



Making the grade without Ds and Fs: Some Effects of Non-Punitive Grading at Selected Colleges
by Gilbert Ossian Taylor

A dissertation submitted to the Graduate Faculty in partial fulfillment of the requirements for the degree of DOCTOR OF EDUCATION

Montana State University

© Copyright by Gilbert Ossian Taylor (1974)

Abstract:

This study was designed to describe some of the effects of eliminating D and F grading at Flathead Valley (Montana) Community College, the University of Oregon, and Grinnell (Iowa) College. The investigation focused on grade distributions before and after adoption of the non-punitive system by these institutions, opinions of their students and faculty on grading and related matters, and the acceptability of applicants from each institution to transfer and graduate admissions officers in the same region.

Grade distributions were available for the six academic years from 1967-68 through 1972-73 at Flathead and Oregon, and questionnaires were completed by 512 students (a 72 per cent return rate) and 278 faculty (70 per cent) at all three colleges and by 160 admissions officers (76 per cent) in the three areas. Analysis involved calculations of rates-of-change and distribution patterns of grades, mean ranks and response distributions for surveys, and application of Kendall's coefficient of concordance and the chi square test of independence to questionnaire data, primarily through computer programs. The major conclusions of the study were that: (1) academic standards were neither weakened nor strengthened appreciably as a result of non-punitive grading; (2) the prime student and faculty objective of grading was to provide the student with an indication of his academic performance; (3) students preferred non-punitive grading, while faculty ranked A-B-C-D-F grading first and non-punitive second out of eight options; (4) the motivation for student academic achievement was more the desire for internal satisfaction than external grades; (5) although most respondents attributed no appreciable academic changes to non-punitive grading, a minority of about 25 per cent found favorable effects on student worry over grades, cheating incidence, probation, exploratory enrollment in electives, the use of grades as threat or reward for conformity to teacher views, and the general student-faculty relationship; (6) the contention by some respondents that it was easier to earn C's after D's and F's were eliminated was not supported by grade distributions; (7) admission was found to be largely an intra-regional concern, for about 75 per cent of the transfer and graduate students continued their studies at institutions within 500 miles; and (8) although no appreciable differences in the admissions chances of applicants from traditional and non-punitive systems were found by most officers, requirements that applicants supplement non-punitive records with additional test scores, recommendations, and interviews tended to delay admission and decrease scholarship chances at about 25 per cent of the reporting institutions.

MAKING THE GRADE WITHOUT D'S AND F'S: SOME EFFECTS
OF NON-PUNITIVE GRADING AT SELECTED COLLEGES

by

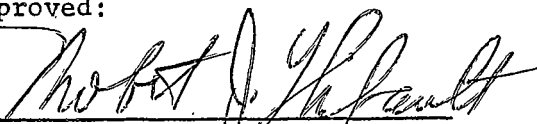
GILBERT OSSIAN TAYLOR, JR.

A dissertation submitted to the Graduate Faculty in partial
fulfillment of the requirements for the degree

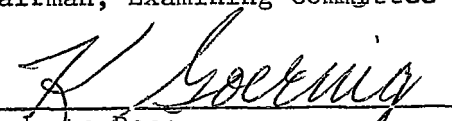
of

DOCTOR OF EDUCATION

Approved:


Head, Major Department


Chairman, Examining Committee


Graduate Dean

MONTANA STATE UNIVERSITY
Bozeman, Montana

June, 1974

ACKNOWLEDGMENT

The writer is grateful for the cooperation of Mr. William McClaren, Vice President, Flathead Valley Community College; Dr. Donald Rhoades, Dean of Student Administrative Services, University of Oregon; Mr. James Hamilton, Associate Dean of the College, Grinnell College; the numerous students and faculty members surveyed at these institutions; and the 160 college and graduate admissions officers who participated in this research project.

Further acknowledgment is offered to Dr. Richard Lund for advice in statistics and to Mr. Mark Hitch and Mrs. Hazel Zeier for computer data management. Finally, the writer expresses special appreciation for the counsel of his committee chairman, Dr. Earl Ringo, Dean of the College of Education, and to the other members of the committee for their assistance and encouragement.

TABLE OF CONTENTS

	Page
LIST OF FIGURES.	viii
LIST OF TABLES	ix
ABSTRACT	xi

Chapter

1. INTRODUCTION.	1
Statement of the Problem.	5
Need for the Study.	5
General Questions To Be Answered.	7
General Procedures.	9
Limitations	10
Definitions of Terms.	11
Summary	13
2. REVIEW OF RELATED LITERATURE.	15
Historical and Philosophical Backgrounds.	15
Psychological Backgrounds	20
Research on the Effects of College Grading.	28
Summary	43
3. PROCEDURES.	45
Grade Distributions	45
Student Faculty Surveys	48
Admissions Officer Surveys.	56
Summary	58

Chapter	Page
4. PRESENTATION AND ANALYSIS OF DATA.	60
Collection of Grade Distributions.	60
Grading Patterns at Flathead Valley Community College.	61
Grading Patterns at the University of Oregon	67
Student-Faculty Questionnaire Returns.	73
Grading Objectives	75
Grading System Preferences	82
Factors Motivating Academic Performance.	84
Grading Accuracy	90
Difficulty of Earning A's, B's and C's	95
Worry About Grades and Grading	101
Incidence of Cheating.	106
Likelihood of Probation.	108
Enrollment in Electives.	110
Grades as Threat or Reward	113
General Student-Faculty Relationship	118
Unsolicited Student-Faculty Responses.	120
Admissions Officer Questionnaire Returns	123
Undergraduate Transfer Criteria.	125
Graduate Admissions Criteria.	128
Undergraduate Competition for Transfer and Scholarships.	131
Graduate Competition for Admission and Fellowships	136

Chapter	Page
Unsolicited Admissions Officer Responses	142
Summary.	144
5. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS.	150
SUMMARY.	151
Summary of Review of Literature	151
Summary of Grading Trends	153
Summary of Student-Faculty Surveys.	157
Summary of Admissions Officer Surveys	162
CONCLUSIONS.	166
RECOMMENDATIONS.	170
APPENDICES	173
Appendix A: Letter of Interest in Research, MACRAO	174
Appendix B: Summary of Grading Systems: Flathead, Oregon, and Grinnell	175
Appendix C: Cover Letter for Student Survey.	177
Appendix D: Student Questionnaire.	178
Appendix E: Cover Letter for Faculty Survey.	182
Appendix F: Faculty Questionnaire.	183
Appendix G: List of Transfer and Graduate Schools Surveyed, by Region.	187
Appendix H: Cover Letter for Flathead Region Undergraduate Admissions Officers.	191
Appendix I: Flathead Region Undergraduate Admissions Officer Questionnaire.	192
Appendix J: Cover Letter for Oregon Region Graduate Admissions Officers.	193

	Page
Appendix K: Oregon Region Graduate Admissions Officer Questionnaire	194
Appendix L: Cover Letter for Grinnell Region Graduate Admissions Officers	195
Appendix M: Grinnell Region Graduate Admissions Officer Questionnaire	196
Appendix N: Student Questionnaire Responses, by Sub-groups.	197
Appendix O: Faculty Questionnaire Responses, by Sub-groups.	202
Appendix P: Undergraduate Admissions Officer Questionnaire Responses, Flathead Region, by Sub-groups . .	207
Appendix Q: Graduate Admissions Officer Questionnaire Responses, Oregon Region, by Sub-groups . . .	209
Appendix R: Graduate Admissions Officer Questionnaire Responses, Grinnell Region, by Sub-groups . .	211
BIBLIOGRAPHY	213

LIST OF FIGURES

Figure	Page
1. Six-Year Pattern of Combined Passing Grades, Flathead and North Idaho	62
2. Six-Year Pattern of Combined A-B-C Grades, Flathead and North Idaho	63
3. Six-Year Pattern of A, B, and C Grades, Flathead.	65
4. Six-Year Pattern of Combined Passing Grades, Oregon and Oregon State.	68
5. Six-Year Pattern of Combined A-B-C Grades, Oregon and Oregon State.	70
6. Six-Year Pattern of A, B, and C Grades, Oregon.	71

LIST OF TABLES

Table	Page
1. Student and Faculty Questionnaire Returns	73
2. Student and Faculty Mean Rankings of Grading Objectives . .	76
3. Student Mean Rankings of Faculty Grading Objectives Compared to Actual Faculty Rankings	80
4. Faculty Mean Rankings of Student Grading Objectives Compared to Actual Student Rankings	81
5. Student and Faculty Mean Rankings of Grading Systems. . . .	83
6. Student and Faculty Mean Rankings of Factors Motivating Student Academic Performance Under A-B-C-D-F Grading. . .	85
7. Student and Faculty Mean Rankings of Factors Motivating Student Academic Performance Under A-B-C-N or NR Grading.	88
8. Distributions of Student and Faculty Ratings of Grading Accuracy Under A-B-C-D-F System	91
9. Distributions of Student and Faculty Ratings of Grading Accuracy Under A-B-C-N or NR System	93
10. Distributions of Student and Faculty Ratings of A-B-C-N or NR Effect on Difficulty of Earning A's	96
11. Distributions of Student and Faculty Ratings of A-B-C-N or NR Effect on Difficulty of Earning B's	98
12. Distributions of Student and Faculty Ratings of A-B-C-N or NR Effect on Difficulty of Earning C's	100
13. Distributions of Student and Faculty Ratings of A-B-C-N or NR System Effect on Student Worry About Grades	102
14. Distributions of Faculty Ratings of A-B-C-N or NR Effect on Faculty Worry About Grading.	105
15. Distributions of Student and Faculty Ratings of A-B-C-N or NR Effect on Cheating.	107

Table	Page
16. Distributions of Student and Faculty Ratings of A-B-C-N or NR Effect on Scholastic Probation.	109
17. Distributions of Student and Faculty Ratings of A-B-C-N or NR Effect on Tendency to Take Exploratory Elective Courses	111
18. Distributions of Student and Faculty Ratings of Teacher Use of Grades As Threat or Reward for Conformity Under A-B-C-D-F System.	114
19. Distributions of Student and Faculty Ratings of Teacher Use of Grades As Threat or Reward for Conformity Under A-B-C-N or NR System.	116
20. Distributions of Student and Faculty Ratings of A-B-C-N or NR Effect on General Student-Faculty Relationship. . .	119
21. Admission Officer Questionnaire Returns	123
22. Undergraduate Admissions Officer Mean Rankings of Transfer Criteria, Flathead Region	126
23. Graduate Admissions Officer Mean Rankings of Admissions Criteria, Oregon and Grinnell Regions	129
24. Distributions of Undergraduate Admissions Officer Ratings of Effects of Flathead's A-B-C-NR System on Competition for Transfer and Scholarships	132
25. Distributions of Graduate Admissions Officer Ratings of Effect on A-B-C-N or NR System on Competition for Admission and Fellowships, Oregon and Grinnell Regions. .	137

ABSTRACT

This study was designed to describe some of the effects of eliminating D and F grading at Flathead Valley (Montana) Community College, the University of Oregon, and Grinnell (Iowa) College. The investigation focused on grade distributions before and after adoption of the non-punitive system by these institutions, opinions of their students and faculty on grading and related matters, and the acceptability of applicants from each institution to transfer and graduate admissions officers in the same region.

Grade distributions were available for the six academic years from 1967-68 through 1972-73 at Flathead and Oregon, and questionnaires were completed by 512 students (a 72 per cent return rate) and 278 faculty (70 per cent) at all three colleges and by 160 admissions officers (76 per cent) in the three areas. Analysis involved calculations of rates-of-change and distribution patterns of grades, mean ranks and response distributions for surveys, and application of Kendall's coefficient of concordance and the chi square test of independence to questionnaire data, primarily through computer programs.

The major conclusions of the study were that: (1) academic standards were neither weakened nor strengthened appreciably as a result of non-punitive grading; (2) the prime student and faculty objective of grading was to provide the student with an indication of his academic performance; (3) students preferred non-punitive grading, while faculty ranked A-B-C-D-F grading first and non-punitive second out of eight options; (4) the motivation for student academic achievement was more the desire for internal satisfaction than external grades; (5) although most respondents attributed no appreciable academic changes to non-punitive grading, a minority of about 25 per cent found favorable effects on student worry over grades, cheating incidence, probation, exploratory enrollment in electives, the use of grades as threat or reward for conformity to teacher views, and the general student-faculty relationship; (6) the contention by some respondents that it was easier to earn C's after D's and F's were eliminated was not supported by grade distributions; (7) admission was found to be largely an intra-regional concern, for about 75 per cent of the transfer and graduate students continued their studies at institutions within 500 miles; and (8) although no appreciable differences in the admissions chances of applicants from traditional and non-punitive systems were found by most officers, requirements that applicants supplement non-punitive records with additional test scores, recommendations, and interviews tended to delay admission and decrease scholarship chances at about 25 per cent of the reporting institutions.

Chapter 1

INTRODUCTION

Educators have historically given more thought to the standards for grades than to the effects of grades. Some have righteously believed that students who failed to meet academic standards were deficient in character, as well as scholarship, and deserved censure through permanent punitive grades. Many have felt that the promise of passing grades and the threat of failing grades motivated student achievement. Most have assumed that the competition for grades was healthy preparation for the struggle of adult life and that the successful in school were likely to enjoy equal success after graduation. Those who have challenged these popular notions about grading, who have worried about the potentially harmful effects of grading, and who have subjected the philosophy, practice, and consequences of grading to objective analysis, have been a minority in education.

But then educators may have been slow to sense problems in grading because they have themselves rarely experienced failure in school. They have been the success stories of education, accumulating secondary certificates, college diplomas, graduate degrees, and transcripts criss-crossed with columns and rows of A's and B's. Their learning rates have adjusted to the arbitrary time constraints of school terms, class periods, and test sittings. They have accommodated the inconsistency of outdated lectures and updated instructional

technology. They have survived the artificial competition of grading curves and tracking systems. Their personal problems and outside responsibilities have not prevented them from scholastic success. But others have not been as fortunate.

In school, people who were allowed to fall off bicycles a few times before getting the knack of a two-wheeler are not allowed to fall off in English even once without getting an F; and long after their skinned knees have healed from learning to ride, their F's will remain from learning to read. Ironically, their F's will remain even if they are eventually able to read this study--or write it. A number of educators have found these past F's irrelevant to present ability; behavioral scientists have suggested that permanent records of failure damage individual self-concepts and adversely affect future performance in school; students have increasingly complained that punitive grades and grade point average (GPA) requirements force them to consider their record of A's, B's, C's, D's, and F's more important than the learning process; and employers have found that achievement on the job has little relationship to prior performance in school.

It is in this context that proposals for grading reform have emerged. Suggestions have ranged from the total abolition of record-keeping to the adoption of competency-based criterion-reference evaluations. Compromise plans have favored the retention of A, B, and C grades and the elimination of D and F grades, or similar systems which

would retain ranking of achievement and eliminate punitive records of failure to achieve.

One indication of the growing interest in grading reform was the 1972 National Conference on Grading Alternatives, held in Cleveland, which attracted over 800 students, teachers, and administrators from all across the country.¹ Arthur Combs, Neil Postman, and other prominent educators addressed the conferees and participated in seminars and workshops during the three-day meeting. Increasing concern over grading prompted the scheduling of four national conferences in 1973--held in Chicago, Boston, New Orleans, and San Francisco, successively--and the establishment of a year-round Center for Grading Alternatives in Upper Jay, New York.

The extent to which higher education has been affected by the grading reform movement was indicated by the 1971 American Association of Collegiate Registrars and Admissions Officers (AACRAO) survey of 1,300 member institutions. AACRAO reported that 81 per cent of the responding colleges had significantly modified their grading systems during the 1966-1971 period, most of them adding the Pass-Fail (P-F) option to the traditional A-B-C-D-F system. Nearly 6 per cent eliminated F grading, and 55 per cent no longer counted F's in the computation of GPA's. Over 40 per cent predicted that their institution's

¹Ohio Education Association, "The Search for Grading Reform," Ohio Schools, December, 1972, pp. 21-23.

present grading system would become less traditional within five years.²

Historically, the process of grading modification has been neither rapid nor radical. Changes have usually occurred in phases, with a given college successively altering its GPA formula, offering the P-F option, experimenting with Credit-No credit (C-N) grading, and eventually considering more comprehensive written and/or competency-based records of achievement. Like so many other aspects of a rapidly changing society, however, the rate of grading change has itself changed. Before the effects of P-F grading have been fully evaluated, a new phase of grading modification has begun.

Dr. Charles Quann, a leading researcher on P-F grading, recently commented that the next few years are likely to be a period of experimentation with another grading modification, the A-B-C-No Credit or No Record (A-B-C-N or NR) system.³

In spite of widespread adoption of the P-F option, it continues to dissatisfy traditionalists by eliminating distinctions between levels of performance and dissatisfies reformers by retaining punishment for lack of achievement. A-B-C-N or NR grading may be a more promising alternative by ranking achievement and eliminating the punitive F. This

²AACRAO, The AACRAO Survey of Grading Policies in Member Institutions, 1971, ERIC 055 546. This report is further summarized in Chapter 2.

³Charles Quann, Address to the Montana Association of Collegiate Registrars and Admissions Officers, Dillon, Montana, May, 1973.

study is an attempt to document some of the results of this current, perhaps intermediate, phase of the evolution of college grading practices.

Statement of the Problem

The problem of this study was:

1. To compare the distribution of grades before and after the elimination of D and F grading at selected colleges.
2. To describe the attitudes toward A-B-C-D-F and A-B-C-N or NR grading held by students with experience under both systems at selected colleges.
3. To describe the attitudes toward A-B-C-D-F and A-B-C-N or NR grading held by faculty with teaching experience under both systems at selected colleges.
4. To determine the effect the elimination of D and F grading at selected colleges has had on the acceptability of their students to regional transfer and graduate school admissions officers.

Need for the Study

Research findings are available for the most common of the alternatives to traditional grading, the P-F option. However, a thorough search of related literature has established that there is a scarcity of information on the effects of A-B-C-N or NR grading, such as the plans recently adopted by such diverse institutions as Brown

University, Central Piedmont Community College, Portland State University, Gustavus Adolphus College, and Stanford University. Representatives of these institutions have undertaken limited research on the consequences of eliminating D and F grading, notably that conducted at Stanford,⁴ but more thorough studies by parties not affiliated with these institutions have not, to this writer's knowledge, been undertaken.

Although nation-wide surveys on the effects of non-traditional grading on graduate school admission have recently been published, of necessity they have dealt in generalities, offering limited information on the acceptability of graduates of specific institutions with specific non-traditional grading systems to graduate admissions officers in specific regions.⁵ This study was undertaken in part to supplement these earlier findings with detailed information on selected institutions utilizing A-B-C-N or NR grading in the Northwest and Midwest regions, and it has considered the question of transfer from community colleges to four-year institutions in addition to the question of admission to graduate schools.

As the 1971 AACRAO survey indicated, several hundred colleges are likely to modify their grading practices in the coming years.

⁴Stanford University, Student and Faculty Evaluations of the New Undergraduate Grading System, Stanford: Office of Academic Planning, 1972. This report is summarized in Chapter 2.

⁵The findings of several recent studies are summarized in Chapter 2.

Research on the effects of grading change at representative institutions--particularly research that offers a complete profile of information on grade distributions, student-faculty attitudes, and acceptance by transfer and graduate schools--should prove a useful input to the planning-implementation-evaluation process at other colleges involved in grading change.

In addition, a regional affiliate of AACRAO, the Montana Association of Collegiate Registrars and Admissions Officers (MACRAO), has expressed an interest in the findings of this study, and at their request the researcher presented a progress report at the organization's winter meeting, January 10, 1974, in Billings, Montana.⁶

General Questions To Be Answered

This study was organized to consider the following five general questions:

1. Has the elimination of D and F grading contributed to an unusual change in the distribution of the remaining A, B, C, and Pass grades? An argument advanced by critics of the new system has been that it will encourage a general deterioration of academic standards, in particular a stretching of the C grade to accomodate scholastic performance that was previously graded D or F. Advocates have suggested

⁶See Appendix A, p. 174.

that the reverse may occur, with academic standards rising as credit is withheld for performance that would previously have been graded D or borderline C. The study addressed these concerns--and the possibility that neither argument was substantiated.

2. Are students in general agreement as to the effects of the elimination of D and F grading on the process of learning and evaluation, student and faculty disposition and behavior, and student-faculty relationships? It may be argued that student attitudes on these matters, whatever they may be, are not necessarily accurate perceptions of reality--but it must be noted that these attitudes and perceptions are themselves a very important aspect of reality.

3. Are faculty in general agreement as to the effects of the elimination of D and F grading on the process of learning and evaluation, student and faculty disposition and behavior, and student-faculty relationships? Again, the study documented perceptions, in this case those of faculty, on these matters.

4. Is there a significant difference between the perceptions of students and faculty on the effects of eliminating D and F grading? The study documented both similarities and inconsistencies in student and faculty responses to several specific questions.

5. To what extent has the elimination of D and F grading at selected colleges affected the acceptance of their graduates by transfer institutions and graduate schools? Several national surveys have

documented admissions officer resistance to non-traditional grading, particularly to such unranked systems as the P-F option. This study considered the possibility that admissions officers might be less resistant to graduates of institutions with ranked non-traditional systems, such as A-B-C-N or NR grading, particularly if these institutions were located in the same region as the transfer or graduate school.

General Procedures

Related literature was reviewed to establish the general historical, philosophical, and psychological context for grading change, national trends in alternative grading systems and reactions to these systems, and specific research related to A-B-C-N or NR grading.

From the population of colleges which have eliminated D and F grading, a representative of each major type of higher educational institution--the two-year community college, the public four-year university, and the private four-year college--was invited to participate in the study. The institutions--Flathead Valley Community College, Kalispell, Montana; the University of Oregon, Eugene, Oregon; and Grinnell College, Grinnell, Iowa--all chose to cooperate. An arrangement was made for these institutions to provide the researcher with information on grade distributions and permission to survey sample populations of students and faculty in exchange for his analysis of the

resulting data and its prompt availability for use by the institutions.

Grade data for the six academic years beginning with 1967-68 and ending with 1972-73 were received from each institution and organized in a consistent distribution format.

Student and faculty attitude survey instruments were developed by the researcher and administered through the mail to random sample populations of students and faculty with experience under the traditional and modified systems. Response goals were established at levels necessary to provide 95 per cent confidence that the survey results would not vary more than ± 5 per cent from the population parameters. Admission officer survey instruments were developed by the researcher and administered by mail to the entire population of transfer institutions or graduate schools in each region in which one of the study participants is located.

Data were coded, computer listed, tested for significance, and organized in tabular format for presentation in this thesis. Survey results and other information were analyzed and interpreted. Conclusions and recommendations for further research were advanced.

Limitations

The study emphasized experiences at three institutions within two geographic regions, and its findings do not necessarily apply to dissimilar institutions in other regions. The study was further limited by time. The grading systems under investigation were adopted by the

institutions participating in the study within the last three years, and it may be too early to determine the full effects of the change.

Finally, because the study asks populations of students and faculty to describe current experiences under non-traditional grading and to recall earlier experiences under traditional grading, differences in attitudes and perceptions before and after grading change may be more difficult to ascertain than if populations were sampled before change and resampled after change.

Definitions of Terms

Grading system. The term "grading system" is used in this study rather than the traditional term "marking system," with which it is synonymous. Both terms refer to abstract symbols denoting academic performance (e.g., A, B, C, D, or F-level performance), although the latter term also connotes symbols relating to administrative bookkeeping matters (e.g., W--Withdrawn, AU--Audit, etc.). Grading system is not to be confused with the term "grade level," which denotes student class years (e.g., twelfth grade or senior class).

No Credit or No Record. The grading systems utilized by the institutions included in this study provide for either "no credit" and/or "no record" in addition to the traditional grades A, B, and C and the grade Pass. Rather than recording D's and F's and computing grades below C as credits owed or grade points "in the hole," these institutions

merely withhold credit for academic performance below C-level. Under one version of the system--that employed by the University of Oregon--an N symbol is recorded on transcripts to denote that no credit was earned in an attempt at a course. In another version--that adopted by Flathead Valley Community College and Grinnell College--transcripts contain no record of course attempts which do not result in the achievement of C or higher grades.⁷

Perception. The term "perception," as used in this study, is defined as the individual's view of reality--a composite of his experiences, judgments, and emotions. This subjective view may differ from an observer's objective determination, but it is the individual's perception of reality upon which he usually acts.

Punitive and non-punitive. The terms "punitive" and "non-punitive" are admittedly argumentative when applied to grading systems, but their use is becoming common to the grading reform movement. A "punitive" system is defined as one that uses symbols to permanently record failure to meet academic standards and one that further penalizes failure by requiring low grades to be balanced with high grades, to achieve an arbitrary 2.0 GPA. The grading systems employed by the institutions included in this study eliminate D and F record-keeping

⁷For more complete descriptions of the Oregon A-B-C-N system and the A-B-C-NR system adopted by Flathead and Grinnell Colleges, see Appendix B, p. 175.

and the traditional 2.0 GPA requirement, and they are thus termed "non-punitive" systems. This is, of course, a relative term, for the failure to receive credit under these systems may be interpreted as punishment in kind, if not degree.

Summary

A growing number of students, behavioral scientists, and educators have found traditional grading, particularly the permanent recording of F's, to be unnecessarily punitive. Among the alternatives proposed is a system which eliminates D and F grading, retaining the A-B-C ranking of achievement and withholding credit when academic performance is below standard. Three representative institutions which have adopted the new grading system--Flathead Valley Community College, the University of Oregon, and Grinnell College--participated in this study to document some of its effects.

The study compared the distribution of grades before and after adoption of the system, described student and faculty attitudes toward the system and its predecessor, and determined the acceptability of the system to regional transfer and graduate school admissions officers. Research procedures involved the collection of grade distribution data and the development of student, faculty, and admissions officer questionnaires. Survey instruments were sent to sample populations of students, faculty, and transfer and graduate school admissions officers in the Northwest and Midwest regions. The resulting data were summarized,

computer tested for significance, analyzed, and arranged in tabular format for presentation in this thesis.

Chapter 2

REVIEW OF RELATED LITERATURE

Although this study was primarily concerned with the practical consequences rather than the theoretical bases of non-punitive grading systems, a brief review of historical, philosophical, and psychological backgrounds will assist the reader in understanding the context for grading change. The remainder of this chapter will consist of a summary of reported experiences with non-traditional grading. As indicated in the previous chapter, there are a number of published studies of P-F grading but few reports of ranked non-punitive systems. This review will touch on questions of relevance to both of these approaches, focusing on A-B-C-N or NR grading when possible.

