

MARKETING EDUCATION QUESTIONNAIRE

1. What year did you graduate from UND with your bachelors degree? _____
2. Did you:
 - _____ A. Major in marketing?
 - _____ B. Major in retail merchandising?
 - _____ C. Major in distributive education?
 - _____ D. Other (If your major was not marketing, retail merchandising or distributive education, please return the questionnaire unanswered).
3. If you did major in one of the above areas, why did you pick this area as your major? _____

4. Have you had three or more marketing courses at U.N.D.?
 - _____ A. Yes
 - _____ B. No (If no, please skip questions 5-10).
5. With regard to each of the following statements concerning your marketing education, please draw a circle around the one answer for each statement which best reflects your opinion.

In general, my marketing courses:	Strongly Agree	Moderately Agree	Undecided	Moderately Disagree	Strongly Disagree
A. Gave me tools that are useful in my career.	1	2	3	4	5
B. Provided a basic foundation for my professional development	1	2	3	4	5
C. Provided me with an understanding of the environment of business	1	2	3	4	5
D. Provided keys to finding available information	1	2	3	4	5

5. Cont.

In general, my marketing courses:	<u>Strongly Agree</u>	<u>Moderately Agree</u>	<u>Undecided</u>	<u>Moderately Disagree</u>	<u>Strongly Disagree</u>
E. Aided in choosing a marketing career	1	2	3	4	5
F. Helped me to understand people	1	2	3	4	5
G. Improved my communications abilities	1	2	3	4	5

6. The following are some possible objectives of marketing education. Please rate them according to their importance to you in your career. Circle one answer for each statement.

	<u>very important</u>	<u>fairly important</u>	<u>unimportant</u>
A. Improve communication ability	1	2	3
B. Serve as a key to available information	1	2	3
C. Aid in understanding the environment of business	1	2	3
D. Helping to build one's personal philosophy	1	2	3
E. Aid in the choice of a career	1	2	3
F. Learn tools useful in careers	1	2	3
G. Serve as a basis for students future development	1	2	3
H. Helping to understand people	1	2	3

7. In terms of your career, please rate the degree of benefit you received from each of the following subject areas offered or required by your undergraduate curriculum at UND. Please circle one answer for each subject area.

<u>Subject area</u>	<u>Considerable Benefit</u>	<u>Some Benefit</u>	<u>Undecided</u>	<u>Little Benefit</u>	<u>Subject Not Taken</u>
Advertising and Sales Promotion	1	2	3	4	5
Consumer and Market Behavior	1	2	3	4	5
International Marketing	1	2	3	4	5
Principles of Marketing	1	2	3	4	5
Marketing Research	1	2	3	4	5
Quantitative Methods Seminar	1	2	3	4	5
Business Case Seminar (summer only)	1	2	3	4	5
Sales Management	1	2	3	4	5
Salesmanship	1	2	3	4	5
Marketing Institutions	1	2	3	4	5
Directed Studies in Marketing	1	2	3	4	5
Advertising Management	1	2	3	4	5
Management of Marketing Institutions	1	2	3	4	5
Field Work in Marketing	1	2	3	4	5

8. Do you feel there are any other courses that would have been beneficial to you had they been included in your marketing curriculum?

- A. Yes
 B. No
 C. Don't know

8a. If yes, please list the courses, whether business related or not, which you feel would have been beneficial to you. _____

9. As you look on your undergraduate education, check the concepts or techniques, if any, you obtained in your marketing courses which you found were useful.

- A. An understanding of how to sell.
 B. An insight into consumer behavior.
 C. A knowledge of how to advertise.
 D. How to research a problem.
 E. How to solve business problems.
 F. How to write a marketing report.
 G. Other (please list) _____

9a. Check the ones, if any, you found of little use.

- A. An understanding of how to sell.
 B. An insight into consumer behavior.
 C. A knowledge of how to advertise.
 D. How to research a problem.
 E. How to solve business problems.
 F. How to write a marketing report.
 G. Other (please list) _____

10. Do you believe the fact that being a marketing, retail merchandising, or distributive education major, rather than some other business major, benefited you in obtaining initial employment after graduating from UND?

- A. Yes
 B. No
 C. Don't know

11. Has having been a marketing, retail merchandising or distributive education major benefited you in your job subsequent to employment?

A. Yes
 B. No
 C. Don't know

12. Do you feel you were given adequate preparation in your marketing education in order to effectively perform your initial career assignments?

A. Yes
 B. No
 C. Don't know

13. In your current position, how much of what you learned in your marketing education do you use?

A. Much
 B. Some
 C. Little
 D. None
 E. Can't tell

14. Have you received any additional formal marketing education since leaving UND?

A. Yes
 B. No

- 14a. If yes, please explain the additional education you have received.

15. If you had to get a college education all over again, would you choose marketing, retail merchandising or a marketing/distributive education double major as your major?

A. Yes
 B. No
 C. Don't know

16. If no, please briefly state the field you would choose to major in and why you wouldn't choose the above fields.

Why you wouldn't major in the above. _____

Field you would major in: _____

PERSONAL DATA

1. What is your present age?

- A. Under 24
- B. 25-34
- C. 35-49
- D. 50-64
- E. 65+

2. What is your sex:

- A. Male
- B. Female

3. After graduating from UND, was your initial employment assignment a marketing orientated position?

- A. Yes
- B. No
- C. Don't know

4. What was your initial job title? _____

5. Please briefly describe the main duties of your initial position.

6. If not your initial employment assignment after graduation, is your current assignment a marketing orientated position?

- A. Yes
- B. No
- C. Don't know

7. What is your current job title? _____

8. Please briefly describe the main duties of your current position.

9. After graduating from UND, what type of industry were you initially employed in?

- A. Retailing
 - B. Wholesaling
 - C. Manufacturing
 - D. Service
 - E. Other (please list) _____
-

10. What type of industry are you currently employed in (if different than No. 9)?

- A. Retailing
 - B. Wholesaling
 - C. Manufacturing
 - D. Service
 - E. Other (please list) _____
-

11. What is your current yearly income (excluding that of other members of your household?)

- A. \$0-\$2999
- B. \$3000-\$4999
- C. \$5000-\$7999
- D. \$8000-\$9999
- E. \$10,000-\$14,999
- F. \$15,000-\$24,999
- G. \$25,000 and over

Appendix A (Continued)

Employer Questionnaire

Employer Questionnaire
(Marketing Education)

1. Does your company recruit graduating marketing majors from college?

- A. Yes
 B. No (If no, please return this questionnaire unanswered.)
 C. Don't know (If don't know, please return this questionnaire unanswered).

1a. If yes, for what type of positions do you recruit graduating marketing majors?

2. The following are concepts and techniques which are taught to marketing students at UND. Please number them in their order of importance to you.

- A. An understanding of how to sell
 B. An insight into consumer behavior
 C. A knowledge of how to advertise
 D. How to research a problem
 E. How to solve a business problem
 F. How to write a marketing report
 G. Other (please list) _____
-
-

3. The following are some possible objectives of marketing education. Please rate them according to their importance to your company.

	<u>Very</u> <u>Important</u>	<u>Fairly</u> <u>Important</u>	<u>Unimportant</u>
A. Improve communication ability	1	2	3
B. Serve as a key to available information	1	2	3
C. Aid in understanding the environment of business	1	2	3

3. Con't.

	<u>Very</u> <u>Important</u>	<u>Fairly</u> <u>Important</u>	<u>Unimportant</u>
D. Helping to build one's personal philosophy	1	2	3
E. Aid in the choice of a career	1	2	3
F. Learn tools useful in careers	1	2	3
G. Helping to understand people	1	2	3

GENERAL BUSINESS DATA

1. What type of business is your company engaged in?

- A. Retailing
 B. Wholesaling
 C. Manufacturing
 D. Service
 E. Other (please list) _____

2. Are your company's operations international, national, regional or local?

- A. International
 B. National
 C. Regional
 D. Local

3. What is your approximate percentage of each class of customer?

- % A. General public (household consumers, farmers and individuals)
 % B. Construction and building trade contractors
 % C. Other business firms, government and institutions
 % D. Other (please specify) _____

4. Please check the statement which best describes your principle method of selling. (Check only one statement).

- A. Selling at this establishment
 B. Mail order (catalog selling)
 C. House to house (direct selling)
 D. Operating vending machines
 E. Outside Sales
 F. Other (please specify) _____

5. Please check the approximate range of sales of your company.

- | | |
|---|---|
| <input type="checkbox"/> A. Under \$50,000 | <input type="checkbox"/> F. \$1,000,000-\$4,999,999 |
| <input type="checkbox"/> B. \$50,000-\$99,000 | <input type="checkbox"/> G. \$5,000,000-\$9,999,999 |
| <input type="checkbox"/> C. \$100,000-\$299,000 | <input type="checkbox"/> H. \$10,000,000-\$49,999,999 |
| <input type="checkbox"/> D. \$300,000-\$499,000 | <input type="checkbox"/> I. \$50,000,000-\$99,999,999 |
| <input type="checkbox"/> E. \$500,000-\$999,999 | <input type="checkbox"/> J. \$100,000,000 and over |

Appendix B

Examples of Statistical Analysis Used in this Study.