Historical and Philosophical Backgrounds

"If there is one sacred part of education," wrote William Glasser, "revered throughout almost the entire United States as utilitarian and necessary, it is A-B-C-D-F grading."¹ Milton Noble similarly observed that "people responsible for admitting students to graduate and professional schools refer to grade point averages and grades in a manner which would make you think they were quoting scripture."²

¹William Glasser, Schools Without Failure, New York: Harper and Rowe, 1969, p. 59.

²Milton Noble, "Grading Systems: All Win, No Lose," College and University, 1971, No. 46, p. 723.

"Sacred" and "scripture" are words more common to the lexicon of religion than that of education--but then to many people the academic performance of students is a moral question.

There is, of course, historical precedent for this attitude. An important impetus for the founding of early American schools was the need to train children to read the Bible, and colonial colleges had as their original mission the preparation of ministers. In a larger sense, the schools were charged with the responsibility of instilling in pupils the virtues of the Protestant Ethic: industry, order, resolution, frugality, moderation, cleanliness, chastity, humility, and justice, to name a few. "Failing" in school has thus traditionally meant more than a mere deficiency in scholarship; it has meant a deficiency in character, a moral fault.

Typically, nineteenth-century educator William Harris argued that the public school should continue to operate under the "divine principles which it has borrowed from the church through long centuries of tutelage."³ Like many of his colleagues, he believed moral development to be the major purpose of schooling and was less concerned with the teaching of the three R's than with the administration of divine justice, "justice in discovering the exact performance of each pupil."

³William Harris, "Moral Education in the Common Schools," (1888) in John Paul Strain's Modern Philosophies of Education, New York: Random House, 1971, p. 153.

The schools effected this discovery through "saying lessons" (oral recitation), "collections" (oral examinations), and "trials" (written papers), and justice was meted out through medals, corporal punishment, published orders of merit--and later through grades.⁴ "The school must strictly enforce a code of laws," explained Harris, and the grade came to be the symbol of that enforcement.

An early version of the report card was described in an 1840 issue of Horace Mann's Common School Journal. White cards, the article explained, were to indicate to parents that their children deserved "Entire Approbation"; blue cards signified "Approbation"; yellow cards meant "Indifferent"; and red cards called for "Censure." Later in the nineteenth century, percentage or numeric ratings of one to one hundred were used to symbolize performance in school. Around the turn of the century, letter grades symbolized numeric scores, with "A" representing the 95-100 range, "B" representing 85-94, and so on. Finally, by 1940, most public schools used the letter grades alone.⁵ Although the letter of grading may have changed, however, the spirit of grading continues today.

⁴Louise Witmer Cureton, The History of Grading Practices, A Special Report of the National Council on Measurement in Education, East Lansing: Michigan State University, 1971, p. 2.

⁵Woodrow Mousley, "Report Cards Across the Nation," Phi Delta Kappan, March, 1972, p. 436.

Many schools operate as if the evaluation and recording of student performance were a matter of religious significance, a matter of praising virtue and punishing transgression, if we are to believe the solemn pronouncements of educators on the subject. Consciously or unconsciously, they often justify grading--particularly the failing grade--in this moral context. Max Rafferty spoke for several centuries of American educators in arguing that "subject matter report cards labeled A-B-C-D-F . . . are a must . . . a sort of semi-annual day of reckoning."⁶

Other educators have considered student performance in a less righteous context. Dewey found performance not a question of student morality, but rather a consequence of the total educational environment, including the understanding and appeal of the teacher, the natural and experiential quality of the learning process, and the individual readiness and interest of the student. He asked:

Are we to believe, with the strict disciplinarian, that education is the process of making a little savage into a little man, that there are many virtues as well as facts that have to be taught to all children so that they may as nearly as possible approach the adult standard? Or are we to believe, with Rosseau, that education is the process of making up the discrepancy between the child at his birth and the man as he will need to be, "that childhood has its own ways of seeing, thinking, and feeling," and that the method of training these ways to what a man will need is to let the child test them upon the world about him?⁷

⁶Max Rafferty, What Are They Doing To Your Children? New York: New American Library, 1963, p. 93.

⁷John Dewey, Schools of Tomorrow, New York: E. P. Dutton, 1915, p. 134.

One's answer to this question is dictated by his conceptions of man and the learning process. If one is pessimistic, he sees students as naturally resisting learning and deserving punishment for failure. If he is optimistic, as Dewey was, he sees students as having a natural curiosity, an urge to learn, which may be aroused under the right combination of circumstances. The Progressive educator does not punish a combination of circumstances when learning fails to occur. Thus Dewey did not provide for "a day of reckoning" in his philosophy, nor had he "need of reliance upon examinations, marks, promotions and emotions, prizes, and the time-honored paraphernalia of rewards and punishments"; all of this he considered "extraneous and irrelevant" to learning.⁸

In spite of Dewey's profound influence on American education, grading has survived his Progressive onslaught, remaining a target for an increasing number of contemporary educators. The philosophy and rhetoric of John Holt, for example, have a familiar sound:

Pleasant experiences don't make up for painful ones. No child, once painfully burned, would agree to be burned again, however enticing the reward. For all our talk and good intentions, there is much more stick than carrot in school, and while this remains so, children are going to adopt a strategy aimed above all else at staying out of trouble. How can we foster a joyous, alert, wholehearted participation in life, if we build all our schooling around the holiness of getting "right answers"?⁹

⁸John Dewey, Democracy and Education, New York: Macmillan, 1917, p. 391.

⁹John Holt, How Children Fail, New York: Pitman, 1967, p. 141.

Holt argued that an educational structure founded on tests, curves, and grades is designed to humiliate and disaffect large numbers of students through failure, and to subjugate and standardize those students who pass.

Psychological Backgrounds

A major justification for grades is their alleged motivational effect, the belief that the student requires external reward and punishment to learn. In defense of traditional grading, Robert Feldmesser argued that "students do have difficulty generating their own motivation in the absence of grades." "If a grade is to motivate," he continued, "then a high grade must be a never-guaranteed but ever-possible outcome" and "a low grade must be an avoidable but also ever-possible outcome."¹⁰ Basic research on motivation, however, has suggested that although grades may affect learning, the effect is not necessarily positive.

A number of behavioral scientists have explained learning as a process in which individual responses to stimuli are positively reinforced, and thus likely to be repeated, or are not reinforced, and thus not likely to be repeated. Burrus F. Skinner conducted classic studies in operant conditioning using animals as subjects, finding learning to

¹⁰Robert Feldmesser, "The Positive Functions of Grades," Educational Record, Winter, 1972, p. 71.

occur most quickly and thoroughly when he positively reinforced (rewarded) the behavior he desired. Undesirable behavior was usually ignored, extinguished primarily through non-reinforcement. Although he found that low-level aversive contingencies (mild punishment) could help control behavior, he noted that high-level aversive contingencies (severe punishment) produced "emotional dispositions" of excitement, terror, inhibition, or anger which seriously interfered with the learning process.¹¹

Skinner found his research in animal conditioning to have implications for human learning, as well:

A system in which students study primarily to avoid the consequences of not studying is neither humane nor very productive Any effort to eliminate punishment in education is certainly commendable. We ourselves act to escape from aversive control, and our students should escape from it, too. They should study because they want to, because they like to, because they are interested in what they are doing.¹²

Although corporal punishment in the schools has been largely discontinued, Skinner observed that education has devised many noncorporal measures to take its place. He warned specifically against the "aversive pattern" of tests, "correcting," withdrawal of privileges, verbal abuse, and other forms of punishment common to colleges and graduate schools.

¹¹B. F. Skinner, Science and Human Behavior, New York: Macmillan, 1953, pp. 182-193 and 318-19, and The Behavior of Organisms: An Experimental Analysis, New York: Appleton-Century-Crofts, 1938, pp. 151-160.

¹²B. F. Skinner, "The Free and Happy Student," Phi Delta Kappan, September, 1973, p. 14.

When the student desires and expects positive reinforcement, even non-reinforcement is mildly aversive. But punishing the student for failing to learn, Skinner argued, does not complement the learning process; it only complicates it.¹³

Throughout his research, Skinner has stressed the importance of recognizing individual differences in learning readiness and rates. His theory of programmed instruction is an attempt to accommodate rather than punish for these differences. The program allows the student to learn at his own pace, rewards him often for his achievements, and avoids punishment for failure to achieve.¹⁴ At the heart of this theory is the concept that success comes not from failure, but from success itself:

The teacher can often make the change from punishment to positive reinforcement in a surprisingly simple way--by responding to the student's success rather than his failures. Teachers have too often supposed that their role is to point out what students are doing wrong, but pointing to what they are doing right will often make an enormous difference in the atmosphere of a classroom and the efficiency of instruction.¹⁵

Interestingly, a number of educators whose philosophical and scientific persuasions lead them to disagree with Skinner on many points

¹³B. F. Skinner, "Why Teachers Fail," Saturday Review, Vol. 48, October, 1965, pp. 80+ and Cumulative Record: A Selection of Papers, New York: Appleton-Century-Crofts, 1972, pp. 215-224.

¹⁴B. F. Skinner, The Technology of Teaching, New York: Appleton-Century-Crofts, 1968.

¹⁵Skinner, "The Free and Happy Student," p. 16.

tend to agree with him on the question of failure and punishment. A prime example is psychiatrist William Glasser's analysis of failure, both as a pathological condition and an educational practice.¹⁶ Each individual's conception of his self-worth, explained Glasser, is crucial to his formation of a positive identity. Although all people experience both success and failure, their identities tend to be dominated by one or the other. The healthy individual can shrug off and forget his failures, concentrating instead on his successes, using success as a point of departure for more success. The identity of such a person is dominated by success.

But schools interfere with this natural process, he warned, introducing the individual to the concept of formal and permanent failure. When a student knows that people close to him have continuously measured, confirmed and certified his failure, it is reasonable for him to accept the record, to doubt his self-worth. The identity of such a student can come to be dominated by failure, contributing to continued failure, as a kind of self-fulfilling prophecy. Glasser did not suggest that the schools abandon their standards, but merely that they avoid punishing the student for not meeting these standards. The punishment exceeds the crime. Indeed, Glasser noted that the two societal institutions which maintain permanent records of failure are the police and

¹⁶Glasser, Schools Without Failure.

school systems--strange companions.

After several years of experience as a therapist and consultant to public schools in Southern California, Glasser became convinced that "the practice that most produces failure in students is grading."¹⁷ He doubted that grades are an accurate indicator of behavior, ability, performance, or potential. He warned that grades introduce unnecessary pressure into the learning process, contributing to anxiety, fear, hostility, dishonesty, and delinquency--particularly in urban schools, where students often lack a successful home environment that might balance failure in school. And most unfortunately, he concluded, grades influence not only the present, but the future:

Students with low grades rarely apply for the more attractive educational opportunities. They know that no matter how much their motivation has increased, their past will forever limit them. Although we know that people do change, that people mature at different rates, that temporary personal problems can cause failure not attributable to inability to learn or to think, the grade remains and cannot be wiped out People should have second chances, third chances, fourth and fifth chances, because there is no harm either to them or to society in giving them many chances. On the contrary, there is every benefit to them and to society in giving them an opportunity to rise above previous mistakes. As long as we label people failures at some time in their lives and then damn them for the rest of their lives for this failure through grades, we will perpetuate misery, frustration, and delinquency.¹⁸

One of the most thorough explanations of the psychology of motivation was the result of extensive research in industry conducted

¹⁷Glasser, p. 59.

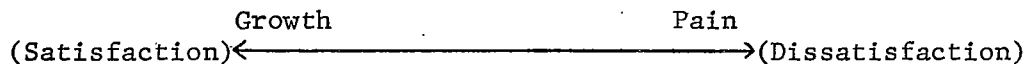
¹⁸Glasser, pp. 63-64.

by Frederick Herzberg and replicated by numerous other investigators.¹⁹ Herzberg concluded that if one defines motivation as an individual's drive to grow and achieve, neither punishment nor reward motivates people. He found that employees were extremely dissatisfied over company policy, supervision (including discipline), work conditions, salaries, and other similar factors. But improving these conditions led only to temporary no dissatisfaction, not to satisfaction. Herzberg labeled these factors "hygiene" and suggested that they were related to man's basic biological needs--avoidance of pain, hunger, and so on. Discipline made people dissatisfied, and easing discipline made them not dissatisfied. Salaries, any salaries, made people dissatisfied. Raising salaries made them not dissatisfied, at least until they got hungry again. None of these hygiene factors had much to do with satisfying people, however.

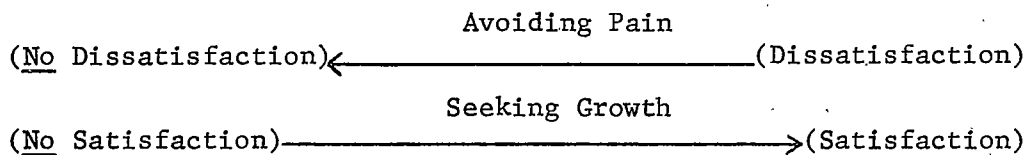
Herzberg found that employees were extremely satisfied over their achievement, recognition, work, responsibility, advancement, growth, and other similar factors. But the lack of these factors did not make people particularly dissatisfied; it merely left them not satisfied. Herzberg labeled these factors "motivators" and related them to internal desires for "self-fulfillment or psychological growth." His general conclusion was that satisfaction and dissatisfaction are

¹⁹Frederick Herzberg, Work and the Nature of Man, Cleveland: World Publishing Company, 1966.

not the opposite ends of one bipolar psychological trait, but are two separate unipolar traits. That is, satisfaction is not the opposite of dissatisfaction:



But rather, satisfaction is the opposite of no satisfaction, and dissatisfaction is the opposite of no dissatisfaction:



He used the kick in the a-- (KITA) theory to further explain motivation. Reward is positive KITA; punishment is negative KITA. Both are external, and neither motivates, according to Herzberg.

Consider the man and his dog:

. . . I hold up a dog biscuit when I want my dog to move. In this instance, who is motivated--I or the dog? The dog wants the biscuit, but it is I who want it to move I am the one who is motivated, and the dog is the one who moves.

If I kick my dog (from the front or back), he will move. And when I want him to move again, what must I do? I must kick him again. Similarly, I can charge a man's battery, and then recharge it, and recharge it again. But it is only when he has his own generator that we can talk about motivation. He then needs no outside stimulation. He wants to do it.²⁰

Herzberg maintained that the only way to motivate people is to enrich or "vertically load" their tasks with factors that will allow

²⁰Frederick Herzberg, "One More Time: How Do You Motivate Employees?" Harvard Business Review, January-February, 1968, pp. 54-55.

them to have a sense of self-fulfillment, achievement, growth. His study can be related to education in that it implies that external reward and punishment is not necessary to motivate learning. The activity of learning--psychological growth--is in itself motivational, an activity to which the accumulation of A's, B's, C's, D's, and F's is irrelevant. Apparently, educators would be advised to worry less about grading student performance on tests and more about designing an environment conducive to learning.

Skinner agreed, finding grades to be "contrived reinforcers," too far removed in immediacy and frequency to have much motivational value. Tokens of various kinds may be of temporary use, but in the long run "a teacher must move to more subtle contingencies and eventually to those inherent in the everyday physical and social environment of the student."²¹

Summarizing two comprehensive studies of external attempts to motivate, including grading, E. Paul Torrance further explained:

Even when rewards and/or punishments succeed temporarily, they do not supply the inner stimulation necessary for continued motivation and achievement. Such motivation is short lived and requires continuous application. The inner stimulation that comes from involving creativity in the educational process makes the reapplication of rewards and punishments unnecessary.²²

²¹Skinner, Cumulative Record, p. 221.

²²E. Paul Torrance, "Creativity in the Educational Process," in Gerald S. Lesser's Psychology and Educational Practice, Glenview, Illinois: Scott, Foresman and Company, 1971, p. 222.

After examining the evidence on the motivational effects of grading, Stanford Erickson, Director of the University of Michigan's Center for Research on Learning and Teaching, concluded:

The argument of many teachers and students for non-punitive grading . . . is well supported by research findings on the behavioral effects of punishment. Studying for purposes of well defined goals is generally more efficient and satisfying than studying to avoid negative consequences alone. Furthermore, a good instructional program will wean the student away from the dependent state of keeping his eyes on the teacher for signs of praise or blame.²³

Research on the Effects of
College Grading

Some of those who defend the punitive aspects of traditional grading as being motivational concede that severe punishment can indeed prevent learning and emotionally harm the individual. They contend, however, that critics of the A-B-C-D-F system have exaggerated its punitive effects. In reality, they say, low grades are only mildly aversive. As Feldmesser explained:

If the possibility of a low grade creates anxiety in the student, he should be able to reduce that feeling by studying to avoid the low grade. That is one way in which the motivational function is served, and evidence indicates that it works, when the anxiety is moderate. Anxiety interferes with learning only when it becomes excessive, and--neurotic personalities aside--that happens when too much importance is attributed to a single grade.²⁴

²³Stanford Erickson, "The Reinforcement Principle," Memo to the Faculty, No. 48, April, 1972, p. 3.

²⁴Feldmesser, p. 71.

Perhaps low grades should be only moderately aversive, and perhaps healthy students should not consider grades as being too important, but the evidence indicates a large discrepancy between what ought to be and what are the effects of grading in higher education. A number of educators have found grades not only too important but the most important aspect of schooling. As Herbert Sorenson observed, "students from kindergarten through the graduate school become primarily seekers for marks and true learners only secondarily, if at all."²⁵

A comprehensive psycho-social study of undergraduate life at the University of Kansas, conducted by Howard Becker and a team of researchers, disclosed that the community's "dense network of social relationships, institutional demands and constraints, and temporally connected contingencies" was unified by a common "grade point average perspective."²⁶ After two years of interviewing students, researchers found that of 1,117 statements or actions indicating perspectives toward school (e.g., social, career, learning, or grade orientation) 93 per cent were dominated by the central and powerful influence of the GPA.

Although the faculty tended to think of grades as a trivial matter, the students saw grades as being critical to nearly every phase of their lives. Grades were associated with social and parental

²⁵Herbert Sorenson, Psychology in Education, Third Edition, New York: McGraw-Hill, 1954, p. 33.

²⁶Howard Becker, et al., Making the Grade: The Academic Side of College Life, New York: John Wiley and Sons, 1968.

relationships, draft liability, scholarships, participation in inter-collegiate athletics, drama, student government, band, and other activities, membership in fraternities, sororities, and honor and service societies, campus work opportunities, probation, suspension, curriculum, degree, and certification requirements, graduate admission, and career employment. They worried that others were judging them by grades, and grades entered into their own judgments of their friends. They weighed the effect of their friendships, social activities, avocations, and outside obligations on their grades. Indeed, in many cases they planned their very lives--for four years or longer--around the pursuit of grades.

Researchers documented a series of student "strategies" for achieving desired GPA's. Individual strategies included thorough investigations into teacher attitudes, weaknesses, methods, materials, assignments, and examinations. Group strategies included pooling of information on teachers and courses, in some cases resulting in files of course outlines, lecture notes, tests, and other materials. Students adjusted their efforts to mathematically balance grades and achieve the minimum 2.0 GPA. Interviewers were surprised at the ease with which current grades were calculated mentally into cumulative averages, and "mnemonic displays" in which students related their entire GPA record, from first semester to present, out to two decimal places, were not uncommon. As terms neared end, pressures visibly increased,

incidences of cheating were more common, memorization of facts became the primary study habit, and students whose GPA calculations indicated that they could not balance earlier grades with the current semester's performance tended to lose interest in their studies.

Becker and his associates concluded that the university was structured so as to narrow the student's point of view inevitably to the "grade point average perspective":

The student emphasis on grades arises, then, in response to an academic environment that also emphasizes grades. In a relationship of subjection in which the higher echelon dictates what will be institutionalized as valuable, making and enforcing rules to implement that choice, members of the lower echelon must, if they are to act effectively and remain members of the organization, accept that judgment and shape their own actions accordingly. Any other line of action is futile, perhaps romantic ²⁷

A decidedly unromantic theory of academic motivation is that formulated by Professor J. W. Atkinson and reviewed by Martin Maehr and Douglas Sjogren.²⁸ $T_a = T_s + T_{-f} + T_{ext}$, posited Atkinson, and the theory is earning increasing recognition. Simply stated, the student's impulse toward academic achievement (T_a) is the result of his tendency toward success, his estimation of the likelihood of success in the given situation, and the extent to which he values success (T_s), plus his tendency toward failure, his estimation of the probability of failure,

²⁷Becker, p. 133.

²⁸Martin L. Maehr and Douglas Sjogren, "Atkinson's Theory of Achievement Motivation: First Step Toward a Theory of Academic Motivation?" Review of Educational Research, Vol. 41, No. 2, April, 1971, pp. 143-161.

and the value of failure (T_f), plus his desire for external approval for successfully completing the activity (T_{ext}). Atkinson's general hypotheses are that the success-oriented student is motivated least when there is no probability of failure or absolute probability of failure, and he is motivated most when the probability of failure is even. Conversely, the failure-oriented student is least motivated when the probability of failure is even.

Maehr and Sjogren found a number of studies to strongly support the hypothesis that the success-oriented student is much more likely than the failure-oriented student to prefer tasks that involve challenge and risk. The results tend to confirm Glasser's observation that the individual's success or failure-dominated identity is the key factor in academic learning situations.

Two other recent studies further confirm the implications of the Atkinson theory. Richard I. Fisher designed an instrument to determine self-concept, confidence in self-concept, and the relationship between these factors and the willingness to take academic risks.²⁹ In evaluating the responses of 109 students at a major university, Fisher concluded that the student's "motive to succeed" in school is clearly related to his self-concept and that his self-concept is related to his GPA. The success-oriented-high-GPA student was much

²⁹Richard I. Fisher, "Components of a Motive to Succeed," Journal of Experimental Education, Vol. 41, No. 3, Spring, 1973, pp. 17-21.

more likely than the failure-oriented-low-GPA student to take academic risks.

In a study designed to answer the question "Do low grades cause college students to give up?", Robert E. Thayer found that among 192 university students taking a given course from a given professor, those receiving D's and F's on the midterm were quite likely to drop the course.³⁰ Of those continuing in the course, students with low midterm grades showed little change in subsequent academic performance, while those with high midterm grades tended to go on to even stronger performances. Low grades did not motivate improved academic achievement. To the contrary, failure bred failure, and success bred success. Thayer concluded that "systems which effectively eliminate D and F grades" and at the same time "optimize the opportunity of students to obtain high grades" should be considered as alternatives to the traditional system.

But others value traditional grading precisely for the pressure, risk, and punishment it entails. The "social Darwinist" sees life as a struggle for survival and expects the school to reflect this reality. Many Americans, educators and laymen alike, share Max Rafferty's common sense feeling that we should "stress competition in school as preparation

³⁰Robert E. Thayer, "Do Low Grades Cause College Students to Give Up?" Journal of Experimental Education, Vol. 41, No. 3, Spring, 1973, pp. 71-74.

for the jungle that is twentieth-century life."³¹ However, the evidence suggests that it is education per se, not scholastic competition, that is related to post-school achievement.

In reviewing many years of government census statistics and several important studies, Henry Levin found that each additional year of schooling does favorably affect "income, occupational choice, social and economic mobility, political participation" and other aspects of "opportunity."³² Yet research contradicts the assumption that post-school success is related to relative scholastic achievement, as measured by the grade point average. Donald Hoyt reviewed forty-six studies of the relationship between college GPA's and performance in a variety of careers, including medicine, engineering, business, and education--finding that "college grades bear little or no relationship to any measures of adult accomplishment." In particular, Hoyt concluded that:

. . . the practice of basing admission to schools of education, business, engineering, or medicine largely or exclusively on undergraduate grades seems indefensible. It is certain that many potential contributors in these fields are denied the opportunity

³¹Max Rafferty, Suffer Little Children, New York: Devin-Adair, 1962, p. 54.

³²Henry Levin, et al., "School Achievement and Post-School Success: A Review," Review of Educational Research, Vol. 41, No. 1, February, 1971, p. 14.

for professional training. These personal tragedies must represent a sizeable loss to society as well.³³

Research does, however, suggest one result of the competition for grades--cheating. William Bowers surveyed 6,000 students on 100 college campuses throughout the nation and found that:

1. Cheating occurred on every one of the campuses surveyed.
2. Over half of the students admitted that they had themselves cheated.
3. Cheating was most likely to occur in courses graded on the curve, courses with frequently scheduled tests, and courses using the same tests year after year.³⁴

In a related study, William Stallings polled 3,439 students at 9 colleges and found 80 per cent to believe that factual knowledge was the main basis for tests, that tests were the main basis for grades, and that grades encouraged cheating.³⁵

As might be expected, student interest in alternatives to traditional grading practices is high. Robert Priest administered

³³Donald Hoyt, Research Report No. 7, Iowa City, Iowa: American College Testing Program, 1965, p. 50, and "College Grades and Adult Accomplishment," Educational Record, Winter, 1966, pp. 70-75.

³⁴William Bowers, Student Dishonesty and Its Control in College, Cooperative Research Project No. 1672, USOE, New York: Bureau of Applied Social Research, Columbia University, 1964.

³⁵William Stallings, et al, Student Attitudes Toward Grades and Grading Practices, Urbana, Illinois: Office of Instructional Resources, University of Illinois, ERIC 060 054, 1968.

questionnaires to 443 students at a private Western university in an effort to determine their attitudes toward grading.³⁶ Over 55 per cent indicated that they would prefer P-F grading to the A-B-C-D-F system, and 31 per cent would abolish all grades, believing them to interfere with the learning process. However, 30 per cent of the students desired competition and preferred to be graded on a curve. In a similar study conducted by Ronald Burke at a Midwestern public university, only 3 per cent found grading helpful to learning, while nearly 70 per cent found it detrimental, and 8 per cent had no comment.³⁷

National surveys indicate that higher education is beginning to significantly alter its traditional grading practices in reaction to the grading reform movement. As noted in Chapter 1, the 1971 AACRAO survey of member institutions found that over 81 per cent of the 1,300 responding colleges and universities had experienced a major change in their grading systems during the 1966-71 period, with most of them adding the P-F option to the traditional A-B-C-D-F system and about 6 per cent eliminating the F grade.³⁸ Nationally, over 40 per cent predicted that their institutions would further alter their grading

³⁶Robert Priest, "Why College Students Favor Grading Reforms," Journal of College Student Personnel, No. 12, 1971, pp. 120-125.

³⁷Ronald Burke, "Student Reactions to Grades," Journal of Experimental Education, Summer, 1968, pp. 11-13.

³⁸AACRAO, The AACRAO Survey of Grading Policies in Member Institutions, ERIC 055 546, 1971.

systems within the next five years, but regional responses differed markedly, with a low of 29 per cent predicting change during this period in the South. Similar regional variations were reported on other questions. In the Midwest, for example, 50 per cent of the respondents did not include F's in the computation of GPA's. The figure for the Northeast, however, was 64 per cent, and the national figure was 55 per cent. Researchers found that responses from varying types and sizes of institutions were fairly uniform, but regional distinctions were important in evaluating the data.

Most of the reports on the effects of changes in the traditional grading system concern the results of P-F grading. Four major studies, conducted by Marvin Karlins, M. F. Merryman, Charles Quann, and the University of California at Santa Cruz generally agreed that:

1. Students used P-F grading primarily to avoid the pressures of A-B-C-D-F grading, that is, to protect their GPA's.
2. P-F grading did encourage students to take courses outside their major fields, but to a lesser extent than had been anticipated.
3. Students taking courses on a P-F basis did not differ significantly from students being graded A-B-C-D-F with respect to GPA's, major fields, and so on.
4. Students learned about as much in P-F courses as in A-B-C-D-F courses.
5. The reduction in pressure students perceived in P-F courses

did not significantly affect their performance in the A-B-C-D-F courses they were taking.

6. The majority of students at the colleges surveyed were in favor of continuing and expanding P-F grading.³⁹

Initial student and faculty evaluations of A-B-C-NR grading were compiled by Stanford University's Academic Planning Office in 1971, one year after the institution adopted the new system. The study indicated that:

1. About 79 per cent of the responding students favored abolishing D's, offering as their major reasons the opinions that D level performance does not deserve credit and that the transcript should be a "record of achievement," not lack of achievement.

2. The faculty were evenly divided on the issue of abolishing D's, with 51 per cent in favor, for much the same reasons as the students, and 49 per cent opposed, arguing that performance better than failing deserves credit and that the C grade is "devalued."

³⁹Marvin Karlins, Academic Attitudes and Performance as a Function of Differential Grading Systems: An Evaluation of Princeton's Pass-Fail System, a paper read at the Eastern Psychological Association, Washington, April, 1968; M. F. Merryman, et al, A Three Semester Study of the Credit-No Credit Option in the College of Arts and Sciences, University of Missouri, Kansas City, ERIC 051 750, 1971; Charles Quann, The Pass/Fail Option: Analysis of An Experiment in Grading, a paper read at the AACRAO Convention, New Orleans, April, 1971; University of California at Santa Cruz, The Grading System at UCSC--A Critique, Santa Cruz: University of California, ERIC 037 174, 1970.

3. About 25 per cent of the responding faculty did admit to stretching C's under the new system to include academic performances that would have been D level under the traditional system.

4. An overwhelming 92 per cent of the responding students favored abolishing F's, offering as their major reasons the opinions that the F is unnecessarily punitive and ignores "extenuating circumstances."

5. About 68 per cent of the responding faculty favored abolishing F's, for reasons much the same as the students, but the 32 per cent opposing change argued that the transcript was not "complete" without the F and warned that the student should not be "sheltered from reality."

6. Students and faculty agreed that the most important objective of grading is to inform the student of his academic progress, but faculty thought the objective of maintaining a "public record" for schools and employers was much more important than did the students, who in turn ranked the objectives of indicating effort and ability as well as performance higher than did the faculty.

7. Of the several grading systems currently utilized in higher education, students preferred A-B-C-NR, followed closely by detailed written evaluations and Honors-Pass-NR, ranking A-B-C-D-F last.

8. Faculty ranked the A-B-C-D-F system first, followed closely by A-B-C-D (with +/- modifiers) and A-B-C-NR, with Pass-NR and A-B-C-D

(without +/- modifiers) least preferred.

9. Only about 7 per cent of the graduating seniors responding found that the new grading system interfered with graduate school admission or employment.⁴⁰

Although the 1971 AACRAO survey reported that "the rate of major changes in the grading system seemed to be accelerating," other studies have indicated that transfer and graduate school admissions officers are strongly resisting alternatives to traditional grading and record-keeping practices. Five nationwide surveys, conducted by Margaret Hofeller, James Shoemer, Edward Stevens, the George Peabody College for Teachers, and the University of Washington, generally agreed that:

1. The major consideration in graduate school admissions is the student's undergraduate GPA.
2. The great majority of admissions officers prefer the traditional A-B-C-D-F grading system over all others.
3. A transcript containing up to 10 per cent non-traditional (usually meaning P-F) grades does not have a significantly negative effect on the student's chances for admission or financial aid.
4. When the percentage of non-traditional grades on a student's transcript exceeds 10 per cent, the process of gaining admission

⁴⁰Stanford University, Student and Faculty Evaluations of the New Undergraduate Grading System: A Preliminary Report, Palo Alto: Academic Planning Office, Stanford University, 1972.

financial aid is likely to be complicated.

5. The more non-traditional grades there are on a transcript, the more important standardized tests (e.g., the Graduate Record Examination and the Miller Analogies Test), letters of recommendation, personal interviews, and the reputation of the student's undergraduate college are as admissions criteria.⁴¹

These and other studies have indicated that the acceptability of the different grading alternatives to admissions officers varies in proportion to the extent to which the given system departs from A-B-C-D-F grading. At one extreme are the highly unacceptable Credit-No Credit, Pass-Fail, and written evaluations. Indeed, a survey of twenty-four colleges conducted by John Hall disclosed that 36 per cent of the admissions officers would immediately reject without evaluation transcripts which offered written performance appraisals in place of

⁴¹Margaret Hofeller, A Survey of Graduate School Attitudes Toward Non-Traditional Grading Systems, New York: Center for the Study of Higher Education, Hofstra University, 1971; James Shoemer, "A Study of the Effect of Non-Traditional Grades on Admission to Graduate School and the Awarding of Financial Assistance," College and University, Spring, 1973, pp. 147-53; Edward Stevens, "Grading Systems and Student Mobility," Educational Record, Fall, 1973, pp. 308-12; George Peabody College for Teachers, Untitled Survey on the Acceptability of Non-Traditional Grading, Nashville: George Peabody College for Teachers, 1971; University of Washington, Acceptability of Non-Traditional Grading: The Views of College and University Admissions Officers and Prospective Employers, Seattle: Office of Institutional Educational Research, University of Washington, 1972.

traditional letter grades.⁴² At the other extreme are the routinely acceptable numeric and A-B-C-F systems. Somewhere in between, as the Stevens and University of Washington studies indicated, is the A-B-C-N or NR alternative. In its favor is its administrative utility in ranking student achievement. To its disadvantage is its omission of records of unsuccessful academic performance.

Many proponents of the system, of course, would judge these qualities just the opposite for philosophical and psychological reasons. Ultimately, it may not be possible to satisfy both utilitarian and humanitarian points of view with any given grading system. But for the present, A-B-C-N or NR grading represents a reasonable compromise between the extremes, with the student benefiting. In explaining its decision to eliminate D and F grading, representatives of the Brown University faculty wrote:

The abolition of failing grades is not . . . an attempt to disguise from the students the harsh reality that life holds its failure as well as its successes. With the elimination of the anomalous grade of D . . . the new system will, hopefully, encourage a raising, rather than a lowering, of academic standards. The fact of failure will, of course, still exist, though it will no longer lay claim to immortality by means of the official transcript. When failure occurs, that fact will be registered

⁴²John Hall, "Descriptive Grading Practice--Post Secondary Education" in AACRAO, Resource Information Relating to the AACRAO Workshop on the Evaluation of Non-Traditional Grading Patterns--1973, Springfield, Illinois: Office of Admissions and Records, Governor's State University, 1973.

where presumably it will perform its most useful function--that is, with the student himself.⁴³

Summary

The early American relationship between religion and educational institutions partly accounts for a tradition in which grading has been interpreted by many to be a moral as well as a scholastic indicator. Later educators, particularly the Progressivists, saw no moral significance in grading--and even doubted its accuracy as a record of performance and ability. Psychological research has cast serious doubt upon the supposed motivational effects of grading and suggested that grading can interfere with learning, damage student self-concepts, and encourage cheating. Studies of the relationship between college grades and achievement in post-college careers found little correlation. Thus, a growing number of behavioral scientists, educators, and students are dissatisfied with traditional grading practices. Suggested alternatives include Pass-Fail, Credit-No Record, written evaluations, and a compromise between tradition and reform--A-B-C-No Credit or No Record grading. Initial research on non-traditional grading indicated modest success and general support by students. Admissions officers, however, are reacting conservatively to grading

⁴³Brown University, Freedom to Learn: A New Curriculum for Brown & Pembroke, Providence, Rhode Island: Brown University, 1969, p. 21.

change, showing some bias against students with non-traditional transcripts and favoring students with more conventional records.

Chapter 3

PROCEDURES

The problem of this study was to describe the effect of the elimination of D and F grading at Flathead Valley Community College, the University of Oregon, and Grinnell College in three main areas--grade distributions, student-faculty attitudes toward grading and related matters, and the acceptance of graduates by other regional institutions. This chapter is organized around these major areas of concern, considering the questions of population description, sampling procedure, data collection, questionnaire distribution, data analysis, and precautions taken for accuracy, as appropriate to each area.

Grade Distributions

Grade distributions collected and analyzed in this study consisted of all grades and course attempts at each of the participating institutions during the six academic years beginning with 1967-68 and ending with 1972-73. For comparison, distributions were also requested from a college similar to the institution under study in each region. North Idaho (Community) College, Coeur d'Alene; Oregon State University, Corvallis; and Wartburg College, Waverly, Iowa--none of which had eliminated D and F grading during the six-year period--provided the necessary information for the Flathead, Oregon, and Grinnell regions, respectively.

All distributions were reduced to academic year percentages and reported in graphic format. Separate graphs were developed to illustrate six-year patterns in the distribution of all passing grades, combined A-B-C grades, and the specific A, B, and C grades. In order to measure changes in the distributions before and after grading modification, the percentage of each grade was calculated as the number of given grades divided by the total number of course attempts that term, rather than the number divided by the total number of grades recorded that term. This distinction is important, for the elimination of D and F grading might otherwise account for an apparent increase because withheld grades (No Credit and/or No Record) were not included in the calculation. The use of attempts as the base figure allowed relative percentages of passing grades before and after grading modification to be compared meaningfully under the same form of measurement.

The hypothesis that elimination of the D and F grades does not markedly affect the distribution of the remaining A, B, C, and Pass grades, and the alternative hypothesis advanced by critics of the new system--that elimination of D's and F's is necessarily accompanied by an unusual increase in the percentages of the remaining passing grades--were evaluated. It is possible to apply chi square, difference-of-proportions, or other standard tests to the grade data, but when dealing with numbers of grades in the tens and hundreds of thousands, even slight percentage changes after adoption of the A-B-C-N or NR system

may be shown to be statistically "significant," when in reality even larger percentage changes may have been common before grading modification.

The question under examination in this portion of the study, then, was not whether there were distribution changes, but whether such changes were inconsistent with the historical pattern of the given institution. Data were further compared to the distribution pattern of a like institution with traditional grading in the same region, to consider the possibility that changes after grading modification might be similar to those experienced regionally for other reasons, e.g., reaction to the 1970 Kent State University violence.

A standard formula for determining rate-of-change (Δ).

$$\Delta = \frac{100 (2f - 1f)}{1f}$$

was applied to the grade data and, together with the graphic patterns, allowed trends before and after adoption of the new system to be easily identified. An "unusual" distribution change was operationally defined as being an annual Δ value exceeding the greatest previous $\pm \Delta$ within the six-year period, when the Δ of the comparative institution in the same region is less than its greatest previous $\pm \Delta$ within the same period.

The researcher did not attempt to conclusively establish the cause-and-effect relationship between the type of grading system and the

distribution of grades. The many variables influencing the awarding of grades make that relationship nearly impossible to isolate. But it was reasonable to examine grading trends at the participating institutions for obvious perturbations accompanying the elimination of D's and F's. While such disturbances in the usual patterns might not be related to grading system modification with certainty, the lack of such disturbances would tend to disprove the hypothesis that adoption of the new system is necessarily accompanied by unusual distribution changes.

Because the data represent the registrars' official records at the institutions involved, they are assumed to be complete and accurate, unless otherwise noted. To further ensure accuracy, all calculations necessary to reduce distributions to academic year percentages and to determine rates-of-change were performed on an electronic calculator and double checked.

Student-Faculty Surveys

The populations of students and faculty whose attitudes were described included all those who were enrolled in or teaching at Flathead, Oregon, or Grinnell at the time of the study who had experience at the given institution under both the A-B-C-D-F and A-B-C-N or NR systems. Population sizes, as verified by the official records of the colleges, were 212 students at Flathead, 2,160 at Oregon, and 532 at Grinnell--for a total of 2,904 students--and 29 faculty at Flathead, 490 at Oregon, and 67 at Grinnell--for a total of 586 faculty.

In order to determine sample sizes, a simplified version of a formula common to marketing and social science research,

$$n = \frac{N}{1 + Ne^2}$$

was employed.¹ A student sample (n) of 352 distributed proportionally over the population (N) of 2,904, providing 95 per cent confidence of precision (e) of ± 5 per cent, was set as a goal. The minimum faculty sample was similarly computed to be 238.

Data on student and faculty attitudes were collected on a questionnaire developed by the researcher and his committee.² The student and faculty forms of the instrument contain personal profile items to establish the respondent's age, sex, major field of study or teaching, class level or experience, and other background data of relevance in identifying sub-groups within the two larger populations. Five items involve the ranking of grading objectives, grading systems, and factors motivating academic effort. The remaining items involve responses on a five-point rating scale to questions concerning effects of grading change on grade accuracy, the difficulty of earning a given grade, student and

¹Taro Yamane, Statistics, An Introductory Analysis, Second Edition, New York: Harper and Rowe, 1967, pp. 579-83. The reference was suggested by Dr. Richard Lund of the Montana State University Department of Mathematics, who found the formula appropriate for the instruments and populations involved in this study.

²Samples of the final student and faculty forms of this instrument are in Appendix D, pp. 178-181 and Appendix F, pp. 183-186, respectively.

faculty worry over grading, the incidence of cheating, exploratory enrollment in elective courses, general student-faculty relationships, and so on--as perceived by the respondents. There are a total of twenty-eight items on each four-page form of the instrument.

Several versions of the questionnaire were evaluated by the research advisor, his committee, and other faculty members with expertise in research design and statistics and were administered in pilot studies. The determination of the validity of instruments employed in affective as opposed to cognitive measurement is a difficult and tentative process, but the researcher and his committee concluded that the final directions, questions, scales, and testing conditions contributed to a degree of validity that was acceptable for a study of this nature. The common test-retest method was employed to insure reliability, with administrations to a group of twenty-five students over a two-week period yielding a Pearson product-moment correlation coefficient of .80 for ranking items and .92 for items utilizing five-point rating scales. A final pilot administration and follow-up discussion with one hundred students clarified several possible ambiguities and resulted in final modifications of the instrument.

An attempt was made to survey Flathead Valley Community College students through an on-campus administration of the instrument in mid-May, 1973. This proved an inefficient method of reaching the population and was replaced by a random sample mailing from the college's computer-

generated list of population members on May 25.³ This method, followed in all student surveys and in the Oregon faculty survey, involved the standard process of numbering population members and drawing samples without replacement, using a random number table.⁴ Returns from Flathead students were collected and tabulated until the July 27 cut-off date. The entire population of Flathead faculty was surveyed in an October 23 mailing from a list verified by the college administration, and responses received by December 14 were included in the study. Several mailings to samples drawn from a computer-generated list of the Oregon student population, from the Oregon Faculty Directory, and from the Grinnell Student Directory were completed in November, and returns were tabulated until January 11, 1974. A mailing to the entire population of Grinnell faculty was also completed in November, and responses were accepted until January 11. A total of 710 student and 396 faculty questionnaires were mailed, and pre-paid return envelopes were provided. A minimum response goal of 70 per cent was established.

Most of the student forms were sent through bulk third-class mailings and were thus not returned to the sender or forwarded in cases

³Samples of the accompanying cover letters used in the student and faculty surveys are in Appendix C, p. 177 and Appendix E, p. 182, respectively.

⁴For a discussion of the technique of random sample selection, see Allen Edwards, Statistical Methods, Second Edition, New York: Holt, Rinehart and Winston, 1967, pp. 200-202. The random number table used in this study is on pp. 396-400 of Edwards.

of incorrect addresses. Most of the faculty forms were mailed to the appropriate administrations for verification and/or distribution through campus mail. Thus, it is assumed that a higher percentage of student questionnaires failed to reach their destinations than did the faculty forms. The percentage is unknown in either case.

Student-faculty questionnaire responses were computer coded, summary listed, and reported in tabular format. For convenience in comparison, responses of students and faculty to questions common to both forms of the instrument were shown on the same tables. Data from questions calling for ranking were submitted to a computer program that calculated mean ranks and results were reported in this form. Data from questions utilizing five-point rating scales were computer calculated and reported as percentages. In addition to responses of the student and faculty samples as a whole, responses of sub-groups--developed from personal profile information on sex, age, major field of study or teaching, class level or years of teaching experience, and so on--were reported.

Although the study was largely descriptive, a number of hypotheses about the student-faculty responses were advanced and tested. Lacking objective standards against which subjective attitudes and perceptions on grading could be measured, the responses were, in effect, measured against themselves, for internal consistency. On the question calling for a ranking of grading systems in order of preference, for

example, there were no "correct" answers against which student-faculty responses could be measured. But as statistician Allen Edwards has explained, " . . . In the absence of an objective ordering of the n objects, the community of agreement among judges may be regarded as a means of establishing an ordering of the objects."⁵

An accepted method for determining the degree of ranking agreement is Kendall's coefficient of concordance (W), in which maximum disagreement equals 0. and maximum agreement equals 1.0. The significance of W --the question of whether the level of agreement might have been expected by chance--was tested by reference to the F distribution. The general null hypothesis for the ranking questions was, then, that the degree of agreement is not significant, and the alternative hypothesis was that the W value is significant.

A further hypothesis--that the W values of various student sub-groups, faculty sub-groups, and students versus faculty as a whole on given ranking questions do not differ significantly--was advanced and tested by the chi square (χ^2) test of independence.⁶ The null was that the variable of group is independent of the variable of item response, and the alternative hypothesis was that these variables are dependent and that the sub-group responses do differ significantly. A final

⁵Edwards, p. 345. A complete discussion of Kendall's coefficient of concordance is found on pp. 344-51.

⁶Edwards, pp. 328-31.

hypothesis--that the responses to pairs of questions concerning attitudes before and after adoption of A-B-C-N or NR grading show no significant difference--was also tested by chi square.

The requirement that respondents rank every item on the ranking questions complicated χ^2 computation. In order to account for all responses, χ^2 values were computed for each item versus sub-group, and the χ^2 values and degrees of freedom (df) were added together for the final question total. For example, in order to determine the χ^2 for the responses of students and teachers to a question involving seven ranks for seven items, a 2 X 7 contingency table was developed for each item. The χ^2 value and six df from the table for item a was added to the value and df for the other six items, b through g, resulting in a total χ^2 value with 42 df for the question.⁷

Responses to questions using the five-point rating scales were also subjected to the χ^2 test of independence. Again, the null was that the variable of sub-group is independent of the variable of item response, and the alternative hypothesis was that these variables are dependent. The χ^2 computation for these questions was less complicated

⁷This procedure was suggested by Dr. Lund. Reference to the combining of χ^2 and df values may be found in Hubert Blalock, Social Statistics, New York: McGraw-Hill, 1960, pp. 238-39.

than the process used on the ranking questions, for respondents checked only one of the possible five items. All responses could thus be accounted for on a single contingency table with rows of sub-groups and columns of items.

The level of significance for the W and χ^2 tests was set at .05, as an appropriate compromise between the dangers of Type I and Type II errors in rejecting or failing to reject the null.⁸ If significance levels were reached, chances would be at least ninety-five in one hundred that the sample population estimates of concordance and dependence of variables, respectively, were accurate indications of the actual population parameters.

Accompanying the student and faculty questionnaire returns were a number of unsolicited marginal comments, brief notes, and letters. These writings were found useful in interpreting responses to specific questions and in more fully understanding the general reaction to grading change. As part of the analysis in Chapter 4, references are made to the briefer comments, as appropriate, and ample space is devoted to summaries of the longer statements.

As precaution for accuracy, data input was card-punched and re-punch verified before submission to a Xerox Data Systems Sigma VII computer, which filed, sorted, and summary-listed the information and

⁸Edwards, pp. 184-5.

performed the calculations necessary to test the statistical hypotheses. Remaining computations were performed on an electronic calculator and double-checked for accuracy.

Admissions Officer Surveys

The population of admissions officers consisted of those officers at all undergraduate four-year transfer institutions in the United States within a 500-mile radius of Flathead Valley Community College, Kalispell, Montana; the officers at all institutions offering graduate academic degrees within a 500-mile radius of the University of Oregon, Eugene, Oregon; and the officers at all institutions offering graduate academic degrees within a 400-mile radius of Grinnell College, Grinnell, Iowa. Population size was 48 in the Flathead region, 62 in the Oregon region, and 110 in the Grinnell region, for a total of 222.⁹ The decision to limit the Grinnell study to graduate schools within 400 rather than 500 miles was reached because of the high concentration of colleges in this region. The entire population was surveyed in an attempt to make the resulting data as complete and cogent as possible.

Data on attitudes and policies of admissions officers at regional

⁹As verified by the United States Department of Health, Education, and Welfare (DHEW), Education Directory, 1972-73: Higher Education, Washington, National Center for Educational Statistics, DHEW, 1972. For a list of the institutions surveyed, by region, see Appendix G, pp. 187-190 of this study. The survey boundaries were slightly extended beyond the 500 mile limit to include the Salt Lake City area within the Flathead and Oregon regions.

transfer and graduate schools were collected on a questionnaire developed by the researcher and his committee, with assistance from Mr. Harry Cockrum, Director of Admissions, Montana State University, and Dr. Henry Parsons, Assistant Dean, College of Graduate Studies, Montana State University.¹⁰ The brief, one-page, ten-item instrument was constructed with reference to several similar studies conducted nationally during the last few years, but care was taken to focus questions on the acceptability of graduates of specific institutions with A-B-C-N or NR grading to specific transfer and graduate schools in the same region. Items involved background information on the location, size, and control of the institution, the criteria for admission, and the effect of A-B-C-N or NR records on competition for acceptance and financial aid.

A first-class mailing to the entire population of transfer and graduate school admissions officers in the three regions was conducted on October 15, 1974.¹¹ Responses received by December 14 were included in the study.

Responses to the admissions officer questionnaire were computer coded, summary listed, and reported in tabular format, using mean ranks and percentages as appropriate. In addition to total responses for each

¹⁰Samples of admissions officer questionnaire forms developed for each region are in Appendix I, p. 192, Appendix K, p. 194, and Appendix P, p. 207-208.

¹¹Samples of the accompanying cover letters used in the admissions officer surveys are in Appendix H, p. 191, Appendix J, p. 193, and Appendix L, p. 195.

region--Flathead, Oregon, and Grinnell--the responses of intraregional sub-groups based on institutional location, control, and size were reported. W values for rankings and the χ^2 tests of significance for both ranked and rated questions were computer calculated. As in the other surveys, the general null hypotheses were that ranking concordance is not significant, the responses of the various sub-groups do not differ significantly, and responses to pairs of questions concerning attitudes before and after adoption of A-B-C-N or NR grading show no significant difference, all at the .05 level.

Summary

The problem of this study was to describe the effect of the elimination of D and F grading at Flathead Valley Community College, the University of Oregon, and Grinnell College on grade distributions, student-faculty attitudes toward grading and related matters, and the acceptance of graduates by other institutions in each region. Six years of grade distributions from the three participating colleges and three similar institutions were analyzed to determine general trends and specific rates of change accompanying A-B-C-D-F and A-B-C-N or NR grading. Questionnaires were developed and distributed to random samples of 710 students and 396 faculty with experience under both the traditional and non-traditional grading systems and to the entire population of 222 transfer and graduate school admissions officers within 500 miles of Flathead and Oregon and 400 miles of Grinnell.

Resulting data were card punched, summarized, tested for significance at the .05 level through Kendall's coefficient of concordance and the chi square test of independence, and reported in graphic and tabular format. Reference to the many unsolicited comments included with questionnaire returns aided in interpretation of specific items and in understanding the overall reaction to grading change.

Chapter 4

PRESENTATION AND ANALYSIS OF DATA

This study was designed to describe some of the effects of eliminating D and F grading at Flathead Valley Community College, the University of Oregon, and Grinnell College. The following presentation and analysis of data concerning these institutions involves patterns in their grade distributions for a period before and after adoption of the non-punitive system, responses of their students and faculty on attitude questionnaires, and results of regional admissions officer surveys on the acceptability of recent graduates of these three colleges. In addition, reference is made to unsolicited comments--ranging from brief marginal notes to more thoughtful letters--included with survey returns.

Collection of Grade Distributions

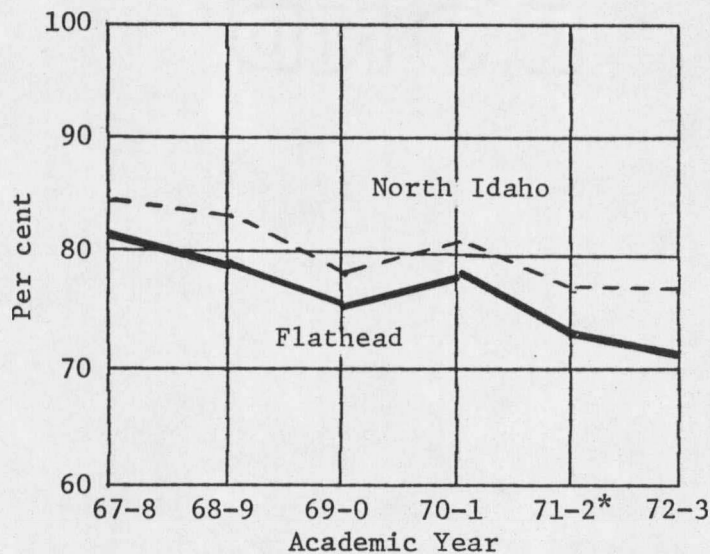
Data on grading during the six-year period beginning with the 1967-68 academic year and ending with 1972-73 were requested from three institutions utilizing A-B-C-No Credit and/or No Record grading, Flathead Valley Community College, the University of Oregon, and Grinnell College. Similar information was also requested from an institution in each region that was comparable to the three colleges under study in every respect but the grading system utilized. North Idaho (Community) College, Oregon State University, and Wartburg College, respectively--all of which continued to use the A-B-C-D-F system during the six-year period--provided the necessary information.