Statistical Test: Spearman Rank Order Correlation Coefficient (RHO)

The Spearman Rank Order Test was used in this study to test the correlation significance of data that was ranked in order of importance.¹¹ A .05 level of significance was chosen to analyze this data.

An example of this type of statistical test is given in Table No. 4 of this study. The ranking of marketing objectives as proposed by the educators was tested against those objectives proposed by the graduates. The purpose of this analysis was to see if there is a significant relationship between the ranking order of these two groups. This analysis is presented in Table No. 19.

To solve for the rank order correlation coefficient, the following equation was used.

$$p = 1 - \frac{6 \sum D^2}{N(N^2 - 1)}$$

where N = the number of educational objectives

p = rho, the rank-order correlation coefficient.

¹¹ N.M. Downie and R.W. Heath, Basic Statistical Methods (New York: Harper and Row, 1965), p. 206.

TABLE 19

Calculation of the Spearman Rank Order
Correlation Coefficient

Educational Objectives	Ranked by Educators	Ranked by Graduates	R_1	R_2	D	D^2
Learn Tools Useful in Careers	1	4	1	4	3	9
Understand Environment of Business	2	2	2	2	0	0
Basis for Students Future Development	3	5	3	5	2	4
Keys to Available Information	4	6	4	6	2	4
Aid in Choice of Career	5	7	5.5	7	1.5	2.25
Learning to Understand People	5	3	5.5	3	2.5	6.25
Improve Communication Ability	7	1	7	1	6	36
Building one's personal philosophy	8	8	8	8	0	<u>0</u>
					D^2	= 61.5

R_1 = Numerical rank by educators. Note the tie in rank between 5 and 6 is averaged to 5.5

R_2 = Numerical rank by graduates

D = Difference between R_1 and R_2

D^2 = Difference squared.

D^2 = The sum of the difference squared.

Solving for p:

$$p = 1 - \frac{6(61.5)}{8(63)} = 1 - .73214$$

$$p = .268$$

By use of a table for values of r for different levels of significance,¹² and by use of a .05 level of significance with 6 degrees of freedom (N-2), it was found that p had to exceed .7067. As p fell short of .7067, there appeared to be no significant relationship between the objective rankings of the educators and the graduates.

¹²N.M. Downie and R.W. Heath, Basic Statistical Methods, (New York: Harper and Row, 1965), p. 314.

APPENDIX B (Continued)

Statistical Test: Binomial Distribution

The Binomial Distribution was also used to analyze data from this study. This type of analysis was employed to determine whether a significant difference exists between two sets of data.

A portion of Table 9 of this study is an example of the use of the Binomial Distribution test. The graduates that found the subject "Principles of Marketing" to be of benefit were compared with those who found the subject of little or no benefit. The null hypothesis (I.E. no significant relationship) was employed.

TABLE 20

Calculation of the Binomial Distribution

Subject Area	Considerable or some benefit		Little or no benefit		Subject not taken		Undecided		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
	Principles of Marketing	109	81	13	10	0	0	12	9	134

$$\text{Binomial Distribution} = Z = \frac{X - M - .5^{13}}{\sigma}$$

X = The value to be tested

M = The Mean of the Binomial Distribution (M = NP)

σ = The Standard Deviation of the Binomial Distribution

$$\sqrt{NPq}$$

N = The number of events involved

P = The probability of the events occurring

q = P - 1

Values

X = 115 (109 + $\frac{1}{2}$ of "undecided column" or 6)

M = 67 (134 (.5))

σ = 5.79 (134(.5)(.5) = $\sqrt{33.5}$ = 5.79)

Z = $\frac{115-67-.5}{5.79}$

Z = 8.20

At a .05 level of significance, "Z" must exceed 1.96. Since in the above example, Z = 8.20 the null hypothesis can be rejected. A significant difference exists between the two values.

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