The Flathead-North Idaho and Oregon-Oregon State data proved complete and suitable for inclusion in this study. Unfortunately, critical information on unsuccessful course attempts was found to be missing from the Grinnell data. Without this information it was impossible to determine the ratio of completed versus attempted courses during the one year of non-punitive grading at this college (1972-73) or to compare the Grinnell data with that from Wartburg. Administrators at Grinnell explained that a new computer program was designed to record only completed courses on transcripts, withholding information on course attempts not resulting in A, B, or C grades. The latter information was literally "erased," both from public and institutional records. By the time the researcher was so informed, other more critical aspects of the study--student, faculty, and admissions officer surveys--were underway. It was decided that the surveys should continue, with the research on grading distributions focusing on Flathead and Oregon.

Grading Patterns at Flathead Valley Community College

The Flathead data covered four academic years under traditional A-B-C-D-F grading (1967-68 through 1970-71) and two years under the A-B-C-No Record System (1971-72 and 1972-73). As Figure 1, page 62, shows, the percentage of combined passing grades at Flathead declined during both traditional and non-punitive grading. Fully 81.4 per cent of the course attempts in 1967-68 resulted in either an A, B, C, D, or

S grade, but that percentage dropped to 78.4 in 1970-71, the last year of traditional grading. The greatest annual rate-of-change (Δ) during this period was -4.90 per cent in 1969-70, and the mean rate-of-change ($\bar{x}\Delta$) for the period was -1.18 per cent. The pattern continued under A-B-C-NR grading, with the combined percentage dropping to 71.0 in two years, and Δ values of -8.55 per cent in 1971-72, -0.98 in 1972-73, and a $\bar{x}\Delta$ of -4.77 per cent.



*First year of A-B-C-NR at Flathead

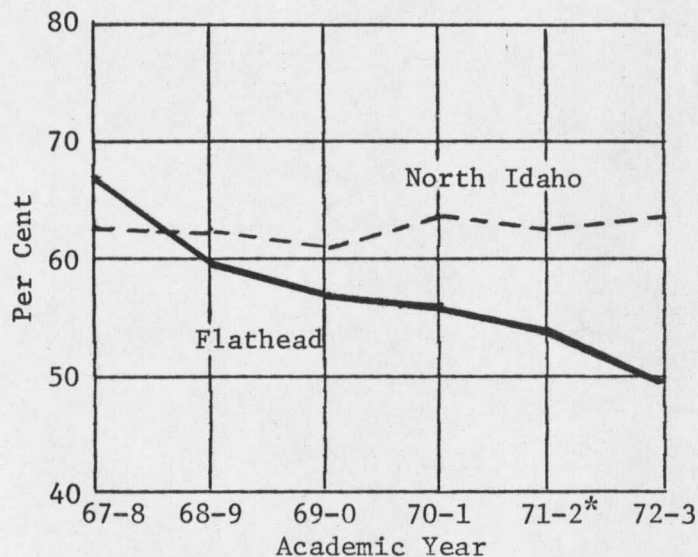
Figure 1

Six-Year Pattern of Combined Passing Grades,
Flathead and North Idaho

The null that the Δ would not be "unusual" with the new system was rejected, for the percentage of combined passing grades dropped at a greater rate-of-change under non-punitive grading

than with the traditional system. Clearly, the alternative hypothesis that the percentage of combined passing grades would necessarily increase with the new system was disproved. The comparison between Flathead and North Idaho showed remarkably similar patterns, with the former awarding consistently lower percentages of passing grades.

Figure 2 further clarifies the patterns of Flathead and North Idaho, ignoring the anomalous D's and S's and concentrating on the combined A-B-C grades. The declining trend at Flathead was more



*First year of A-B-C-NR at Flathead

Figure 2

Six-Year Pattern of Combined A-B-C Grades,
Flathead and North Idaho

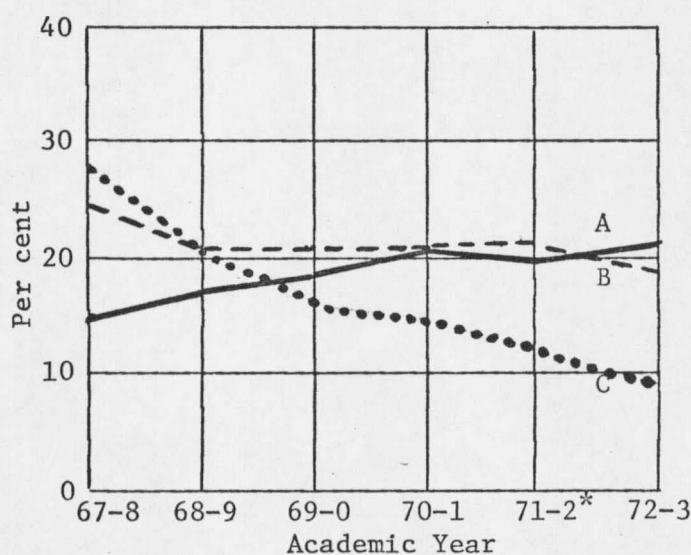
pronounced for these grades, with the 67.8 per cent high in 1967-68 dropping to 56.3 in 1970-71. The greatest annual Δ during the period

of traditional grading was -11.80 per cent in 1968-69, and the $\bar{x}\Delta$ was -7.30 per cent. The pattern continued under non-punitive grading, the combined percentage dropping to 49.8 in two years, with Δ values of -3.91 in 1971-72, -7.99 in 1972-73, and a $\bar{x}\Delta$ of -5.95.

The null was retained, for the $\pm\Delta$ values with A-B-C-NR grading were not "unusual" in historical perspective, in that they did not exceed Δ values during A-B-C-D-F grading. Although the rate-of-change did not decrease as rapidly under the new system, the tendency to award successively less combined A-B-C grades each year continued with non-punitive grading. The alternative hypothesis of a necessary increase in the percentage was clearly disproved. The comparison between Flathead and North Idaho showed differing patterns, with the former's percentage of letter grades declining markedly and the latter's remaining fairly constant during the period under study.

Figure 3, page 65, illustrates the individual patterns of Flathead's A, B, and C grades, showing the decline in the percentages of passing grades to primarily involve the C. The A was awarded in 15.1 per cent of attempts in 1967-68 and increased to 20.5 per cent in 1970-71. The greatest annual Δ during traditional grading was +19.87 in 1968-69, and the $\bar{x}\Delta$ was +10.93. In 1971-72, the first year of non-punitive grading, the percentage of A's dropped to 20.0 (-2.44 Δ) and rose the next year to 21.2 (+6.00 Δ), for a $\bar{x}\Delta$ of +1.78. The B grade was the outcome of 24.2 per cent of the attempts in 1967-68 and had

fallen to 21.1 by 1970-71, with the greatest Δ value being a -12.40 per cent in 1968-69 and the $\bar{x}\Delta$ being -4.29. In the first year of non-punitive grading, the percentage of B's increased to 21.6 (+2.37 Δ) and in the second year it fell to 19.2 (-11.11 Δ), for a $\bar{x}\Delta$ of -4.37 per cent.



*First year of A-B-C-NR at Flathead

Figure 3

Six-Year Pattern of A, B, C Grades, Flathead

Although the null was rejected for both the A--because of a -2.44 Δ in 1971-72--and the B--because of the positive Δ in the same year--the percentages of A and B grades remained fairly constant after the non-punitive system was adopted, with decreasing percentages in one of the two years disproving the alternative hypothesis.

The decline in the percentage of C's awarded, however, was quite pronounced during the four years of traditional grading, and the pattern continued during the first two years of non-traditional grading. In 1967-68 the C grade was awarded in 28.5 per cent of the attempts, but that percentage had dropped to only 14.8 by 1970-71. The greatest annual Δ during this period of traditional grading was -17.09 per cent in 1971-72, and the $\bar{x}\Delta$ was -19.38. Under non-punitive grading, the percentage of C's dropped to 12.5 (-17.09 Δ) in 1971-72 and 9.4 (-24.80 Δ) in 1972-73, for a $\bar{x}\Delta$ of -20.95 per cent.

The null was retained, for the annual Δ values with the new system were consistent with the historical pattern of declining percentages of C's. The alternative hypothesis--that the percentage of C's awarded would increase unusually with the A-B-C-No Record system--was clearly disproved.

A few further comments must be made regarding the patterns of S (Satisfactory) grades and W (withdrawn) marks at Flathead. The percentage of S's was 5.0 in 1967-68, growing to 19.2 by 1970-71, dropping to 17.6 in 1971-72 (when D-level performance no longer earned an S), and rising to 21.2 in 1972-73. The dramatic increase in S grades was primarily the result of expanding adult education - community service programs and somewhat compensated for the declining C grade.

The W accounted for 9.0 per cent of attempts in 1967-68, 17.8 per cent by 1970-71, and only 6.1 per cent in 1972-73 (when "No Record"

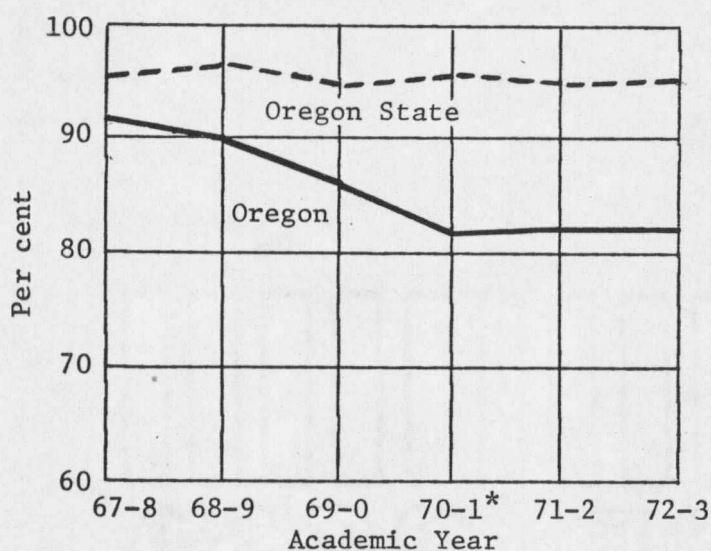
made most formal withdrawals unnecessary). The dramatic rise and fall in W marks, according to sources in the Flathead administration, was the result of a growing "informal" non-punitive system that preceded formal A-B-C-NR grading and was unnecessary after adoption of the new system. This tendency for a large number of faculty to informally modify the institution's grading system may be widespread. An evaluation of grading at a medium-size state college in Washington, for example, reported that "many faculty find the ABCDF grading system inappropriate for use in their courses and consciously or unconsciously are subverting this grading system."¹ The phenomenon will also be discussed later in this chapter in connection with University of Oregon grading patterns.

Grading Patterns at the University of Oregon

The Oregon data covered three academic years under traditional A-B-C-D-F grading (1967-68 through 1969-70) and three years under the non-traditional A-B-C-No Credit system (1970-71 through 1972-73). As Figure 4, page 68, indicates, the percentage of combined passing grades at Oregon declined during traditional grading and leveled off after adoption of the non-punitive system. Fully 91.6 per cent of the course

¹Western Washington State College, Grading Patterns in the College of Arts and Sciences, Bellingham, Washington: Ad Hoc Committee on Academic Standards, Western Washington State College, 1972, p. 6.

attempts in 1967-68 resulted in either an A, B, C, D, or P grade, but that percentage dropped to 86.4 in 1969-70, the last year of traditional grading. The greatest annual Δ during this period was -3.89 per cent



*First year of A-B-C-N at Oregon

Figure 4

Six-Year Pattern of Combined Passing Grades, Oregon and Oregon State

in 1967-70, and the $\bar{x}\Delta$ was 2.88 per cent. The pattern continued into 1970-71, the first year of A-B-C-N grading, as the percentage of combined passing grades dropped to 82.4. But the percentages remained quite constant during the next two years, holding at 82.8 and 82.7 respectively. The $\bar{x}\Delta$ for this period was -1.42 per cent.

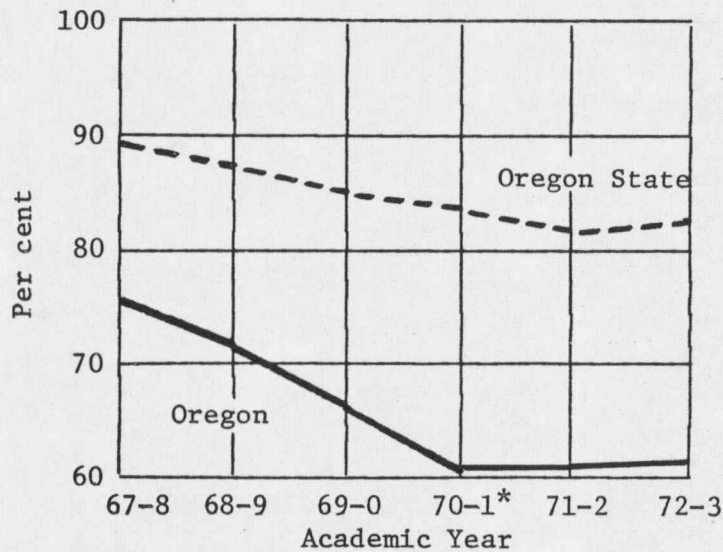
The null that there would be no unusual rates-of-change following

adoption of non-punitive grading was rejected--not only because passing grades leveled off, but because the greatest annual Δ value in the six years was the drop of -4.63 per cent in the first year of A-B-C-N.

Although the passing percentage increased very slightly in the next two years (a net of +0.3 for the period), the immediate drop in 1970-71 disproved the alternative hypothesis that unusual increases necessarily follow adoption of non-punitive grading. The comparison between Oregon and Oregon State showed differing patterns. The two institutions initially awarded similar percentages of passing grades, but Oregon dropped considerably--leveling off about 13 per cent below Oregon State's consistently high figure.

Figure 5, page 70, further clarifies the patterns at Oregon and Oregon State by concentrating on the combined A-B-C grades. The two institutions are shown to have experienced similar trends, a sharp decrease and subsequent leveling off, while maintaining a wide percentage gap. Oregon awarded 76.0 per cent A-B-C grades in 1967-68, dropping to 66.7 per cent in 1969-70. The greatest annual Δ during this period of traditional grading was -7.75 per cent in 1969-70, and the $\bar{x}\Delta$ was -6.31 per cent. The pattern continued with non-traditional grading in 1970-71, with 60.5 per cent combined A-B-C's, but leveled off for the next two years at 60.7 and 61.1 per cent, respectively. The greatest annual Δ was -9.30 per cent in 1970-71, and the $\bar{x}\Delta$ was -2.77.

The null was rejected, again not only because the leveling off was unusual, but because the greatest annual Δ during the six years



*First year of A-B-C-N at Oregon

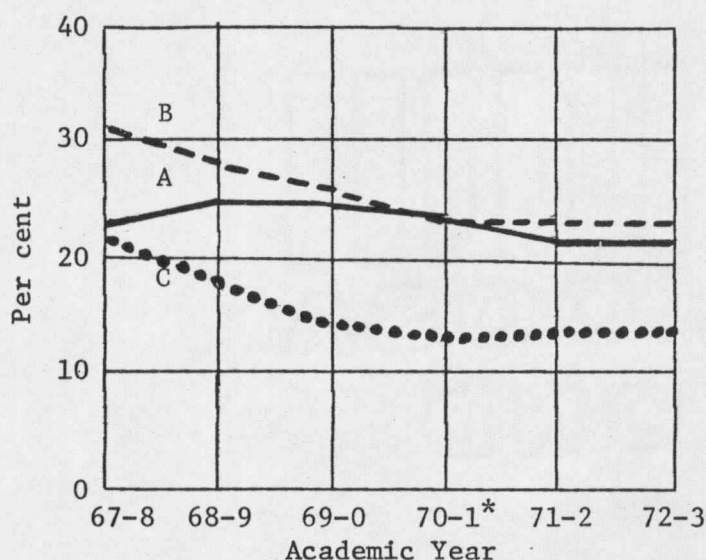
Figure 5

Six-Year Pattern of Combined A-B-C Grades,
Oregon and Oregon State

was the -9.30 per cent decrease in combined A-B-C grades in 1970-71, the first year of non-punitive grading. The alternative hypothesis of an unusual increase in this percentage was also again disproved.

Figure 6, page 71, illustrates the individual patterns of A, B, and C grades, showing the decline in the percentages of passing grades to involve the B and C, primarily the latter. The A was awarded in 22.9 per cent of attempts in 1967-68 and increased to 25.5 per cent in 1969-70. The greatest annual Δ under traditional grading was +10.91

per cent in 1968-69, and the $\bar{x}\Delta$ was +5.65. In 1970-71, the first year of non-punitve grading, the percentage of A's dropped to 23.7 (-7.06 Δ), and declined the next year to 22.6 (-2.64 Δ), leveling off the final year at 22.9 (+1.33 Δ), for a three year $\bar{x}\Delta$ of -3.46 per cent.



*First year of A-B-C-N at Oregon

Figure 6

Six-Year Pattern of A, B, and C Grades, Oregon

Although there was no net change in the percentage of A's, after six years and two grading systems, the null was rejected. The grade increased under A-B-C-D-F and dropped with the new system, the greatest value during the latter period equaling -7.06 Δ (1970-71). The alternative liberalization hypothesis was not substantiated.

A pattern of declining B and C percentages was evident during

traditional grading and continued through the first year of non-traditional grading, leveling off thereafter. In 1967-68, 31.1 per cent of attempts ended in B's and 22.1 per cent in C's. By 1969-70 these percentages had dropped to 26.5 and 14.6 respectively. The greatest Δ values during the three years were -8.68 per cent for B's (1968-69) and -20.65 per cent for C's (1969-70), and the $\bar{x}\Delta$ values were -7.69 and -18.70. In the first year of the new grading system, B's dropped to 23.4 per cent and C's to 13.4. By the third year, B's had leveled off at 23.8 per cent and C's had risen slightly to 14.4. The greatest Δ values for the three years were -11.70 per cent for B's (1970-71) and -8.22 for C's (1970-71), and the $\bar{x}\Delta$ values were -3.33 and -0.28.

Nulls for both the B and C were rejected. The net B decline under A-B-C-N included the greatest negative Δ during all six years and the only positive Δ . Similarly, the net C decline included an initial drop followed by the only two positive Δ values during the six years. The negative Δ values disproved the liberalization hypothesis.

Finally, there were indications of an "informal" grading policy. While percentages of letter grades dropped or leveled off during the six years, other marks increased. The P (Pass) went from 11.5 per cent to 21.6, the W (Withdrawn) from 1.1 to 5.2, and the I (Incomplete) from 4.6 to 5.3. In responding to a questionnaire, one teacher added, ". . . under both the 'old' system and the 'new,' I have always used only A, B, Pass, and Incomplete. . . ." Other faculty may also have followed this policy.

Student-Faculty Questionnaire
Returns

As Table 1 indicates, a total of 710 student questionnaires were sent, and 512 (72 per cent) were returned to the researcher before cut-off dates. Of the 38 that were not useable, most were either returned blank by students who felt unqualified to comment on the

Table 1

Student and Faculty Questionnaire Returns

Questionnaire Form	Number sent	Number returned	Per cent returned	Number useable
Flathead students	135	107	79	96
Flathead faculty	29	22	76	22
Oregon students	375	249	66	226
Oregon faculty	300	212	71	198
Grinnell students	200	156	78	152
Grinnell faculty	67	44	66	38
Total students	710	512	72	474
Total faculty	396	278	70	257

academic grading system (e.g., evening adult students not pursuing degrees), or were disqualified because the answer to question 11 indicated that the respondent had first enrolled at the given college after adoption of the new grading system and was thus not able to compare it with the traditional A-B-C-D-F system at that institution.

The latter would suggest that the actual population of students with experience under both the traditional and modified grading systems at each college was somewhat less than the 2,160 indicated by official institutional records.

Proportional minimums of 26 student returns from Flathead and 64 from Grinnell were well exceeded, with 96 and 152 useable questionnaires respectively, but the 226 useable Oregon student responses were 36 short of the desired 262. However, the total of 474 useable student questionnaires exceeded the overall minimum of 352 required for precision of ± 5 per cent, providing instead 95 per cent confidence of precision at the ± 4 per cent level.

A total of 396 faculty questionnaires were sent, and 278 (70 per cent) were returned to the researcher before the cut-off date. Of the nineteen that were not useable, most were returned blank, either because the faculty chose not to participate in the study, or because they were on leave-of-absence. The latter would suggest that the population of faculty on campus during the survey was somewhat less than the 586 indicated by institutional records.

Proportional minimums of 12 faculty returns from Flathead and 27 from Grinnell were well exceeded, with 22 and 38 respectively, and the 198 useable returns from Oregon fell only 1 short of the 199 desired. The total of 257 useable questionnaires exceeded by 19 the minimum of 238 required for precision of ± 5 per cent, providing instead

95 per cent confidence of precision at the ± 4.5 per cent level.

Student-faculty questionnaire results are organized to consider the following topics: (1) grading objectives; (2) grading system preferences; (3) factors motivating academic performance; (4) grading accuracy; (5) difficulty of earning A's, B's, and C's; (6) worry about grades and grading; (7) incidence of cheating; (8) likelihood of probation; (9) enrollment in electives; (10) grades as threat or reward; and (11) general student-faculty relationships. For each topic, the responses of the two groups to specific questions are reported, by institution; reference is made to student and faculty sub-group breakdowns (fully tabulated in Appendix N, pp. 197-201 and Appendix O, pp. 202-206, respectively); statistical hypotheses are evaluated; and pertinent marginal comments by respondents are noted. A separate topic heading, unsolicited responses, is devoted to a summary of the lengthier notes and letters accompanying survey returns.

Grading Objectives

The first of the attitude questions involved the ranking of seven grading objectives in order of preference. Table 2, page 76 shows comparative student-faculty mean rankings for each institution and the combined totals. The first-place rankings of the two groups were nearly unanimous, with all but Flathead students placing most importance on the indication to the student of his academic performance (objective c). Least favored by students and faculty at all three

Table 2

Student and Faculty Mean Rankings of Grading Objectives

Objectives*	Flathead Students/Faculty	Oregon Students/Faculty	Grinnell Students/Faculty	All Institutions Students/Faculty
a. Precise evaluation	4.7/4.6	4.8/4.1	4.7/3.6	4.7/4.1
b. General evaluation	4.4/3.5	3.4/2.8	3.6/3.0	3.6/2.9
c. Indication to student	3.4/2.1	2.7/2.3	2.7/2.2	2.8/2.3
d. Indication to others	4.6/3.1	4.6/3.9	4.7/3.5	4.6/3.8
e. Indication of ability	3.0/4.2	3.4/4.0	3.7/4.5	3.4/4.1
f. Indication of effort	2.9/4.0	3.3/4.4	2.8/4.1	3.1/4.3
g. Impression of character	5.0/5.8	5.8/6.4	5.8/6.6	5.7/6.4
n	86/19	213/161	146/36	445/216
W, Significance	.15@/.09	.26@/.37@	.24@/.32@	.23@/.34@
χ^2 , Significance	95.1@	157.6@	110.7@	253.6@

* For a complete statement of the question and items, see the Student Questionnaire, Appendix D, p. 178, question 12 and the Faculty Questionnaire, Appendix F, p. 183, question 11.

Significance: # = .05 level, @ = .01 level

Degrees of freedom: 42

institutions were grades that included an impression of student character and personality, as well as academic performance (objective g). The precise evaluation of academic performance (objective a) was also ranked low by both groups, sixth-place by students and fifth by faculty.

Rankings of the remaining items were considerably less uniform. The indication of student effort, as well as academic performance (objective f), was ranked highest by the Flathead students and second in importance by students at Oregon and Grinnell, but faculty at the three colleges ranked the item much lower, sixth in the combined totals. Conversely, faculty ranked the general evaluation of academic performance (objective b) and the indication to others (e.g., graduate admissions officers, prospective employers, etc.) of student academic performance (objective d) high in importance, second and third respectively, but students ranked them lower, fourth and fifth overall.

Kendall coefficients (W) indicated considerable ranking concordance for students at the three colleges and for faculty at Oregon and Grinnell, with significance at the .01 level causing rejection of the null hypothesis. Chi square (χ^2) values for student versus faculty rankings at all schools were also significant at .01, requiring rejection of the independence null and adoption of the alternative hypothesis that the response variable was affected by the variables of student or faculty group.

Only 4 of the 19 sub-group responses to student question 12 (Appendix N) differed from the general trend in rank order. Freshmen placed most importance on the indication of student ability or potential as well as academic performance (objective e), while education majors and students with GPA's under 3.0 found an indication of student effort (objective f) most critical, and students with pre-professional majors gave these two objectives equal first-place emphasis. Sub-group responses to the comparable faculty question 11 (Appendix O) were even more uniform, with only 2 of 18 variables differing with the rank order trend. Physical science teachers placed most importance on general evaluation (objective b), and biology teachers placed equal emphasis on that item and the choice of most other groups, indication to the student of his academic performance (objective c).

All W values for student and faculty sub-groups were significant at .01, and χ^2 values for all student variables but age and attendance were significant at .05 or above, as were the faculty variables of sex and major. Except for the few sub-group differences noted previously, the high χ^2 values were reflections of disagreement in item value rather than rank order. Faculty in humanities and pre-professional fields, for example, both ranked objective c first, but the mean values given to the item were 2.4 and 1.9 respectively.

The next two tables show responses to a similar question, in which students were asked to rank these same grading objectives in the

order that most of their college teachers seem to follow and faculty were asked to rank the objectives in the order they believed students would prefer. The W values in Table 3, page 80, indicated significant concordance in student rankings, but the significant χ^2 values indicated that these estimates bore little relationship to the actual faculty rankings. Similarly, W values in Table 4, page 81, indicated strong concordance in faculty rankings, but high χ^2 values denied the accuracy of these estimates.

Although the nulls of non-concordance in ranking and independence of group versus ranking variables were rejected on both tables, faculty did appear slightly more in agreement and considerably more accurate in their estimates than did the students. The students reached a W of .26 overall and correctly ranked only the one objective, item g, as seventh in importance. Faculty reached .28 W, in spite of their smaller n, and correctly estimated the rank orders of three objectives, items a, c, and g, as sixth, first, and seventh respectively.

Responses were not tabulated for 6 per cent of the students on question 12 and 16 per cent of the faculty on their comparable question 11. Most of these omissions were actually partial responses--rankings of some but not all of the seven grading objectives--which could not be included in survey results without validating W calculations. Similarly, most of the 10 per cent not included in student question 13 results and 22 per cent not included in faculty question 12 results had only

Table 3

Student Mean Rankings of Faculty Grading Objectives Compared
to Actual Faculty Rankings

Objectives*	Flathead Estimate/Actual	Oregon Estimate/Actual	Grinnell Estimate/Actual	All Institutions Estimate/Actual
a. Precise evaluation	2.9/4.6	3.0/4.1	2.6/3.6	2.8/4.1
b. General evaluation	3.1/3.5	2.5/2.8	2.5/3.0	2.6/2.9
c. Indication to student	3.7/2.1	3.5/2.3	3.5/2.2	3.5/2.3
d. Indication to others	4.7/3.1	4.2/3.9	4.2/3.5	4.3/3.8
e. Indication of ability	4.1/4.2	4.6/4.0	5.0/4.5	4.6/4.1
f. Indication of effort	4.2/4.0	4.7/4.4	4.4/4.1	4.5/4.3
g. Impression of character	5.4/5.8	5.5/6.4	5.9/6.6	5.7/6.4
n	80/19	205/161	142/36	427/216
W, Significance	.17@/.09	.20@/.37@	.33@/.32@	.26@/.34@
χ^2 , Significance	65.2#	182.9@	87.5@	280.1@

* For a complete statement of the questions and items, see the Student Questionnaire, Appendix D, p. 178, question 13 and the Faculty Questionnaire, Appendix F, p. 183, question 11.

Significance: # = .05 level, @ = .01 level

Degrees of freedom: 42

Table 4

Faculty Mean Rankings of Student Grading Objectives Compared
to Actual Student Rankings

Objectives*	Flathead Estimate/Actual	Oregon Estimate/Actual	Grinnell Estimate/Actual	All Institutions Estimate/Actual
a. Precise evaluation	4.7/4.7	4.2/4.8	4.2/4.7	4.2/4.7
b. General evaluation	3.7/4.4	3.8/3.4	3.7/3.6	3.6/3.6
c. Indication to student	2.7/3.4	2.6/2.7	2.1/2.7	2.5/2.8
d. Indication to others	3.1/4.6	3.6/4.6	3.6/4.7	3.6/4.6
e. Indication of ability	4.1/3.0	4.1/3.4	3.9/3.7	4.1/3.4
f. Indication of effort	4.0/2.9	3.7/3.3	4.0/2.8	3.8/3.1
g. Impression of character	5.6/5.0	6.3/5.8	6.6/5.8	6.3/5.7
n	16/86	152/213	33/146	201/445
W, Significance	.17@/.15@	.33@/.26@	.38@/.24@	.28@/.23@
χ^2 , Significance	66.6@	131.1@	58.8#	175.6@

*For a complete statement of the questions and items, see the Faculty Questionnaire, Appendix F, p. 183, question 12, and the Student Questionnaire, Appendix D, p. 178, question 12.

Significance: # = .05 level, @ = .01 level

Degrees of freedom: 42

partially completed the items. However, judging from the written comments of several students (e.g., "I don't know what objectives my instructors have when they assign grades.") and similar faculty remarks (How should I know? Ask the students."), the 4 per cent increase in omissions from student question 12 to 13 and the 6 per cent increase from faculty question 11 to 12 can be explained by the reluctance of each group to estimate the other's grading objectives.

Grading System Preferences

Table 5, page 83, provides responses of students and faculty to a question which asked them to rank eight grading systems in order of their preference. Students at all three colleges chose one of the A-B-C-N or NR systems first, ranking the traditional A-B-C-D-F system last in the overall results. Faculty, however, uniformly ranked A-B-C-D-F with the Pass-Fail option (item b) in first place, with one of the A-B-C-N or NR systems running a close second. Students and faculty shared negative opinions of the listing of student skills and competencies (item h), the two groups ranking the system seventh and eighth respectively; but the students ranked detailed written evaluations (item g) fourth overall, while the faculty ranked it next to last.

In ranking written evaluations low and A-B-C-D-F grading high, many respondents--students and teachers alike--commented grudgingly that the written system is "ideal" but "impractical" in the reality of mass higher education. In particular, teachers mentioned heavy

Table 5

Student and Faculty Mean Rankings of Grading Systems

Grading Systems*	Flathead Students/Faculty	Oregon Students/Faculty	Grinnell Students/Faculty	All Institutions Students/Faculty
a. A-B-C-D-F only	5.2/4.2	5.8/4.1	5.7/3.2	5.7/3.9
b. A-B-C-D-F with Pass-Fail Option	3.9/2.7	3.9/2.9	3.3/2.9	4.7/2.8
c. A-B-C-No Credit or No Record only	2.8/2.9	3.8/4.0	4.2/3.1	3.8/3.7
d. A-B-C-No Credit or No Record w/Pass-N or NR option	3.1/3.5	2.8/3.3	3.1/3.9	2.9/3.4
e. Pass-Fail only	5.2/5.3	5.3/4.8	5.3/5.2	5.3/4.9
f. Pass-No Credit or No Record only	5.0/5.5	4.9/5.4	4.9/5.4	4.9/5.4
g. Detailed written evaluations only	5.2/5.5	4.3/5.5	3.6/5.1	4.2/5.4
h. Listing of student skills & competencies only	5.8/6.4	5.2/6.2	6.0/7.3	5.6/6.4
n	83/18	214/162	149/37	446/217
W, Significance	.26@/.15@	.16@/.20@	.21@/.38@	.38@/.23@
χ^2 , Significance	50.4	225.7@	164.3@	294.9@

* For a complete statement of the question and items, see the Student Questionnaire, Appendix D, p. 178, question 14 and the Faculty Questionnaire, Appendix F, p. 183, question 13.

Degrees of freedom = 56

Significance: # = .05 level, @ = .01 level

workloads and large classes as factors making written evaluation unfeasible. Several students added that their rankings were, as one put it, "influenced by the fact that employers and graduate schools like to see grades." A number of respondents suggested that A-B-C-D should have been offered as a choice.

The W values for this question indicated concordance at the .01 level for both students and faculty and equally significant χ^2 values, for all but Flathead, where a significant difference in student-faculty opinion was not shown. The independence null was rejected in the overall results, however.

Sub-group results for student question 14 and faculty question 13 (Appendices N and O) showed W's for all variables significant, as were χ^2 values for all but faculty sex, age, and tenure variables. As on previous questions, rejection of the null of independence between sub-group variables and responses was primarily the result of differences in the item values rather than the rank orders. An important exception to this, however, was the first-place ranking of an A-B-C-N or NR system by faculty in pre-professional fields.

Factors Motivating Academic Performance

The next pair of questions involved comparative rankings of factors motivating student academic performance under A-B-C-D-F and A-B-C-N or NR grading. Table 6, page 85, indicates that under the

Table 6

Student and Faculty Mean Rankings of Factors Motivating Student
Academic Performance Under A-B-C-D-F Grading

Motivating Factors*	Flathead Students/Faculty	Oregon Students/Faculty	Grinnell Students/Faculty	All Institutions Students/Faculty
a. Desire of students to satisfy parents or others close . . .	4.3/3.7	4.4/4.0	4.3/3.9	4.4/3.9
b. Desire to satisfy themselves	2.1/2.9	2.2/2.9	2.0/3.0	2.1/2.9
c. Desire to satisfy teachers	4.2/4.3	4.4/4.6	4.4/4.5	4.4/4.6
d. Desire to earn A or B grades	3.3/2.2	2.8/2.0	3.1/2.3	3.0/2.1
e. Desire to avoid D or F	4.3/4.1	4.2/3.6	4.6/4.1	4.4/3.7
f. Desire to learn the subject matter	2.9/4.0	2.9/3.9	2.7/3.3	2.9/3.8
n	85/20	217/154	147/35	449/209
W, Significance	.28@/.20@	.21@/.25@	.32@/.17@	.28@/.22@
χ^2 , Significance	38.4	140.4@	61.6@	229.0@

* For a complete statement of the question and items, see the Student Questionnaire, Appendix D, p. 178, question 15 and the Faculty Questionnaire, Appendix F, p. 183, question 14.

Degrees of freedom = 30

Significance: # = .05 level, @ = .01 level

traditional grading system students were primarily motivated to satisfy themselves (factor b), seeking A's and B's (factor d) to a lesser extent--and then, some explained, only because they were "forced" to do so "to get into grad school" or to avoid "prejudicing future placement, jobs, etc." Faculty assumed that pursuit of A's and B's was the prime motivator of academic performance, many sharing the opinion that students sought thus "to impress future employers and grad schools." Students and faculty also disagreed over the relative importance of the desire to learn the subject matter (factor f), with students motivated more by this than faculty estimated. The reverse was true of the desires to avoid D's and F's (factor e) and to satisfy parents or others close (factor a), with students influenced less by these considerations than faculty had assumed.

Kendall coefficients were significant at .01 for both groups, causing rejection of the null of non-concordance, and χ^2 values for differences in student-faculty opinions at Oregon and Grinnell were sufficiently high to require rejection of the independence null for these and the overall results.

Sub-group results for student question 15 (Appendix N) were substantially uniform, although the under-25 students ranked their desire to earn A's and B's second--one higher than other sub-groups--and the overall fourth-place tie for factors a, c, and e was narrowly resolved with varying sub-group orders--only a tenth or so apart. Sub-

group results for faculty question 14 (Appendix O) were uniform in all important respects. All student and faculty sub-groups reached .05 or higher W-levels, and χ^2 values were significant for all student variables except sex and attendance and for the one faculty variable of marital status. As on previous ranking questions, the rejection of the null of independence was more a reflection of sub-group differences in item values than in rank order.

As Table 7, page 88, shows, responses to the second question in the before-after sequence were quite similar to the first, with students again finding self-satisfaction to be the prime motivator for academic performance and faculty incorrectly assuming that the pursuit of A and B grades was most important. However, the desire to avoid No Credit or No Record appeared less important than previous avoidance of D's and F's, as factor e dropped to last place in student rankings and fourth place in faculty estimates.

Again, nulls were rejected as overall χ^2 values showed concordance at the .01 level for both groups, and the χ^2 test of independence indicated differences in student-faculty opinion significant at the .01 level.

A χ^2 comparison of each group's rankings of factors motivating academic performance before and after the change in grading systems (Table 7, page 88) showed a difference of opinion sufficient to allow rejection of the null for students and faculty at Flathead and for

Table 7

Student and Faculty Mean Rankings of Factors Motivating Student
Academic Performance Under A-B-C-N or NR Grading

Motivating Factors*	Flathead Students/Faculty	Oregon Students/Faculty	Grinnell Students/Faculty	All Institutions Students/Faculty
a. Desire of students to satisfy parents or others close . . .	4.6/3.7	4.6/4.2	4.4/3.9	4.5/4.1
b. Desire to satisfy themselves	2.1/2.9	2.0/2.7	1.9/2.6	2.0/2.7
c. Desire to satisfy teachers	4.5/4.6	4.5/4.6	4.4/4.4	4.5/4.6
d. Desire to earn A or B grades	3.2/2.1	3.1/2.2	3.0/2.7	3.1/2.3
e. Desire to avoid No Credit or No Record	4.7/4.1	4.5/3.7	4.7/4.2	4.6/3.8
f. Desire to learn the subject matter	2.1/3.6	2.3/3.5	2.6/3.2	2.3/3.3
n	82/19	211/152	144/34	438/205
W, Significance	.53@/.22@	.37@/.22@	.37@/.17@	.40@/.15@
χ^2 , Significance	70.8@	213.9@	50.6#	287.5@
χ^2 , Significance, Table 6v7	43.8#/63.4@	102.5@/24.1	17.5/12.9	114.6@/25.5

*For a complete statement of the question and items, see the Student Questionnaire, Appendix D, p. 178, question 16 and the Faculty Questionnaire, Appendix F, p. 183, question 15.

Significance: # = .05 level, @ = .01 level

Degrees of freedom: 30

Oregon students. This was primarily the result of an increase in the value assigned to the desire to learn the subject matter (factor f), with Flathead students, for example, increasing the mean value from 2.9 under A-B-C-D-F grading to 2.1 under A-B-C-NR.

Sub-group responses for student question 16 (Appendix N) were substantially uniform, with factor b ranked first and factor f second for all but three variables--25 and over, married, and freshman-sophomore--which reversed the order of these factors. Sub-group responses for faculty question 15 (Appendix O) were also generally uniform, with factor e ranked first and factor b second for all but three variables--teachers in the humanities, social sciences, and pre-professional fields--which reversed the order of these factors.

As on the first question of the pair, W values for all student and faculty sub-groups reached a .05 significance or higher, causing rejection of the non-concordance null. Chi-square values for all student variables except class and for the one faculty variable of sex were significant at .05 or above, requiring rejection of the independence null for these combinations. Item values rather than rank orders were the primary differences.

The χ^2 comparison of sub-group rankings on this before-after pair of questions showed a difference of opinion sufficient to allow rejection of the null for twelve of nineteen student variables and for none of the faculty variables. The rank orders of the student variables

remained generally the same, but item values increased--particularly for factor f, desire to learn the subject matter.

Student omissions on questions 15 and 16 ran about 5 and 7 per cent, respectively, and were primarily caused by disqualified partial completions, as on previous ranking questions. However, the numerous faculty who commented in exasperation, "I have no idea what motivates students to make an effort or study," revealed a continued reluctance to estimate student attitudes and resulted in a 19 per cent omission rate.

Grading Accuracy

The next pair of questions involved a comparative rating of grading accuracy under the A-B-C-D-F and A-B-C-N or NR systems. Table 8, page 91, shows that under the traditional system an overall total of 22 per cent of the students found grades to indicate they had learned much more (item a) or slightly more (item b) than they really did; 37 per cent rated grades as being fairly accurate (item c); 30 per cent found grades to indicate slightly less (item d) or much less (item e) than actually learned; and 11 per cent had no opinion. Overall faculty results show more faith in grading accuracy. Although 17 per cent found grades to indicate more than was actually learned, 58 per cent found grades fairly accurate under the traditional system, and 16 per cent had no opinion. The written comments of many who omitted this item--students and faculty alike--were in agreement with the teacher

Table 8

Distributions of Student and Faculty Ratings of Grading Accuracy Under A-B-C-D-F System

Accuracy Scale*	Flathead Student%/Faculty%	Oregon Student%/Faculty%	Grinnell Student%/Faculty%	All Institutions Student%/Faculty%
a. (Student) grades indicate they learned much more than they really did	6/0	10/3	4/3	7/3
b. . . . indicate they learned slightly more than they really did	7/9	17/14	18/13	15/14
c. . . . indicate fairly accurately how much they learned	41/59	34/56	39/68	37/58
d. . . . indicate they learned slightly less than they really did	13/14	21/7	20/5	19/7
e. . . . indicate they learned much less than they really did	21/5	9/2	7/0	11/2
n	84/19	205/162	134/34	423/215
χ^2 , Significance	5.7	43.7@	12.4#	56.6@

* For a complete statement of the question and items, see the Student Questionnaire, Appendix D, p. 178, question 17 and the Faculty Questionnaire, Appendix F, p. 183, question 16.

Degrees of freedom = 4

Significance: # = .05 level, @ = .01 level

who noted, "I'm not sure grades indicate anything about learning."

The χ^2 values for Oregon and Grinnell showed a difference in student-faculty ratings that was significant at .05 or above, requiring rejection of the independence null for these and the overall results.

Sub-group responses for student question 17 and faculty question 16 (Appendices N and O) were mixed. The percentage of student sub-group members rating grades as fairly accurate (item c) ranged from 53 per cent of the physical science majors to 28 per cent of the students in pre-professional fields, and the faculty ranged from a high of 79 per cent of the physical science teachers to a 40 per cent low for teachers in social sciences. The trend in most sub-groups, however, generally paralleled the overall student and faculty results, with students less inclined than teachers to rate grades as being accurate.

Chi-square values for only two student variables, class and GPA, and one faculty variable, degree, reached levels of significance necessary for rejection of the independence null. Junior-senior class students, those with GPA's under 3.0, and faculty without the doctorate found grades less accurate than did their counterparts.

Responses to the second question in this before-after sequence, reported on Table 9, page 93, indicated that students at Flathead and Oregon found an improvement in grading accuracy under the A-B-C-N or NR system, while Grinnell students and the faculty of all three institutions found grades to be less accurate. The percentage of faculty rating

Table 9

Distributions of Student and Faculty Ratings of Grading Accuracy Under A-B-C-N or NR System

Accuracy Scale*	Flathead Student%/Faculty%	Oregon Student%/Faculty%	Grinnell Student%/Faculty%	All Institutions Student%/Faculty%
a. (Student grades indicate they learned much more than they really did	2/5	7/7	4/3	5/6
b. . . . indicate they learned slightly more than they really did	15/18	16/25	20/42	17/27
c. . . . indicate fairly accurately how much they learned	56/50	46/37	32/26	43/37
d. . . . indicate they learned slightly less than they really did	9/9	14/9	24/16	17/10
e. . . . indicate they learned much less than they really did	6/5	7/3	9/0	8/3
n	85/19	202/161	135/33	422/213
χ^2 , Significance	.97	18.8@	40.1@	37.6@
χ^2 , Significance, Table 8 vs. 9	14.7@/2.0	8.6/17.6@	2.8/15.0@	8.0/29.1@

* For a complete statement of the question and items, see the Student Questionnaire, Appendix D, p. 178, question 18 and the Faculty Questionnaire, Appendix F, p. 183, question 17.

Degrees of freedom = 4

Significance: # = .05 level, @ = .01 level

grades as indicating much more or slightly more than was actually learned (items a and b) increased from 17 per cent under traditional grading to 33 per cent under the new system, while the percentage finding grades fairly accurate (item c) dropped from 58 per cent to 37 per cent. Many comments were in agreement with the teacher who warned of "grade inflation" after D's and F's were eliminated.

The χ^2 values for Oregon and Grinnell showed a difference in student-faculty ratings that was significant at .01, causing rejection of the independence null for these and the overall results.

A χ^2 comparison of each group's ratings of grading accuracy before and after the change in grading systems (Table 9, page 93) showed a difference of opinion sufficient to allow rejection of the null for students at Flathead and for faculty at Oregon and Grinnell. Mixed student responses kept overall results below significant levels, but the uniform faculty opinion that grades were less accurate under the new system provided a χ^2 that was significant at .01, causing rejection of the null.

Sub-group responses for student question 18 (Appendix N) were mixed, but faculty responses to their comparable question 17 tended to rate the new system as less accurate than the old. The range of students rating grades as being fairly accurate widened, with a high of 64 per cent for the freshman-sophomore variable and a low of 30 per cent for students with less than 3.0 GPA's. The faculty range narrowed downward

with a high of 52 per cent of the biology teachers rating grades as fairly accurate under the new system and a low of only 32 per cent of the social science teachers agreeing.

Chi-square values for the student variables of age, marital status, class, and GPA were significant at .05 or above, as was the faculty variable of marital status, causing the null of independence to be rejected for these sub-group variables. Students under 25, those unmarried, juniors and seniors, those with under a 3.0 GPA, and married faculty found grades less accurate than did their counterparts.

The χ^2 comparison of each sub-group's ratings of accuracy for the before-after pair of questions showed a significant opinion change for one of nineteen student variables and for nine of eighteen faculty variables. The nulls were rejected for these sub-groups.

Difficulty of Earning A's, B's, and C's

The next three questions involved the rating of the relative difficulty of earning A's, B's, and C's after D's and F's were eliminated. Table 10, page 96, shows that 17 per cent of the responding students found it much harder or slightly harder to earn A's (items a and b); 68 per cent saw no change (item c); 12 per cent found it slightly easier or much easier (items d and e); and 3 per cent offered no opinion. Overall faculty results show a stronger trend in the direction of less difficulty of earning A's. Only 6 per cent found

Table 10
Distributions of Student and Faculty Ratings of A-B-C-N or NR
Effect on Difficulty of Earning A's

Difficulty Scale*	Flathead Student%/Faculty%	Oregon Student%/Faculty%	Grinnell Student%/Faculty%	All Institutions Student%/Faculty%
a. It is much harder to earn A's now	5/0	1/2	8/0	4/2
b. . . . slightly harder to earn A's now	10/0	14/5	14/3	13/4
c. . . . neither harder nor easier to earn A's now	61/95	71/65	68/47	68/65
d. . . . slightly easier to earn A's now	11/0	10/21	9/45	10/23
e. . . . much easier to earn A's now	3/0	3/4	0/5	2/4
n	88/21	219/192	151/38	458/251
χ^2 , Significance	9.8#	18.8@	40.1@	37.6@

* For a complete statement of the question and items, see the Student Questionnaire, Appendix D, p. 178, question 19 and the Faculty Questionnaire, Appendix F, p. 183, question 18.

Degrees of freedom = 4

Significance: # = .05 level, @ = .01 level

it harder to earn A's; 65 per cent saw no change; 27 per cent found it easier; and 2 per cent offered no opinion.

The χ^2 test indicated differences in student-faculty opinion to be significant at .05 or above for all three colleges, causing rejection of the null.

Sub-group responses for student question 19 (Appendix N) were generally uniform, but the χ^2 values reached .05 or above for the variables of age, class, and major, with those over 25, lower classmen, and in the physical sciences finding more change in the difficulty of earning A's than did their counterparts. Sub-group responses for faculty question 18 (Appendix O) also paralleled overall ratings, with only the variable of sex reaching as high as .05 significance and requiring rejection of the null. The faculty men found A's easier to earn under the new system than did the women.

As reported on Table 11, page 98 , 9 per cent of the students rated the difficulty of earning B's as much harder or slightly harder under the new system (items a and b); 63 per cent found no change (item c); 23 per cent found it slightly easier or much easier (items d and e); and 5 per cent offered no opinion. Faculty observed a stronger trend in the direction of less difficulty of earning B's. Only 6 per cent found it harder to earn B's; 52 per cent saw no change; 39 per cent found it easier; and 3 per cent offered no opinion.

Chi-square levels reached the .05 level of significance or above

Table 11

Distributions of Student and Faculty Ratings of A-B-C-N or NR
Effect on Difficulty of Earning B's

Difficulty Scale*	Flathead Student%/Faculty%	Oregon Student%/Faculty%	Grinnell Student%/Faculty%	All Institutions Student%/Faculty%
a. It is much harder to earn B's now	1/0	0/1	2/0	1/0
b. . . slightly harder to earn B's now	11/0	7/7	8/3	8/6
c. . . neither harder nor easier to earn B's now	54/91	68/53	61/26	63/52
d. . . slightly easier to earn B's now	20/5	17/25	23/50	19/27
e. . . much easier to earn B's now	5/0	4/12	3/18	4/12
n	88/21	217/192	148/37	453/250
χ^2 , Significance	10.0#	16.2@	29.4@	24.0@

* For a complete statement of the question and items, see the Student Questionnaire, Appendix D, p. 178, question 20 and the Faculty Questionnaire, Appendix F, p. 183, question 19.

Degrees of freedom = 4

Significance: # = .05 level, @ = .01 level

for the three institutions, indicating considerable differences in student-faculty ratings and causing rejection of the null.

Sub-group responses for student question 20 (Appendix N) were in general agreement, but χ^2 values significant at .05 or above indicated disagreement for the variables of class and major. Lower classmen and physical science students found B's easier to earn under the new grading system than did their counterparts, causing rejection of the null of independence for these variables. Faculty sub-group responses to their comparable question 19 (Appendix O) were also generally uniform, with χ^2 values allowing retention of the null for all but the variables of sex and degree. Women and faculty with doctorates found more change under the new system than did their counterparts, with most of the difference indicated in the direction of less difficulty of earning B's.

Table 12, page 100, shows that 9 per cent of the students found it much harder or slightly harder (items a and b) to earn C's after the elimination of D's and F's; 42 per cent saw no change (item c); 43 per cent found it slightly easier or much easier (items d and e); and 6 per cent offered no opinion. Faculty responses indicate an even more pronounced trend in the direction of less difficulty, with only 8 per cent rating it harder to earn C's, 25 per cent seeing no change, 66 per cent finding it easier, and 1 per cent offering no opinion.

The questions concerning the A and B grades drew very few written comments, but many of the respondents had something to add about the

Table 12

Distributions of Student and Faculty Ratings of A-B-C-N or NR
Effect on Difficulty of Earning C's

Difficulty Scale*	Flathead Student%/Faculty%	Oregon Student%/Faculty%	Grinnell Student%/Faculty%	All Institutions Student%/Faculty%
a. It is much harder to earn C's now	2/0	1/1	3/3	2/1
b. . . slightly harder to earn C's now	5/0	7/8	8/8	7/7
c. . . neither harder nor easier to earn C's now	44/59	49/24	31/8	42/25
d. . . slightly easier to earn C's now	22/23	23/35	36/39	27/35
e. . . . much easier to earn C's now	16/14	13/30	19/42	16/31
n	85/21	209/193	147/38	441/252
χ^2 , Significance	2.4	36.7@	12.9#	150.5@

100

* For a complete statement of the question and items, see the Student Questionnaire, Appendix D, p. 178, question 21 and the Faculty Questionnaire, Appendix F, p. 183, question 20.

Degrees of freedom = 4

Significance: # = .05 level, @ = .01 level

effect of eliminating D's and F's on the difficulty of earning C's. Most of these comments showed concern that, as one teacher put it, "The old D is now C." A few students omitted the question because of unfamiliarity with the grade. "I have never received [sic] a C," one Oregon scholar noted proudly.

Sub-group responses for student question 21 and faculty question 20 (Appendices N and O) were quite uniform, with χ^2 values significant at .05 or above for only the variables of student attendance and major and for none of the faculty variables. Full-time students and those with physical science majors found it easier to earn C's than did their counterparts, causing rejection of the null for these sub-groups.

Worry About Grades and Grading

Table 13, page 102, provides the responses of students who were asked to rate their relative worry over grades after adoption of the A-B-C-N or NR system and the responses of faculty who were asked to estimate student worry. Fourteen per cent of the students indicated that they worried more (items a and b); 54 per cent saw no change (item c); 29 per cent worried less (items d and e); and 3 per cent offered no opinion. Faculty estimated a more pronounced trend in the direction of less student worry over grades than did the students themselves. Only 12 per cent of the faculty observed more worry; 34 per

Table 13

Distributions of Student and Faculty Ratings of A-B-C-N or NR
System Effect on Student Worry About Grades

Rating Scale*	Flathead Student%/Faculty%	Oregon Student%/Faculty%	Grinnell Student%/Faculty%	All Institutions Student%/Faculty%
a. (Students) seem to worry much more about grades now	4/5	2/2	10/5	5/3
b. . . . worry slightly more about grades	4/9	9/7	12/18	9/9
c. . . . worry neither more nor less about grades now	57/27	48/36	61/29	54/34
d. . . . worry slightly less about grades now	14/32	29/36	16/42	21/37
e. . . . worry much less about grades now	15/23	9/10	1/3	8/10
n	90/21	217/179	152/37	459/237
χ^2 , Significance	8.1	6.5	18.1@	32.3@

*For a complete statement of the question and items, see the Student Questionnaire, Appendix D, p. 178, question 22 and the Faculty Questionnaire, Appendix F, p. 183, question 22.

Significance: # = .05 level, @ = .01 level

Degrees of freedom: 4

cent found no change; 47 per cent thought students worried less; and 7 per cent offered no estimate.

In explaining why she thought student worries over grades had increased, one student summarized the comments of many in writing, "[Now,] I am really disappointed when I get a B. B's are 'average' . . . and C's are 'below average.'" A few students who found no change under the new system echoed the comment of one blithe spirit, "I don't worry at all over academics," while others shared continuing concern, "I'm a pre-dental major and I always worry about grades." Several of those who found less worry agreed with the student who explained, "I know of people who were happy to lose credit for a course instead of receiving a failing grade." Indeed, some students commented that they would rather lose credit for a course than receive a C grade.

The χ^2 values for Flathead and Oregon did not indicate a significant difference in student-faculty opinion, but the value for Grinnell was significant at .01, as was the value for the overall results. Rejection of the null indicated student-faculty differences in the extent rather than the direction of change. Both groups found less student worry over grades under the new system, but faculty estimated a greater change under the new system than students reported.

Sub-group responses to question 22 (Appendices N and O) were generally uniform. The χ^2 values for the student variables of age, marital status, class, attendance, and GPA did reach the .05 significance

level or above, but again the rejection of the null indicates differences in the extent rather than the direction of change. Students over 25, married, at the upper class or graduate levels, and those with less than 3.0 GPA's found less worry under the new system than did their counterparts. None of the faculty variables for question 22 reached .05 significance, allowing retention of the independence null.

Table 14, page 105, provides responses to a similar question, which asked faculty to rate their own worry over grading after elimination of D's and F's. Overall results show 29 per cent to worry much more or slightly more (items a and b), 50 per cent to worry neither more nor less (item c), 19 per cent to worry either slightly less or much less (items d and e), and 2 per cent to have omitted the question.

Several faculty who indicated that they worry more about grading under the new system commented that the line between C level performance and that which would formerly have earned a D but now receives no credit is difficult to maintain. A few of those who found no change were in agreement with the teacher who explained, "I always worried. Grading is serious business." But just as many said they had never worried, for, as one put it, "[grading is] a necessary evil that is foolish to worry over." One of those who now worries less under A-B-C-No Record recalled, "F's were harder to give than to receive." His implication, shared in others' comments, is that it is easier to withhold credit than to fail students.

Table 14

Distributions of Faculty Ratings of A-B-C-N or NR
Effect on Faculty Worry About Grading

Rating Scale*	Flathead %	Oregon %	Grinnell %	All Institutions %
a. I worry much more about grading now	9	7	13	8
b. I worry slightly more about grading now	14	20	34	21
c. I worry neither more nor less about grading now	41	53	37	50
d. I worry slightly less about grading now	23	16	11	16
e. I worry much less about grading now	9	2	5	3
n	21	193	38	252

* For a complete statement of the question and items, see the Faculty Questionnaire, Appendix F, p. 183, question 21.

Incidence of Cheating

Responses to a question which asked for a rating of the relative incidence of academic cheating after elimination of D's and F's are shown on Table 15, page 107. Only 4 per cent of the students found much more or slightly more cheating (items a and b); 68 per cent saw no change (item c); 20 per cent found slightly less or much less cheating (items d and e); and 8 per cent omitted the question. Faculty observed the new grading system to have had less effect on cheating than did students. Three per cent believed that cheating has increased; 76 per cent found no change; 11 per cent saw a decrease; and 10 per cent omitted the question. There were few marginal notes by those answering the question, but many of those not responding commented that they had no contact with or knowledge of cheating. One student mildly chastised the researcher for even asking such a question, commenting, "Really, Mr. Taylor, this is Grinnell."

The χ^2 test indicated differences in student-faculty opinion to be significant at .05 for the overall results, causing rejection of the independence null for these variables.

Sub-group responses to question 23 (Appendices N and O) were generally uniform, with χ^2 values significant at .05 or above for only the variables of student age, major, and GPA and for the faculty variable of major. Students under 25, social science majors, those with 3.0 GPA's or above, and faculty in the humanities and physical sciences

Table 15

Distributions of Student and Faculty Ratings of A-B-C-N or NR Effect on Cheating

Rating Scale*	Flathead Student%/Faculty%	Oregon Student%/Faculty%	Grinnell Student%/Faculty%	All Institutions Student%/Faculty%
a. Students seem to cheat much more now	2/0	1/1	1/3	1/1
b. . . . seem to cheat slightly more now	2/5	2/0	4/8	3/2
c. . . . seem to cheat neither more nor less now	61/82	63/75	78/76	68/76
d. . . . seem to cheat slightly less now	11/9	17/10	9/3	13/9
e. . . . seem to cheat much less now	11/0	9/3	3/3	7/2
n	85/21	206/173	144/35	435/229
χ^2 , Significance	4.3	18.0@	2.7	13.1#

*For a complete statement of the question and items, see the Student Questionnaire, Appendix D, p. 178, question 23 and the Faculty Questionnaire, Appendix F, p. 183, question 23.

Significance: # = .05 level, @ = .01 level

Degrees of freedom: 4

found considerably less change in the incidence of cheating after elimination of D's and F's than did their colleagues.

Likelihood of Probation

Table 16, page 109, provides responses of students and faculty to a question concerning the effect of A-B-C-N or NR grading on the likelihood of scholastic probation. The two groups disagreed considerably on the extent of change. Only 10 per cent of the students thought it much more or slightly more likely that they would now be placed on probation (items a and b); 63 per cent saw no change in the likelihood (item c); 24 per cent thought it slightly less or much less likely (items d and e); and 3 per cent did not offer an opinion. Faculty responses indicate a much greater effect in the direction of less likelihood of probation. Although 22 per cent found students more likely to be placed on probation, only 19 per cent found no change, and 45 per cent rated probation less likely. Fourteen per cent omitted the question.

In explaining their impression that the likelihood of probation had increased, respondents commented that Oregon's ceiling on the percentage of No Credits accumulated and Grinnell's requirement of "normal progress" toward the four-year degree could adversely affect the academic status of many students. Those finding no change or less likelihood of probation offered little explanation for their views. It should be noted that Flathead Valley Community College does not have a

Table 16

Distributions of Student and Faculty Ratings of A-B-C-N or NR
Effect on Scholastic Probation

Rating Scale*	Flathead Student%/Faculty%	Oregon Student%/Faculty%	Grinnell Student%/Faculty%	All Institutions Student%/Faculty%
a. (Students) are much more likely to placed on probation now	3/0	6/5	3/3	5/4
b. . . . slightly more likely to be placed on probation now	4/5	4/22	7/8	5/18
c. . . . neither more nor less likely to be placed on probation now	56/23	56/20	77/13	63/19
d. . . . slightly less likely to be placed on probation now	10/9	17/28	6/55	12/31
e. . . . much less likely to be placed on probation now	16/45	14/10	5/13	12/14
n	86/18	218/168	150/35	454/221
χ^2 , Significance	13.2#	69.4@	71.4@	130.0@

*For a complete statement of the question and items, see the Student Questionnaire, Appendix D, p. 178, question 24 and the Faculty Questionnaire, Appendix F, p. 183, question 24.

Significance: # = .05 level, @ = .01 level

Degrees of freedom: 4

formal set of requirements or procedures established for academic probation.

Although students and faculty agreed on the direction of change, their differences of opinion as to the extent of change produced χ^2 values that were significant at high levels, causing rejection of the null of independence of variables.

Sub-group responses to question 24 (Appendices N and O) were consistent with overall results in most respects. Only the variables of student sex and major and the faculty variable of major produced values significant at .05 or above. Women students, those in the humanities and social sciences, and faculty in pre-professional fields found somewhat less change in the likelihood of probation than did their counterparts.

Enrollment in Electives

Table 17, page 111, shows responses to a question concerning the effect of the new grading system on student tendency to enroll in elective courses not required in their major fields of study. Many students and teachers found this exploratory enrollment to have increased under A-B-C-N or NR grading. Thirty per cent of the students indicated that they take many more or a few more of these courses now (items a and b); 60 per cent found no change (item c); 6 per cent indicated that they take a few less or many less such courses now (items d and e); and 4 per cent did not respond. Faculty estimated

Table 17

Distributions of Student and Faculty Ratings of A-B-C-N or NR Effect
on Tendency to Take Exploratory Elective Courses

Rating Scale*	Flathead Student%/Faculty%	Oregon Student%/Faculty%	Grinnell Student%/Faculty%	All Institutions Student%/Faculty%
a. (Students seem to) take many more such courses now	21/9	13/12	0/8	10/11
b. . . . take a few more such courses now	17/50	27/47	13/39	20/47
c. . . . take neither more nor less of these courses now	49/36	56/30	73/42	60/32
d. . . . take a few less such courses now	2/0	2/0	8/5	4/1
e. . . . take many less such courses now	1/0	0/1	5/3	2/1
n	86/21	218/177	150/37	454/235
χ^2 , Significance	11.0#	33.2@	29.6@	73.9@

*For a complete statement of the question and items, see the Student Questionnaire, Appendix D, p. 178, question 25 and the Faculty Questionnaire, Appendix F, p. 183, question 25.

Significance: # = .05 level, @ = .01 level

Degrees of freedom: 4

greater change in the direction of more exploration than the students themselves reported. Fully 58 per cent of the faculty found students to take more electives under the new system; 32 per cent saw no change; only 2 per cent found students taking less electives; and 8 per cent offered no estimate.

Student comments indicated that increased enrollment in electives was one of the more obvious effects of A-B-C-N or NR grading. Indeed, one went so far as to suggest that "this is the only relevant and significant difference." Faculty estimates of increased exploratory enrollment may be given credence on the basis of their experience as student academic advisors. Fully 95 per cent indicated such guidance responsibilities on the background portion of their survey form (question 9).

The χ^2 value for Flathead was significant at .05, and the values for Oregon and Grinnell reached the .01 level. A difference in student-faculty opinion sufficient to reject the null of independence was thus shown.

Sub-group results for question 25 (Appendices N and O) were less uniform for students than faculty. The χ^2 values for the student variables of age, marital status, class, and major were significant at .05 or above, causing rejection of the null. Students twenty-five and over, married students, lower classmen and graduates, and education majors were considerably more likely to take electives under the new grading system than were their counterparts. None of the χ^2 values for

faculty variables reached the significance level necessary for rejection of the null.

Grades as Threat or Reward

The next pair of questions involved a comparative rating of the use of grades by teachers as a threat or reward for conformity to their views under the traditional and non-punitive systems. As Table 18, page 114, indicates, 28 per cent of the students were of the opinion that teachers almost always or quite often use grades to enforce conformity under the A-B-C-D-F system (items a and b); 27 per cent thought that the practice occurred once in awhile (item c); 41 per cent found it seldom or almost never to occur (items d and e); and 4 per cent did not respond. Faculty found the practice to be less prevalent. Only 15 per cent estimated its occurrence as almost always or quite often; 22 per cent thought it occurred once in awhile; 47 per cent found it seldom or almost never practiced; and 16 per cent did not offer an opinion.

Written comments revealed considerable sensitivity to and controversy over the question. Several students who believed that their teachers often used grades to enforce conformity hastened to add that the practice was perhaps, as one explained "so subtle they aren't even aware of it." Other respondents countered by adding an item f to the question, labeling it "NEVER." Several teachers explained that while the practice may occur in other disciplines, it did not apply to

Table 18

Distributions of Student and Faculty Ratings of Teacher Use of Grades As
Threat or Reward for Conformity Under A-B-C-D-F System

Frequency Scale*	Flathead Student%/Faculty%	Oregon Student%/Faculty%	Grinnell Student%/Faculty%	All Institutions Student%/Faculty%
a. Almost always	13/0	4/2	3/0	5/2
b. Quite often	28/5	28/15	13/11	23/13
c. Once in awhile	25/23	26/22	28/21	27/22
d. Seldom	9/27	19/27	22/24	18/26
e. Almost never	16/36	21/19	31/24	23/21
n	87/20	219/166	148/30	454/216
χ^2 , Significance	15.4@	11.8#	1.6	28.8@

*For a complete statement of the question and items, see the Student Questionnaire, Appendix D, p. 178, question 26 and the Faculty Questionnaire, Appendix F, p. 183, question 26.

Significance: # = .05 level, @ = .01 level

Degrees of freedom: 4

mathematics, physics, or as one summed up, "the sciences." One teacher declined to estimate the actual occurrence, but noted that "the potential threat is always there" under traditional grading. Several faculty who did not answer the question explained that they could not generalize about the practices of their colleagues.

Chi-square tests of independence for Flathead and Oregon were significant at .05 or above, as were the overall results, causing rejection of the null.

Sub-group responses to question 26 were quite uniform, with only the student variables of age and class and the faculty variable of major field reaching a level of significance high enough to require rejection of the null. Students under twenty-five, those in the freshman and sophomore classes, and faculty in pre-professional fields found grades used to enforce conformity more often than did their counterparts.

Responses to the second question in this before-after sequence, reported on Table 19, page 116, indicate a decrease under A-B-C-N or NR grading in the use of grades by teachers as a threat or reward for conformity to their views. Although 14 per cent of the students still maintained that the practice occurred almost always or quite often (items a and b), 29 per cent thought it occurred only once in awhile (item c), 52 per cent seldom or almost never observed the practice (items d and e), and 5 per cent offered no opinion. Faculty were even.

Table 19

Distributions of Student and Faculty Ratings of Teacher Use of Grades As
Threat or Reward for Conformity Under A-B-C-N or NR System

Frequency Scale*	Flathead Student%/Faculty%	Oregon Student%/Faculty%	Grinnell Student%/Faculty%	All Institutions Student%/Faculty%
a. Almost always	3/0	2/1	2/0	2/1
b. Quite often	9/0	13/9	11/5	12/8
c. Once in awhile	24/18	33/22	25/26	29/23
d. Seldom	23/36	24/31	22/24	23/30
e. Almost never	29/36	25/20	37/26	29/23
n	85/20	218/165	148/31	451/216
χ^2 , Significance	4.4	7.6	2.2	11.3#
χ^2 , Significance Table 18 V 19	23.8@/1.4	17.3@/3.9	1.7/ .9	30.4@/5.2

116

*For a complete statement of the question and items, see the Student Questionnaire, Appendix D, p. 178, question 27 and the Faculty Questionnaire, Appendix F, p. 183, question 27.

Significance: # = .05 level, @ = .01 level

Degrees of freedom: 4

more convinced that the practice was uncommon, with only 9 per cent having found it almost always or quite often to occur, 23 per cent having found it once in awhile, 53 per cent insiting that it seldom or almost never occurred, and 15 per cent not responding.

Although χ^2 values for the three individual colleges were not sufficient to reject the null, overall results did indicate a difference in student-faculty opinion significant at the .05 level. However, the difference was in degree, not direction. Both groups agreed that grades were infrequently used to enforce conformity under the non-punitive grading system.

Sub-group results for question 27 (Appendices N and O) uniformly paralleled overall student-faculty opinion. The χ^2 test of independence showed none of the student or faculty variables to be significant at .05 or above.

A χ^2 comparison of each group's estimates of the use of grades to enforce conformity before and after adoption of the A-B-C-N or NR system (Table 19, page 116) showed a difference of opinion sufficient to cause rejection of the null for students at Flathead and Oregon. Although students at these two colleges found the practice to have significantly diminished under the new grading system, Grinnell students and faculty at all three institutions found the practice infrequent under both systems.

Sub-group comparisons of before-after opinions (question 26v27,

Appendices N and O) showed χ^2 values to be significant for nine of nineteen student variables and for none of the faculty variables. The null was thus retained for about half of the student sub-groups and for all of the faculty groups.

General Student-Faculty
Relationship

Responses to the final question, concerning the effect of A-B-C-N or NR grading on the general student-faculty relationship are shown on Table 20, page 119. Although most respondents in both groups found no change under the new system, a considerable number did see an improvement in the relationship. Fully 26 per cent of the students thought that they got along much better or a little better with their teachers (items a and b); 70 per cent saw no change in the relationship; 2 per cent thought they did not get along quite as well or nearly as well (items d and e); and 2 per cent did not answer. Faculty responses were similar, with 22 per cent observing students and teachers to get along better than before, 68 per cent finding no change, 4 per cent seeing a worsening of the relationship, and 6 per cent not offering an opinion.

Written comments included several indications of "better rapport" and "less tension" in the student-faculty relationship. However, one teacher found little change "except where faculty curry favor by giving inflated marks," and a student noted some faculty resentment "because [the non-punitive grading system] was foisted upon them."

Table 20

Distributions of Student and Faculty Ratings of A-B-C-N or NR
Effect on General Student-Faculty Relationship

Rating Scale*	Flathead Student%/Faculty%	Oregon Student%/Faculty%	Grinnell Student%/Faculty%	All Institutions Student%/Faculty%
a. (Students and teachers) get along much better than before	19/0	8/3	3/3	9/2
b. . . . get along a little better than before	10/32	25/19	9/16	17/20
c. . . . get along nei- ther better nor worse than before	60/59	65/67	83/74	70/68
d. . . . do not get along quite as well as before	1/5	0/3	5/8	2/4
e. . . . do not get along nearly as well as before	1/0	0/0	0/0	0/0
n	88/21	220/182	151/38	459/241
χ^2 , Significance	13.2#	14.2@	2.6	15.1@

*For a complete statement of the question and items, see the Student Questionnaire, Appendix D, p. 178, question 28 and the Faculty Questionnaire, Appendix F, p. 183, question 28.

Significance: # = .05 level, @ = .01 level

Degrees of freedom: 4

The χ^2 test of independence showed a difference in student-faculty opinion that was significant at .05 or above for Flathead, Oregon, and the overall results. As was the case on several previous questions, the groups were in agreement about the direction of change, but differed in their estimates of its extent. At Flathead, for example, 29 per cent of the students found the general student-faculty relationship to have improved under A-B-C-N or NR grading (items a and b), with 19 per cent taking the extreme position that it was much better (item a). Thirty-two per cent of the faculty agreed that the relationship had improved, but they found it only a little better (item b).

Sub-group results for question 28 (Appendices N and O) indicated differences of opinion to be significant at .05 or above for the student variables of class level and GPA and for none of the faculty variables. Students in the junior and senior classes and those with GPA's below 3.0 found considerably more improvement in the general student-faculty relationship than did their counterparts in other sub-groups. The null of independence was thus rejected for these exceptions and retained for all other student and faculty sub-groups.

Unsolicited Student-Faculty Responses

A number of written marginal comments, notes, and separate letters accompanied questionnaire returns. Many of the 103 unsolicited student responses and the 92 faculty responses were summarized in the

preceding sections of this chapter, as part of the analysis of specific questions. Other responses, of a more general nature, were sorted into three categories--statements negative toward the non-punitive grading system, statements positive toward the system, and statements either neutral toward the system and/or more directed to the overall question of grading than to this particular scheme.

The following excerpts are representative examples of responses negative towards non-punitive grading:

. . . I do not think the change has much more than illusory significance. The most practical result has been to make it difficult to pass students who would otherwise have earned a "D." (Oregon, social science teacher)

I do not like the "erase" idea. To me, it is dishonest and fails to show the record made by a student--for whatever circumstances or factors involved. (Grinnell, biology teacher)

. . . Your questions . . . couldn't sense the apathy of the students after change or the attitude of the teachers toward the apathy of the students. It is more difficult to earn an A, but not necessarily more difficult to get one! It is extremely difficult for the better students. (Flathead, social science student)

Under the new grading system, it is really difficult to "flunk out." Grades seem to be highly inflated today, lending very little reliability to GPA's as a measure of a student's performance and ability to learn. (Oregon, industrial relations student)

. . . My opinion of the [ABC-No credit system] is that it stinks. The result . . . is the use of the C grade as a catch-all It includes D students as well as C+ ones. (Oregon, social science student)

. . . The [A-B-C-No Record] system is absolutely useless to me. It is designed to benefit those who fail courses, and I never fail courses. (Grinnell, biology student)

If a person does badly in a course, it seems pointless to hide the fact Acceptance of the fact that you screwed up a course is better for your head than just forgetting about it. It gives you a better idea of your capabilities and limitations. (Grinnell, physical science student)

The following excerpts are representative examples of responses positive towards the system:

I encourage adopting of an A-B-C-No Credit type system. Why not accentuate the positive and eliminate the negative? Reward students for what they do instead of threatening them for what they don't do. (Just like the payroll system we "adults" work under) (Oregon, physical science teacher)

There is far less neurotic failure syndrome; the compensation factor of G.P.A. has been removed. (Oregon, theatre arts teacher)

There is a point I wish to make [about] the emotional effect of the change Under ABCDF, an "F" was very hard to cope with. Under our present system, if I find myself faced with a course which is not relevant, too difficult, not interesting, or for any reason not compatible with my present life condition, I can drop the course without any thought of "punishment." For me, this "safety valve" is the most significant effect of the change . . . (Flathead, humanities student)

I feel very lucky to have been a student at a college with a grading system such as FVCC's It takes the fear out of trying something new. It takes the pressure off of not being able to complete the requirements of a class in the prescribed time period. It has made me realize the importance of learning for my own sake . . . not for the grade I'm afraid I couldn't ever go back to the old grading system again. (Flathead student)

[A-B-C-No Record] gives the student a better chance to prove himself. If he fails once, he can try again without it showing on his record. (Grinnell, social science student).

The following excerpts are representative of responses that were neutral towards the specific A-B-C-N or NR alternative and/or more directed toward grading in general than a specific system:

Grades should be abolished. The student knows approximately where he stands with his peers. How one copes with real life situations has little if any relation to grades or other means of categorizing individuals. (Oregon, architecture teacher)

. . . Grading systems are very impersonal and should be improved so as to truly reflect an individual's gifts. . . . There is a true complexity involved that is oversimplified by grading in the conventional manner. If courses were organized around teaching instead of quizzing it might be better. (Flathead, student)

[Grades] are merely an institutional device to pigeon-hole students, funnel them to grad school, etc. I certainly do not consider the ABCDF v. the ABC debate a valid one. (Grinnell, social science student)

If you want my real opinion about the A-B-C-No Credit system, it's that it hasn't changed my academic life at all I've always worked hard for classes, not because I'm totally motivated by good grades, but because I really like to go to school and learn . . . (Grinnell, humanities student)

No Record, No Credit? As far as I knew we were still under ABCDF. (Oregon, social science student)

Admissions Officer Questionnaire Returns

As Table 21 indicates, questionnaires were sent to a total of

Table 21

Admission Officer Questionnaire Returns

Survey Region	Number Sent	Number Returned	Per cent Returned	Number Usable
Flathead	48	42	88	41
Oregon	62	48	77	46
Grinnell	112	78	70	73
Totals	222	168	76	160

222 transfer and graduate admissions officers, and 168 (76 per cent) were returned before the cut-off date. Of the eight unusable responses, most were not completed because the responding admissions officer declined to answer for other administrators and department personnel involved in the graduate admissions process. For this reason, one might question the responses provided by the 160 admissions officers who did participate in the survey. Admissions officers and department personnel appear to substantially agree on these matters, however, judging from the results of a survey similar to this study. Edward Stevens found a correlation of Spearman $r = .83$ between the responses of 16 departments at a major university and the responses of 147 graduate school admissions officers.²

Return rates of 70 per cent from the Grinnell region and 77 per cent from the Oregon region were surpassed by a strong 88 per cent from the Flathead region. These high return rates underscore the professional interest in non-traditional grading experiments in higher education and seem to justify confidence in survey results.

Admissions officer questionnaire results are organized to consider the following topics: (1) undergraduate transfer criteria, (2) graduate admissions criteria, (3) undergraduate competition for transfer and scholarships, and (4) graduate competition for admission

²Edward Stevens, "Grading Systems and Student Mobility," Educational Record, Fall 1973, p. 311.

and fellowships. For each topic, responses to specific questions are reported, by region; reference is made to sub-group breakdowns for the Flathead, Oregon, and Grinnell regions (fully tabulated in Appendix P, pages 207-208, Appendix Q, pages 209-210, and Appendix R, pages 211-212, respectively); statistical hypotheses are evaluated; and pertinent marginal comments by respondents are noted. A separate topic heading, unsolicited responses, is devoted to a summary of the lengthier notes and letters accompanying survey returns.

Undergraduate Transfer Criteria

Table 22, page 126, provides responses to two questions concerning criteria for transfer from community colleges to senior institutions in the Northwest region. Admissions officers were first asked to rank five criteria in order of their importance for graduates of community colleges with A-B-C-D-F grading. The most important criterion for admission was judged to be community college grades (item c), followed by high school grades (item b), the acknowledged quality of the community college (item d), scores on standardized tests (item a), and such other miscellaneous criteria as letters of recommendation, personal interviews, and supplemental test scores (item e). Of the 27 per cent whose responses were not tabulated, nearly all were partially completed items which could not be included without invalidating rank, W, and χ^2 calculations.

The second question of the pair asked for a ranking of the same

Table 22

Undergraduate Admissions Officer Mean Rankings of
Transfer Criteria, Flathead Region

Criteria*	For Students Graded A-B-C-D-F	For Flathead A-B-C-NR Graduates
a. Scores on ACT, SAT, or other standardized tests	3.3	3.1
b. High school grades	2.9	2.8
c. Community college grades	1.1	1.5
d. Acknowledged quality of community college	3.0	3.0
e. Other	4.7	4.7
n	30	29
W, Significance	.64@	.52@
χ^2 , Significance	9.2	

*For complete statements of the question and items, see the Flathead Region Questionnaire, Appendix I, p. 192, questions 5 and 6.

Significance: # = .05 level, @ = .01 level

Degrees of freedom: 20

five admissions criteria for graduates of Flathead Valley Community College's A-B-C-NR system. As Table 22 indicates, the rank order of the criteria remained the same for Flathead students as it was for applicants from other colleges, although the mean values of the items varied slightly. Grades were given somewhat less importance, while the importance of standardized test scores was increased. Partially completed rankings again accounted for the exclusion of many responses, 29 per cent for this question.

Concordance on both questions was very strong, with W values significant at .01 or above, disproving the null. However, the null of independence was retained, for χ^2 values were not sufficient to show a significant difference in admissions criteria for graduates of the two grading systems.

Sub-group results for questions five and six (Appendix P) were generally uniform. Ranking agreement produced W values as high as .81, and all sub-group values were significant at .01 or above, causing rejection of the null. Although some groups reversed the order of acknowledged quality (item d) and high school grades (item b), mean values were too close to disprove the χ^2 null of independence between criteria and group variables. A further χ^2 comparison, between each sub-group's criteria for A-B-C-D-F-graded applicants and graduates of the Flathead A-B-C-NR system (question five versus six) showed no significant differences.

The ranking of grades as the most important admissions criterion for community college transfers was underscored by responses to another question. Asked if they computed grade point averages for Flathead graduates--even though D's and F's were not shown on transcripts--85 per cent indicated that they did (question 7). Sub-group responses (Appendix P) ranged from 73 per cent of colleges with less than 1,000 students to 100 per cent of those with 4,000 or more students. Private schools and colleges within Montana were less inclined to compute GPA's for Flathead graduates than were their counterparts..

Graduate Admissions Criteria

Table 23, page 129, provides responses to two questions concerning admissions criteria for graduate school. Admissions officers in the Northwest and Midwest regions were asked to rank five criteria in order of their importance for applicants from undergraduate colleges with A-B-C-D-F grading. Respondents in Oregon's region judged undergraduate grades (item b) to be most important, followed by scores on standardized tests (item a), letters of recommendation (item c), the acknowledged quality of the institution (item d), and such other miscellaneous criteria as student-written statements of background and objectives, personal interviews, and supplemental test scores. Grinnell region admissions officers agreed that undergraduate grades and standardized test scores were first and second in importance and that other miscellaneous criteria ranked last, but they reversed the order of

Table 23

Graduate Admissions Officer Mean Rankings of Admissions Criteria,
Oregon and Grinnell Regions

Criteria*	<u>Oregon Region</u>		<u>Grinnell Region</u>	
	Students Graded A-B-C-D-F	Oregon A-B-C-N Graduates	Students Graded A-B-C-D-F	Grinnell A-B-C-NR Graduates
a. Scores on GRE or other standardized graduate tests		2.8/2.6		2.9/2.5
b. Undergraduate grades		1.3/1.6		1.1/1.7
c. Letters of recommendation		3.1/2.9		3.2/3.0
d. Acknowledged quality of undergraduate institution		3.2/3.2		2.9/3.0
e. Other		4.6/4.6		4.9/4.8
n		39/39		52/47
W, Significance		.58@/.47@		.71@/.53@
χ^2 , Significance		13.2		26.5

*For complete statements of the questions and items, see the Oregon Region Questionnaire, Appendix K, p. 194, questions 5 and 6 and the Grinnell Region Questionnaire, Appendix M, p. 196, question 5 and 6.

Significance: # = .05 level, @ = .01 level

Degrees of freedom: 20

letters of recommendation and quality of the undergraduate college. Partially completed items prevented tabulation of 15 per cent of the responses in the Oregon region and 29 per cent of those in the Grinnell region.

The second question of the pair asked admissions officers in the Northwest region to rank the same five criteria for applicants from the University of Oregon's A-B-C-N system and asked Midwest region officers to rank the criteria for applicants from the Grinnell College A-B-C-NR system. As Table 23 indicates, the rank order of the criteria remained the same for graduates with non-punitive records as it was for graduates of colleges with traditional systems, although the mean values of the items varied slightly. Grades were given somewhat less importance as admissions criteria, while the importance of scores on standardized tests and letters of recommendation was increased.

Ranking agreement in both regions was sufficient to disprove the null of non-concordance. Chi square values, however, did not indicate significantly different criteria rankings for applicants from colleges with traditional or non-punitive grading systems in either region, allowing retention of the null of independence.

Sub-group responses to questions five and six (Appendices Q and R) generally paralleled overall results for both regions, with some variation in the order of items c and d. None of the χ^2 values in either region was significant at .05, however, allowing retention of the null

of criteria and sub-group independence. The W values for all variables except Oregon region schools with graduate enrollments exceeding 2,999 were significant at .01, causing rejection of the non-concordance null. A further χ^2 comparison (question 5 versus 6) between each sub-group's criteria for A-B-C-D-F-graded applicants and graduates of the Oregon A-B-C-N system (Appendix Q) or the Grinnell A-B-C-NR system (Appendix R) showed no significant differences, allowing retention of the null.

As with the results of the undergraduate survey, the ranking of grades as the most important graduate admissions criterion was underscored by responses to the question on GPA computation. Although neither Oregon nor Grinnell provides GPA's on transcripts, admissions officers at 76 per cent of the graduate schools in the former region and at 84 per cent in the latter reported that they did compute a GPA for applicants from these two institutions (question 7). Sub-group responses (Appendices Q and R) ranged from 60 per cent of the Oregon region colleges with graduate enrollments under 100 to 100 per cent of the colleges with 500 or more graduate students. In the Grinnell region, the low was 71 per cent of the in-state graduate schools and the high was 91 per cent for colleges with 3,000 or more graduate students.

Undergraduate Competition for Transfer and Scholarships

Table 24, page 132, shows responses of admissions officers in the Northwest region to three questions concerning the effects of Flathead's

Table 24

Distributions of Undergraduate Admissions Officer Ratings of Effects of Flathead's
A-B-C-NR System on Competition for Transfer and Scholarships

Rating Scale*	Competition with A-B-C-D-F grades for admissions	Competition with out- of-region A-B-C-N or NR for admission	Competition with A-B-C-D-F for scholarships
a. A considerable advantage to Flathead applicants	7%	5%	7%
b. A slight advantage to Flathead applicants	15%	20%	10%
c. Neither an advantage nor a disadvantage to Flathead applicants	51%	68%	51%
d. A slight disadvantage to Flathead applicants	12%	2%	12%
e. A considerable disadvantage to Flathead applicants	10%	2%	12%
n	39	40	38

*For complete statements of the questions and items, see the Flathead Region Questionnaire, Appendix I, p. 192, questions 8-10.

non-punitive grading system on the transfer process. The first question involved a rating of the relative admissions chances of applicants from Flathead's A-B-C-NR system when competing with applicants from community colleges with the A-B-C-D-F system. Flathead graduates were judged to have a considerable or slight advantage in such competition (items a and b) by 22 per cent of the respondents, neither an advantage nor a disadvantage (item c) by 51 per cent, and a slight or considerable disadvantage (items d and e) by 22 per cent. Five per cent did not respond.

Written comments indicated that many of those who rated the non-punitive system as advantageous did so in the belief that transcripts without D's and F's gave their owners an "edge" over competing students whose colleges recorded these low marks. Some of those who found the A-B-C-NR system disadvantageous "discounted" the Flathead grades somewhat, assuming that some lower level performances had not been recorded. There was no indication that transfer would be denied on this basis, however, but rather that the need for supplemental test scores, letters of recommendation, and interviews would delay the admissions process. Several of those who did not respond or who indicated that the A-B-C-NR system was neither an advantage nor a disadvantage noted that "competition" for admission was minimal in a climate of declining college enrollment and vacant places. The tendency to accept the Flathead records at face value was further influenced for some by "a good experience with transfers from F.V.C.C."

Sub-group responses to question 8 (Appendix P) were mixed, but differences based upon the variables of college control, enrollment, and location did not produce χ^2 values sufficiently high to cause rejection of the independence null.

The next question involved a rating of the relative admissions chances of applicants from Flathead's A-B-C-NR system when competing with applicants from out-of-region community colleges that also use A-B-C-NR. As Table 24 indicates, 25 per cent of the Northwest admissions officers judged their familiarity with the community college within their region to give Flathead graduates a considerable or slight advantage in such competition (items a and b); 68 per cent found there to be neither an advantage nor a disadvantage (item c); 4 per cent judged Flathead students to be at a slight or considerable disadvantage (items d and e); and 3 per cent did not respond.

Sub-group responses to question 9 (Appendix P) showed differences in opinion for the variables of control and size to be significant at the .05 level. Admissions officers at private colleges and at institutions with less than 4,000 students judged their familiarity with the community college within their region to give Flathead graduates a much greater advantage over out-of-region applicants than did the officers at other colleges.

The answers to two other questions provide further insight into the competition between applicants from within the region and from

outside the region for transfer to four-year institutions. The 36 Northwest admissions officers responding to questions 3 and 4 indicated that of their 173,687 undergraduate students, fully 122,705 (71 per cent) came from high schools and/or community colleges within 500 miles of the senior institution. Admission or transfer to a four-year college, then, is largely an intra-regional concern. Further, the question of the acceptability of a given community college grading system to senior institutions is also resolved primarily by the transfer admissions officers in the same region as the junior institution.

The final question involved a rating of the relative chances of applicants from Flathead's A-B-C-NR system to receive scholarships when competing with applicants from community colleges with A-B-C-D-F grading. As Table 24 indicates, 17 per cent of the admissions officers in the Northwest region judged the A-B-C-NR system to give Flathead graduates a considerable or slight advantage over traditionally graded applicants (items a and b); 51 per cent found neither an advantage nor a disadvantage (item c); 24 per cent rated Flathead graduates at a slight or considerable disadvantage (items d and e); and 8 per cent did not respond.

As on an earlier question, written comments indicated that many of those who rated the non-punitive system as advantageous assumed that the elimination of D and F grades would tend to "inflate" GPA's, while those rating the system as disadvantageous indicated that such records

would either be "discounted" or actually "disqualified" for scholarships based primarily upon academic performance. Those who found neither an advantage nor a disadvantage volunteered no explanations, but several of those not answering the question commented that there were either no scholarships to offer or that transfer students were ineligible for the few available.

Sub-group responses to question 10 (Appendix P) were mixed, but the differences did not produce χ^2 values significant at .05 or above. The null of independence between sub-group and response variables was thus retained.

Graduate Competition for
Admission and Fellowships

Table 25, page 137, provides responses of admissions officers to three questions concerning the effects of undergraduate non-punitive grading on the graduate admission process. The first question asked Northwest graduate officers to rate the admissions chances of applicants from Oregon's A-B-C-N system when competing with applicants from colleges with the A-B-C-D-F system. Oregon applicants were judged to have a considerable or slight advantage in such competition (items a and b) by 11 per cent of the respondents, neither an advantage nor a disadvantage (item c) by 67 per cent, and a slight or considerable disadvantage (items d and e) by 19 per cent. Three per cent did not respond.

Table 25

Distributions of Graduate Admissions Officer Ratings of Effect of A-B-C-N or NR System on Competition for Admission and Fellowships, Oregon and Grinnell Regions

Rating Scale *	Competition with A-B-C-D-F for admission Oregon/Grinnell	Competition with out- of-state A-B-C-N or NR for admissions Oregon/Grinnell	Competition with A-B-C-D-F for fellow- ships & assistantships Oregon/Grinnell
a. A considerable ad- vantage to (Oregon or Grinnell) appli- cants	2%/ 3%	9%/ 4%	0%/ 0%
b. A slight advantage	9%/ 5%	28%/15%	9%/ 8%
c. Neither an advantage nor a disadvantage	67%/49%	57%/64%	61%/49%
d. A slight disadvan- tage	15%/22%	4%/ 4%	17%/18%
e. A considerable disadvantage	4%/ 8%	0%/ 4%	7%/16%
n	45 /64	45 /67	43 /67
χ^2 , Significance	3.0	5.9	4.4

*For complete statements of the questions and items, see the Oregon Region Questionnaire, Appendix K, p. 194, questions 8-10 and the Grinnell Region Questionnaire, Appendix M, p. 196, questions 8-10.

Significance: # = .05 level, @ = .01 level

Degrees of freedom: 4

The possible negative effects of non-punitive grading on graduate admission were more pronounced in the Midwest region. In responding to the same question regarding Grinnell's A-B-C-NR system, 8 per cent of the admissions officers rated Grinnell applicants as having a considerable or slight advantage, 49 per cent saw neither an advantage nor a disadvantage, and 30 per cent found applicants with such records to be at a slight or considerable disadvantage in competition with applicants offering traditional undergraduate records.

Written comments suggested that those who found applicants with A-B-C-N or NR records to have an advantage over traditionally graded applicants assumed that the elimination of D's and F's tended to "distort the meaning of the grade point average," the most important graduate admissions criterion, by "inflating" the academic record. Several of those who found the system disadvantageous to applicants agreed with the above reasoning but took steps to compensate for the alleged distortion. Some of the admissions officers in the Oregon region, for example, counted N's as D's or F's in computing undergraduate GPA's. An administrator at a large university in the Grinnell region went even further, assuming that "a student's normal load would have been 15 hours," and counting any "missing hours" on undergraduate transcripts as F's. (This practice would also effectively bar working students and other part-timers from graduate admissions.) The major disadvantage, however, seemed to be delay rather than denial of

admission, with supplemental test scores, letters of recommendation, and interviews being requested of applicants with non-traditional records. Several of those who judged A-B-C-N or NR neither an advantage nor a disadvantage assumed that applicants were not affected by such a system, for as one put it, "potential graduate students tend to operate above the effective level of 'no credit.'"

The null of independence was retained, for a significant difference in the opinions of respondents from these two regions was not shown. Sub-group responses to question 8 (Appendices Q and R) were fairly uniform for both Northwest and Midwest, with only the variable of enrollment in the latter region producing a χ^2 value that was significant at .05 or above. Respondents at universities with more than 3,000 graduate students judged the Grinnell A-B-C-NR system to be considerably more of a disadvantage in the admissions process than did their colleagues at smaller institutions. The null of independence was retained for all but this one exception.

The next question involved a rating of the relative admissions chances of graduate applicants from regional colleges with the A-B-C-N or NR system when competing with applicants from out-of-region colleges which employ the same non-punitive system. As Table 25 indicates, 37 per cent of the admissions officers in the Northwest judged their familiarity with the University of Oregon to give its graduates a considerable or slight advantage (items a and b) in such competition;

57 per cent found neither an advantage nor a disadvantage (item c); 4 per cent saw a slight or considerable disadvantage (items d and e); and 2 per cent did not respond. In the Midwest, 19 per cent of the admissions officers judged their familiarity with Grinnell College to give its graduates an advantage over A-B-C-NR-graded applicants from colleges outside the region; 64 per cent found neither an advantage nor a disadvantage; 8 per cent saw a disadvantage; and 9 per cent did not respond.

Chi-square values did not show a significant difference in the opinions of administrators in the two regions on this matter. Subgroup responses on question 9 (Appendices Q and R) were generally uniform, for both Northwest and Midwest, with only the variable of location in the latter region producing a χ^2 value that was significant at .05. Respondents at colleges in Iowa judged their familiarity with Grinnell to give its graduates considerably more of an advantage in competition with non-traditionally-graded applicants from other regions than did respondents at colleges elsewhere in the Midwest.

As on the undergraduate survey, the answers to two other questions provide further insight into the competition between applicants from within and outside the given regions for graduate admission. The 40 Northwest administrators responding to questions 3 and 4 indicated that of their 39,168 graduate students, fully 29,442 (75 per cent) came from undergraduate institutions within 500 miles of the graduate school.

Similarly, 67 Midwest administrators indicated that of their 97,146 graduate students, 64,779 (67 per cent) came from undergraduate institutions within 400 miles of the graduate school. Thus graduate admission is shown to be largely an intra-regional concern. The acceptability of a particular grading system to graduate schools is resolved primarily by admissions policies in the same region as the undergraduate institution.

The final question involved a rating of the relative chances of graduates of non-punitive systems to receive fellowships and teaching assistantships when competing with applicants from colleges with traditional grading. As Table 25 indicates, 9 per cent of the Northwest admissions officers judged the Oregon A-B-C-N system to give its graduates a considerable or slight advantage (items a and b); 61 per cent found neither an advantage nor a disadvantage (item c); 24 per cent saw a slight or considerable disadvantage (items d and e); and 6 per cent did not respond. In the Midwest, 8 per cent judged the Grinnell A-B-C-NR system to give its graduates an advantage; 49 per cent found neither an advantage nor a disadvantage; 34 per cent saw a disadvantage; and 9 per cent did not respond.

As on previous questions, written comments indicated that those who found the non-punitive system advantageous assumed that the elimination of D's and F's tended to "inflate" grade point averages. Few of those who saw non-punitive grading as a disadvantage suggested that

such records would alone deny fellowships or teaching assistantships to otherwise qualified applicants, but there was a strong indication that the application process would be delayed to allow for supplemental letters of recommendation and test scores. Those who saw non-punitive grading as giving the applicant neither an advantage nor a disadvantage seemed to follow the policy of accepting undergraduate transcripts from reputable colleges in their region at face value.

There was not a significant difference in the opinions of admissions officers in these two regions on this question, allowing retention of the null. Sub-group responses to question 10 (Appendices Q and R) were generally uniform, with no χ^2 values indicating differences in variables to be significant at .05 or above. The null of independence was thus retained.

Unsolicited Admissions Officer Responses

A number of written marginal comments, notes, and separate letters accompanied questionnaire returns. Many of the thirty-seven unsolicited responses were summarized in the preceding sections of this chapter, as part of the analysis of specific questions. The following excerpts, however, represent the wide range of the remaining responses.

All such attempts to withhold negative information implies [sic] deceit and attempts to hinder objective evaluation. (Grinnell region, small state college)

. . . Each department tries to look over the total credential file of each of its applicants. Most . . . do not follow any rigid policy . . . but look more to the total pattern of the student's transcript than to a grade point average. (Grinnell region, large private university)

How can any record which lists only the good achievements of a student and none of the poor be used as a valid recommendation for acceptance of a transfer student or as a quality indicator for job placement . . . ? If this trend becomes universal, the person's academic record will be useless for any other than egotistical reasons. (Flathead region, small state college)

We deal with students from a number of colleges which no longer use the D or F grade. I don't become concerned unless there are a large number of non-traditional grades which may indicate inadequate student progress. (Flathead region, medium-size state college)

When we get an application from a school such as Grinnell, we can't help but feel that such a student is at a disadvantage since given the known and the unknown we . . . are inclined to go with the known factors. And Grinnell's system leaves doubts for a student unless the student has kept to a full program . . . and shows high grades. (Grinnell region, medium-size state university)

I really think that changing to the U of O system would make little difference at a school like [ours]. However, a school like [the University of] Washington might think differently. (Oregon region, medium-size state college)

. . . Applicants from the University of Oregon . . . would probably be individually judged and many factors considered: how high the grades were, whether or not they were in the field of planned graduate study. (Oregon region, small private college)

My feeling is that if a reviewer knows the nature of the Grinnel [sic] system, it will work against the applicant's interest I would not be too concerned about this type of grading system if our only job was to determine whether or not an applicant was qualified for graduate study. However, competition for admission and financial aid is very intense . . . and we are usually trying to determine who are the best applicants I doubt that grading systems were originally designed to provide comparison, but grades are usually one of the better measures of ability that are available. (Grinnell region, large private university)

Summary

Data on grade distributions for six academic years (1967-68 through 1972-73) were collected from three institutions that had adopted non-punitive grading during that period--Flathead Valley Community College, the University of Oregon, and Grinnell College--and three comparable regional institutions that had retained the traditional system--North Idaho (Community) College, Oregon State University, and Wartburg College. Unobtainable data on Grinnell's one year of non-punitive grading prevented analysis or comparison with Wartburg, but data from the other participating institutions showed the following trends:

1. Flathead's downward pattern of combined passing grades during four years under the A-B-C-D-F system continued through the first two years of A-B-C-NR grading and paralleled the pattern at North Idaho.

2. While North Idaho's percentage of combined A-B-C grades remained fairly constant during the six years, Flathead's percentage declined steadily during both traditional and non-punitive grading.

3. Although the percentage of A's increased slightly during non-punitive grading at Flathead, considerably less B's and C's were awarded--in contrast to the predictions of some who expected substantial increases in these letter grades after adoption of the non-punitive system.

4. While the percentage of combined passing grades remained

consistently high at Oregon State during the six-year period, it sharply declined during three years of A-B-C-D-F grading and the first year of A-B-C-N grading at Oregon, leveling off the next two years.

5. The high percentage of combined A-B-C grades at Oregon State declined somewhat for five years and then leveled off, while the modest percentage at Oregon declined sharply during three years of traditional grading and the first year of non-punitive grading, leveling off thereafter.

6. The percentage of A's slightly increased during traditional grading at Oregon, slightly decreasing and leveling off during non-punitive grading, while the pattern of decreasing percentages of B's and C's continued into the first year of the new system, leveling off thereafter--again failing to substantiate hypotheses of considerable increases in the percentages of these grades after adoption of the non-punitive system.

A total of 710 students and 396 faculty at Flathead, Oregon, and Grinnell were surveyed regarding their attitudes toward and experiences under the traditional and non-punitive grading systems. The 512 students (72 per cent) and 278 faculty (70 per cent) who responded expressed the following opinions:

1. Students and faculty generally agreed that the prime objective of grading was to provide the student with an indication of his academic performance and the least important objective was to record an

impression of student character and personality.

2. Students chose A-B-C-N or NR grading as most desirable and A-B-C-D-F grading as least desirable, while faculty ranked A-B-C-D-F first and A-B-C-N or NR second, choosing the listing of student skills and competencies last out of eight possibilities.

3. Students indicated that their motivation for academic achievement under both A-B-C-D-F and A-B-C-N or NR grading was first their desire to satisfy themselves and second their desire to learn the subject matter, but faculty assumed the prime motivator under both systems to be student desire to earn A or B grades.

4. Students found A-B-C-N or NR grading slightly more accurate than the A-B-C-D-F system, while faculty were of the opposite opinion.

5. Although most students and faculty did not see much change in the difficulty of earning A's and B's, over a third thought that it was easier to earn C's after the elimination of D's and F's.

6. Over a quarter of the students and about a fifth of the faculty said they worried less about grades after the non-punitive system was adopted--but about a quarter of the faculty worried more.

7. Although nearly a quarter of the students thought academic cheating had decreased under non-punitive grading, most respondents found no change.

8. About a quarter of the students and over half of the faculty believed that academic probation was less likely under A-B-C-N or NR

grading.

9. Nearly a third of the students and over half of the faculty found student enrollment in exploratory elective courses more likely under A-B-C-N or NR grading.

10. Nearly all faculty agreed that the teacher use of grades as a threat or reward for conformity was infrequent under both traditional or non-punitive grading, but over a fourth of the students found the practice to occur often under A-B-C-D-F grading, while only about a tenth found it as frequent under the A-B-C-N or NR system.

11. Nearly a third of the respondents observed an improvement in the general student-faculty relationship after adoption of non-punitive grading, but most others saw no change.

A total of 222 college admissions officers in the Northwest and Midwest were surveyed concerning the effects of non-punitive grading on transfer and admission. Specifically, 42 officers (88 per cent) at institutions within 500 miles of Flathead Valley (Montana) Community College responded in regard to the latter's A-B-C-NR grading; 48 (77 per cent) within 500 miles of the University of Oregon offered opinions on Oregon's A-B-C-N records; and 78 (70 per cent) within 400 miles of Grinnell (Iowa) College reacted to this institution's A-B-C-NR system, with the following results:

1. Undergraduate admissions officers in the Northwest ranked community college grades the most important transfer criterion, followed

by high school grades, the acknowledged quality of the college, and test scores--for graduates of both the Flathead A-B-C-NR system and the A-B-C-D-F system at other community colleges.

2. Graduate admissions officers in the Northwest ranked undergraduate grades the most important admissions criterion, followed by test scores, letters of recommendation, and the acknowledged quality of the undergraduate institution--for graduates of both the Oregon A-B-C-N system and the traditional system at other colleges.

3. Graduate admissions officers in the Midwest were less uniform, ranking undergraduate grades the most important admissions criterion for graduates of both the Grinnell A-B-C-NR system and the traditional system at other colleges, but finding test scores and the acknowledged quality of the institution equally important for all but Grinnell graduates, for whom test scores became more critical.

4. Undergraduate and graduate admissions were shown to be largely intra-regional concerns, for 71 per cent of the undergraduate students in the Northwest came from institutions within 500 miles of the given college; 75 per cent of the graduate students in the Northwest came from undergraduate colleges within 500 miles of their graduate school; and 67 per cent of the graduate students in the Midwest came from undergraduate colleges within 400 miles of their graduate school.

5. Although most undergraduate admissions officers found Flathead's A-B-C-NR system to have no negative effects on transfer or

scholarships, nearly a quarter found it a disadvantage (at least delaying admission) in competition with A-B-C-D-F-graded applicants, and a quarter judged their familiarity with Flathead to give its graduates an advantage over applicants from colleges with similar systems in other regions.

6. Although most graduate admissions officers found Oregon's A-B-C-N system to have no negative effects on admission, fellowships, or assistantships, about one-fifth found it a disadvantage (at least delaying admission) in competition with A-B-C-D-F-graded applicants, and over a third judged their familiarity with Oregon to give its graduates an advantage over applicants from colleges with similar systems in other regions.

7. Although most graduate admissions officers found Grinnell's A-B-C-NR system to have no negative effects on admission, fellowships, or assistantships, about one-third found it a disadvantage (at least delaying admission) in competition with A-B-C-D-F-graded applicants, and about one-fifth judged their familiarity with Grinnell to give its graduates an advantage over applicants from colleges with similar systems in other regions.

Chapter 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

In the last decade, many students, behavioral scientists, and educators have challenged the basic assumptions upon which traditional grading is based. They have questioned the accuracy and meaning of the A-B-C-D-F symbols and the necessity for permanent records of failure. A movement for grading reform has affected all levels of schooling, from kindergarten to college. Suggestions for grading alternatives have included Pass-Fail (P-F), Credit-No Credit (C-NC), written evaluations, and competency-based criterion-reference systems. A compromise between tradition and reform, the A-B-C-No Credit or No Record System (A-B-C-N or NR), retains the ranking of achievement but merely withholds credit rather than recording D's and F's when performance is below standards.

Recent surveys showed an overwhelming majority of colleges to have modified their grading systems during the 60's and early 70's, with most of them adding the P-F option, over half no longer including F's in GPA calculations, and a number eliminating the F grade completely. Although there is a growing body of research on P-F grading, little information is available on the effects of the "non-punitive" A-B-C-N or NR system. This study was one of the initial attempts to document this latest grading alternative. The problem was:

1. To compare the distribution of grades before and after the elimination of D and F grading at selected colleges.

2. To describe the attitudes toward A-B-C-D-F and A-B-C-N or NR grading held by students with experience under both systems at selected colleges.

3. To describe the attitudes toward A-B-C-D-F and A-B-C-N or NR grading held by faculty with teaching experience under both systems at selected colleges.

4. To determine the effect the elimination of D and F grading at selected colleges has had on the acceptability of their students to regional transfer and graduate school admissions officers.

The research focused on three institutions which had eliminated D and F grading, Flathead Valley (Montana) Community College, the University of Oregon, and Grinnell (Iowa) College. In the light of the review of literature, this study's attempt to compile a detailed profile of information concerning the effects of the A-B-C-N or NR system seemed timely and necessary.

SUMMARY

Summary of Review of Literature

The initial phase of research involved a review of literature, to establish the historical, philosophical, and psychological context for grading reform and the extent of published documentation of experiences with recent grading modifications. A tradition whose genesis may be traced to early American church schools appeared to contribute to the continuing use of grades as the student's academic "day of

reckoning." More enlightened educators have seen no moral significance in grading, but rather an indication of the competency of instruction and the readiness and learning rates of pupils.

Psychologists have found that educational systems which allow students to build on their successes and which avoid punishment for failure are most conducive to learning. In contrast, research has suggested that the threat of failing grades encourages the seeking of short-term answers for tests rather than long-term concepts for life, can block learning with fear, and promotes cheating. It has been further argued that permanent records of failure damage self-concepts, establish a self-fulfilling pattern of failure, and unnecessarily deny future educational and career opportunities. Although education per se was found to affect career success, relative scholastic performance--as measured by grades--was not shown to have any correlation with achievement in such post-school careers as business, teaching, engineering, and medicine.

Research on college adoption of P-F grading indicated general student support for the system, although its influence appeared to be limited to its use as a temporary release from pressures in A-B-C-D-F-graded courses. Initial evaluation of A-B-C-N or NR grading focused on the philosophy of the system, finding faculty divided over it and students in general agreement with it. Several national surveys found college transfer and graduate admissions officers to generally oppose

non-traditional grading, although such ranked alternatives as A-B-C-N or NR were more acceptable than such unranked systems as P-F or written evaluations.

Summary of Grading Trends

Grade distributions for the six academic years from 1967-68 through 1972-73 were requested from Flathead, Oregon, and Grinnell. For comparison, additional data were requested from three similar institutions retaining the traditional grading system, North Idaho (Community) College, Oregon State University, and Wartburg College (Iowa). Data on Grinnell's one year of A-B-C-NR grading proved unavailable, but information for the Flathead-North Idaho and Oregon-Oregon State comparisons was complete.

The analysis of data involved the calculation of rates-of-change (Δ) in the annual percentages of grades and of mean rates-of-change ($\bar{x}\Delta$) for periods before and after the elimination of D and F grades. A null hypothesis that $\pm\Delta$ values after adoption of non-punitive grading do not exceed the values during traditional grading was advanced, as was the alternative hypothesis that the Δ values with the A-B-C-N or NR system are greater than values during traditional grading. The null assumed that the elimination of D's and F's would not affect previously established patterns of the remaining grades, and the alternative assumed that an increase in passing grades would accompany the non-punitive system--representing a deterioration in

academic standards. The major findings were:

1. The six-year patterns of combined passing grades (A, B, C, D, S, and P) at Flathead and North Idaho showed remarkably similar downward trends. Flathead's passing ratio during four years of A-B-C-D-F grading declined from 81.4 per cent of attempts to 78.4, and it continued downward to 71.0 in two years of A-B-C-NR grading. The null hypothesis was rejected, for the -8.55Δ in the first year of non-punitive grading was a greater annual drop than any during traditional grading, and the alternative hypothesis was clearly disproved by a decreasing rather than increasing ratio of passing grades to attempts following adoption of the non-punitive system.

2. The pattern of combined A-B-C grades at Flathead during the six years showed a steady decline, while the North Idaho percentage remained at about the same level. In four years of A-B-C-D-F grading, Flathead's percentage dropped from 67.8 to 56.3, and it continued downward to 49.8 in two years of A-B-C-NR grading. The null was retained, for Δ values during non-punitive grading exceeded previous values, and the alternative hypothesis was disproved by decreasing percentages of combined A-B-C grades after adoption of the A-B-C-NR system.

3. Flathead's six-year patterns of individual A, B, and C grades were mixed, with A's rising slightly and B's declining slightly--while C's dropped considerably. During four years of A-B-C-D-F grading, the percentage of A's increased from 15.1 to 20.5; B's decreased from

24.2 to 21.1; and C's dropped from 28.5 to 14.8. In the first year of A-B-C-NR grading, A's decreased to 20.0 and B's increased to 21.6, while C's continued downward to 12.5. The second year, A's increased slightly to 21.2 and B's decreased to 19.2, while the C continued sharply downward to 9.4. The null was rejected for A's and B's, as both $\pm\Delta$ values in the first year of non-punitive grading exceeded previous values, and retained for C's, whose Δ values were more modest. Decreasing percentages in one or more of the years following adoption of non-punitive grading disproved the alternative hypothesis.

4. The six-year pattern of combined passing grades (A, B, C, D, and P) at Oregon showed a steady decline and abrupt leveling off, while Oregon State's percentage remained at about the same high level during the period. Oregon's passing ratio in three years of A-B-C-D-F grading declined from 91.6 of attempts to 86.4, and it continued downward to 82.4 in the first year of A-B-C-N grading, leveling off thereafter. The null was rejected, for the -4.63Δ in the first year of non-punitive grading was a greater annual drop than any during traditional grading, and the alternative hypothesis was disproved by the same decreasing Δ after adoption of A-B-C-N.

5. The patterns of combined A-B-C grades at Oregon and Oregon State showed similar declining and leveling off trends during the six years, although Oregon State's percentage remained consistently higher. In three years of A-B-C-D-F grading, Oregon's ratio dropped from 76.0

per cent to 66.7, and it continued downward to 60.5 in the first year of A-B-C-N grading, leveling off thereafter. The null was rejected, for the -9.30Δ in the first year of non-traditional grading exceeded previous values, and the alternative hypothesis was disproved by the same decreasing Δ value.

6. Oregon's six-year patterns of individual A, B, and C grades were mixed, with A's rising and falling and with B's and C's declining and abruptly leveling off. During three years of A-B-C-D-F grading, the percentage of A's increased from 22.9 to 25.5, but in the first two years of the A-B-C-N system the grade dropped to 23.7 and 22.6, leveling off thereafter where it began six years earlier--at 22.9. However, B's and C's decreased in three years of traditional grading from 31.1 and 22.1 per cent respectively to 26.5 and 14.6, with the percentages continuing downward to 23.4 and 13.4 in the first year of non-traditional grading and then leveling off and slightly rising, respectively, thereafter. The null was rejected because the -7.06Δ for A's and -11.70Δ for B's in the first year of non-traditional grading exceed previous Δ values and the slight increases in C's during the second and third years were the only positive Δ values in six years. However, the uniform decrease in A's, B's, and C's immediately after adoption of A-B-C-N disproved the alternative hypothesis.

7. There were indications that "informal" grading policies co-existed with formal grading systems at both Flathead Valley and

Oregon during the six-year period. At Flathead, the W grade increased in four years of A-B-C-D-F grading from 9.0 to 17.8 per cent--anticipating adoption of the A-B-C-NR system--and during both traditional and non-traditional grading at Oregon, the percentages of P's increased from 11.5 to 21.6, W's from 1.1 to 5.2, and I's from 4.6 to 5.3.

Summary of Student-Faculty Surveys

Survey instruments were designed to record the attitudes of students and faculty at Flathead, Oregon, and Grinnell toward A-B-C-N or NR grading and the A-B-C-D-F system it replaced. Analysis of questions requiring ranked responses involved the calculation of mean ranks--to indicate rank order and value, Kendall's coefficient of concordance (W)--to indicate the extent of agreement among respondents, and the chi square (χ^2) test of independence--to indicate the relationship between the variables of response item and respondent group (i.e., student or faculty) and sub-group (i.e., age, sex, major field, class level or experience, etc.). The null hypotheses for these questions were that W and χ^2 values are not significant at .05. Analysis of questions requiring ratings on a five-point scale involved a description of the response distribution, and the use of the χ^2 test of independence for item and group variables. As on previous questions, the null was that these variables are below .05 significance. When pairs of questions compared experiences before and after grading modification,

the χ^2 null was that differences in opinions are not significant at .05 or above.

A total of 710 student questionnaires and 396 faculty questionnaires were sent, and return rates were 512 (72 per cent) and 278 (70 per cent), respectively. Samples were sufficient to provide 95 per cent confidence that responses were ± 5 per cent of the population parameters of 2,160 students and 586 faculty. The major findings were:

1. The prime objective of grading, for both students and faculty, was to provide the student with an indication of his academic performance, and the least important objective was to record an impression of student character and personality. The objective of indicating student effort as well as academic performance was ranked second by students but sixth out of seven by faculty, while the objectives of offering a general evaluation of academic performance and of providing a record of that performance to others (e.g., graduate admissions officers and prospective employers) were ranked second and third by faculty but only fourth and fifth by students. The W values indicated concordance at .01 for students at all three colleges and faculty at Oregon and Grinnell, requiring rejection of the null. The null of independence was also rejected, as χ^2 values were significant at .01.

2. Responses to similar questions in which students were asked to estimate the rankings of these same objectives by faculty and

faculty were asked to estimate student rankings showed each group to have only a limited idea of the other's opinions and considerable reluctance to even estimate them. Faculty ranked only three objectives correctly and students only one, producing χ^2 values at .05 significance or above, requiring retention of the null of independence. And overall W values significant at .05 or above indicated that student and faculty groups were in considerable concordance regarding their respective inaccurate estimates, requiring rejection of the null.

3. Students ranked variations of the A-B-C-N or NR system first and second of eight possibilities, choosing detailed written evaluations third and the traditional A-B-C-D-F system last, while faculty ranked A-B-C-D-F first, with A-B-C-N or NR second and the listing of student skills and competencies last. The significance of overall W and χ^2 values at the .01 level required rejection of the nulls of non-concordance and independence of variables.

4. Students indicated that their motivation for academic achievement under both A-B-C-D-F and A-B-C-N or NR grading was first their desire to satisfy themselves and second their desire to learn the subject matter, but faculty incorrectly assumed the prime motivator to be student desire to earn A or B grades. Overall W and χ^2 significance at .01 indicated concordance in student rankings and inaccurate faculty estimates and showed a relationship between variables, causing rejection of the nulls.

5. Students judged A-B-C-N or NR grading to be somewhat more accurate than the A-B-C-D-F system, while faculty were of the opposite opinion. Thirty-seven per cent of the students and 58 per cent of the faculty rated traditional grading as fairly accurate, with most others judging it to overstate or understate learning to some degree, while 43 per cent of the students and 37 per cent of the faculty rated non-punitive grading as fairly accurate, and the balance found it inaccurate. A χ^2 test indicated these before-after comparisons of the two systems to have shown differences that were significant at .05 for faculty and below that level for students. Other χ^2 values were sufficient to cause rejection of the independence null.

6. Although two-thirds of the students and faculty found it neither harder nor easier to earn A's after the elimination of D's and F's, and over half found no change in the difficulty of earning B's, 43 per cent of the students and 66 per cent of the faculty believed that it was to some extent easier to earn C's. Chi-square values were significant at .05, requiring rejection of the null.

7. Fully 29 per cent of the students and 19 per cent of the faculty said they worried less about grades and grading with the A-B-C-N or NR system. Most of the remaining students found no change, but 29 per cent of the faculty worried more. The χ^2 values were sufficient to reject the null of independence.

8. Although 20 per cent of the students and 11 per cent of the faculty believed academic cheating to have decreased after the elimination of D's and F's, 68 per cent of the students and 76 per cent of the faculty found no change. The χ^2 values at two of the institutions were not high enough to indicate a significant difference in student-faculty opinion, although the overall value was sufficient to reject the null.

9. Twenty-four per cent of the students found themselves less likely to be placed on academic probation with the A-B-C-N or NR system, and 45 per cent of the faculty agreed. However, 10 per cent of the students and 22 per cent of the faculty found probation more likely. Chi-square values significant at .05 or above caused rejection of the null.

10. Enrollment in electives was more likely after elimination of D's and F's, according to 30 per cent of the students and 58 per cent of the faculty, but most of the others found no change. Chi-square values were sufficient to reject the null.

11. The great majority of faculty agreed that the use of grades as a threat or reward for conformity to teacher views was infrequent under both A-B-C-D-F and A-B-C-N or NR grading, but 28 per cent of the students found the practice to occur often during traditional grading, while half as many found it as frequent after adoption of the non-punitive system. A χ^2 test indicated these before-after comparisons

of the two systems to have shown differences that were significant at .01 for students, but below .05 for faculty. Overall χ^2 values were high enough to reject the independence null.

12. An improvement in the general student-faculty relationship after elimination of D's and F's was observed by 26 per cent of the students and 22 per cent of the faculty, but nearly all of the remaining found no change. Overall χ^2 values were sufficient to cause rejection of the independence null.

Summary of Admissions Officer Surveys

Survey instruments were designed to record the policies of regional undergraduate admissions officers toward Flathead's A-B-C-NR system and of graduate admissions officers toward Oregon's A-B-C-N and Grinnell's A-B-C-NR system. Analysis of questions requiring ranked responses involved the calculation of mean ranks--to indicate rank order and value, Kendall's coefficient of concordance (W)--to indicate the extent of agreement among respondents, and the chi square (χ^2) test of independence--to indicate the relationship between the variables of response item and intra-regional sub-group (i.e., based on control, location, and enrollment). The null hypotheses for these questions were that W and χ^2 values are not significant at .05. When pairs of questions compared policies toward A-B-C-D-F and A-B-C-N or NR grading, the χ^2 null was that differences are not significant at .05. Analysis

of questions requiring ratings on a five-point scale involved a description of the response distribution and the application of the χ^2 test of independence for item and sub-group variables. As on previous questions, the null was that these variables are below .05 significance.

Questionnaires were sent to the entire populations of 48 undergraduate transfer admissions officers at four-year colleges within 500 miles of Flathead Valley Community College, of 62 graduate school officers at institutions within 500 miles of the University of Oregon, and of 112 graduate school officers at institutions within 400 miles of Grinnell College. Responses from the three regions equalled 42 (88 per cent), 48 (77 per cent), and 78 (70 per cent), respectively. The major findings were:

1. Undergraduate admissions officers in the Northwest ranked community college grades the most important transfer criterion, followed by high school grades, the acknowledged quality of the college, and test scores--for graduates of both the Flathead A-B-C-NR system and the A-B-C-D-F system at other community colleges. The null of non-concordance was rejected, as W values reached .01 significance, but the test for independence between sub-group variables and differences between criteria for either grading system were not sufficient to disprove the nulls.

2. Graduate admissions officers in the Northwest ranked undergraduate grades the most important admissions criterion, followed by

test scores, letters of recommendation, and the acknowledged quality of the undergraduate institution--for graduates of both the Oregon A-B-C-N system and the A-B-C-D-F system at other colleges. Kendall coefficient values were significant at .01, requiring rejection of the null, but χ^2 tests were not as significant, causing retention of the nulls of sub-group variable independence and similarity in criteria order for the two systems.

3. Graduate admissions officers in the Midwest ranked undergraduate grades the most important admissions criterion for applicants from Grinnell's A-B-C-NR system and the A-B-C-D-F system at other colleges, but they judged test scores and the acknowledged quality of the undergraduate institution to be equally important for all but Grinnell graduates, for whom test scores were more critical. Ranking agreement was significant at .01, requiring rejection of the null, but close ranking values produced χ^2 figures below .05 significance for both the nulls of sub-group variable independence and similarity in criteria order for the two systems.

4. Undergraduate and graduate admissions were shown to be largely intra-regional concerns, for 71 per cent of the undergraduate students in the Northwest came from institutions within 500 miles of their colleges; 75 per cent of the graduate students in the same region came from undergraduate institutions within 500 miles of their graduate schools; and 67 per cent of the graduate students in the Midwest came

from within 400 miles of their graduate schools.

5. Although most undergraduate admissions officers found Flathead's A-B-C-NR system to have no negative effects on transfer or scholarships, nearly a quarter found it a disadvantage (at least delaying admission) in competition with A-B-C-D-F-graded applicants, and 25 per cent judged their familiarity with Flathead to give its graduates an advantage over applicants from colleges with similar systems in other regions. Chi-square tests for nearly all sub-group variables produced values insufficient to cause rejection of the independence null.

6. Although most graduate admissions officers found Oregon's A-B-C-N system to have no negative effects on admission, fellowships, or assistantships, about one-fifth found it a disadvantage (at least delaying admission) in competition with A-B-C-D-F-graded applicants, and 37 per cent judged their familiarity with Oregon to give its graduates an advantage over applicants from colleges with similar systems in other regions. Chi square comparisons between regions and nearly all sub-groups produced values insufficient to cause rejection of the independence null.

7. Although most graduate admissions officers found Grinnell's A-B-C-NR system to have no negative effects on admission, fellowships, or assistantships, about one-third found it a disadvantage (at least delaying admission) in competition with A-B-C-D-F-graded applicants,

and 19 per cent judged their familiarity with Grinnell to give its graduates an advantage over applicants from colleges with similar systems in other regions. Chi square comparisons between regions and nearly all sub-groups produced values insufficient to cause rejection of the independence null.

CONCLUSIONS

Analysis and interpretation of grade distributions and student, faculty, and admissions officer questionnaires have suggested the following conclusions:

1. Academic standards--to the extent that they are related to grade distributions--were neither weakened nor strengthened appreciably as a result of the non-punitive system. The percentages of A, B, and C grades tended to stabilize after the elimination of D's and F's.

2. The prime objective of grading--for most students and faculty--was to provide the student with an indication of his academic performance. Providing a public record of performance and indicating student character or personality were of lesser importance.

3. The grading system preferred by most students was A-B-C-No Credit or No Record, while most faculty preferred the A-B-C-D-F system. Written evaluations and competency listings were ranked lower by both groups.

4. The rankings of grading objectives and grading systems appeared to conflict. Written or competency based evaluations would

seem to potentially offer more meaningful indications to the student of his academic performance than the letter grade systems, but survey respondents commented grudgingly that the lengthier evaluations--though "ideal"--were "impractical" in the reality of mass education.

5. The motivation for student academic achievement appeared to be more internal than external. Self-satisfaction and the desire to learn the subject matter were ranked as the prime motivating factors by students, while the pursuit of high grades, the avoidance of low grades, and the desire to please others were of lesser importance.

6. No appreciable changes in academic life following the elimination of D's and F's were observed by a majority of students and faculty participating in the surveys. However, favorable effects on student worry over grades, academic cheating, academic probation, exploratory enrollment in electives, the use of grades as threat or reward for conformity to teacher views, and the general student-faculty relationship were attributed to the elimination of D's and F's by a minority, averaging about 25 per cent of the survey respondents. Student opinion was consistently more extreme than faculty opinion on these matters.

7. Respondents disagreed over the effects of the non-punitive system on grading accuracy, with students tending to see an improvement and faculty a decline. The lack of appreciable changes in grade distributions, however, suggested that changes in grading accuracy had

also been quite minor.

8. The effect of the elimination of D's and F's on the difficulty of earning A's, B's, and C's--as perceived by students and faculty--conflicted with the patterns indicated by grade distributions. Respondents believed that letter grades, particularly C's, were less difficult to achieve in non-punitive systems, but grading trends showed either a leveling off or an actual drop in the percentages of letter grades, particularly C's, to accompany the new system. Some faculty, of course, apply informal and liberal grading policies to any grading system, but the non-punitive system has apparently changed attitudes about the difficulty of earning grades more than it has changed actual standards or practices.

9. Undergraduate transfer and graduate admission were found to be largely intra-regional concerns. When about three-quarters of the students come from within 500 miles of their transfer college or graduate school, it is obvious that questions regarding the acceptability of a given undergraduate grading system are resolved primarily by that region's admissions officers--national opinion surveys notwithstanding.

10. No appreciable differences in the admissions chances of equally qualified applicants with A-B-C-D-F or A-B-C-No Credit or No Record transcripts were reported by a majority of the undergraduate and graduate admissions officers in all regions surveyed. Declining enrollments and vacant places seemed to at least partially explain

liberal policies.

11. Unfavorable effects on undergraduate transfer and to a greater extent on graduate admissions were attributed to A-B-C-No Credit or No Record transcripts by a minority of the respondents, averaging about 25 per cent. Requirements that applicants supplement non-traditional records with additional test scores, letters of recommendation, and interviews tended to delay admission and decrease chances for academic scholarships.

12. Favorable effects on admission and scholarship competition were attributed to A-B-C-No Credit or No Record transcripts by a minority of the respondents, averaging about 10 per cent. The feeling was that the elimination of D and F records tended to give applicants an advantage over others whose transcripts recorded these low marks. About 25 per cent of the respondents also judged their familiarity with institutions within the same region to give their graduates an advantage over applicants from other regions in competition by students with non-traditional records.

13. Continued support and justification for traditional grading practices has been largely derived from the administrative desire for efficient record-keeping. A cycle--in which transfer and graduate admissions officers required traditional letter grades, students sought the grades in order to survive in the academic environment, and faculty maintained the system to satisfy apparent student desires and

administrative convenience--has discouraged significant modifications of grading practices, in spite of agreement among students and faculty that meaningful evaluation is more important than efficient record-keeping.

RECOMMENDATIONS

Consideration of this study's findings and conclusions has led to the following recommendations:

1. Experiments in non-punitive grading should be continued and expanded. Although most students and faculty do not appear to be affected by such a system, enough have reported positive experiences to warrant further study.

2. Further research on the effects of non-punitive grading should be conducted at the institutions participating in this study. Effects which were not apparent during the limited time-frame of this study may be observed through research on the long-term results of the non-punitive system.

3. Further research on the effect of non-punitive grading should be conducted at institutions dissimilar in characteristics and location to those in this study. Before any generalizations can be made concerning effects of the non-punitive system, research must include experiences in a variety of educational environments.

4. Follow-up studies should be undertaken to trace the performance of graduates from institutions with non-punitive grading

who go on to colleges and graduate schools which employ the traditional grading system. A null hypothesis would expect them to do about as well as students whose previous education was completed entirely under traditional grading, and alternative hypotheses would expect either above average or below average performance in relation to their counterparts with traditional grading experience.

5. Experiments in non-punitive grading should be conducted at the public school and graduate school levels, in addition to the college experiments. This would allow smooth articulation and evaluation of a complete educational system--less prejudiced by pre-experimental or post-experimental concerns.

6. Institutions adopting non-traditional grading systems should undertake programs to inform and "educate" regional admissions officers, employers, elected officials, and the general public regarding the philosophy underlying the new system and the mechanics of its operation. This open and positive policy could do much to prevent misunderstanding and opposition outside the college community.

7. Institutions involved in non-punitive grading experiments should cooperate with each other in evaluating their systems, informing the public and profession, and dealing with employment or admissions problems encountered by their graduates.

8. Students and faculty should have more opportunities to discuss and reconcile attitudes on academic matters. This study's

documentation of the reluctance of each group to estimate each other's opinions and the inaccuracy of such estimates has evidenced considerable confusion. Little improvement in grading systems or other matters of academic importance can be expected until the misunderstandings and conflicting desires of students and faculty are resolved.

9. Students, faculty members, and administrators should explore evaluative methods and admissions criteria that are more meaningful than letter grade records. The desire for efficient and inexpensive systems should not prevent the consideration of more comprehensive approaches. Non-punitive grading may prove to be only a temporary experiment, a prelude to more ambitious academic innovation.

APPENDICES

APPENDIX A



Dawson College

TELEPHONE: (406) 365-3396

300 COLLEGE DRIVE

GLENDALE, MONTANA 59330

JAMES HOFFMAN
PRESIDENT

DONALD KETTNER
VICE-PRESIDENT

November 19, 1973

Mr. Gil Taylor, Admin. Ass't
College of Letters and Science
Montana State University
Bozeman, MT 59715

Dear Gil:

As per your request, the correspondence concerning your study of grading systems and, in particular, non-punitive grading was read at our fall meeting in Missoula.

The Montana Association of College Registrars and Admission Officers (MACRAO) are, in deed, interested in the results of your study. If you can work it into your schedule, we would appreciate a progress resume of your study at our winter meeting in Billings on January 10, 1974.

If we can be of assistance, please let us know.

Sincerely,

A handwritten signature in cursive script, appearing to read "D. H. Kettner".

Donald H. Kettner
Vice President

DHK:crt

APPENDIX B

SUMMARY OF GRADING SYSTEMS

Flathead Valley Community College

Effective with the 1971-72 academic year, transcripts record only:

- A High degree of excellence
- B Above average
- C Meets course requirements
- S Satisfactory completion (equivalent to a C or better)
- W Withdrawn

D's and F's are no longer indicated. Transcripts contain no record of course attempts which do not result in the earning of one of the above grades.

University of Oregon

Effective with the 1970-71 academic year, transcripts record only:

- A Excellent (pass-differentiated)
- B Good (pass-differentiated)
- C Satisfactory (pass-differentiated)
- P Satisfactory or better (C or above; pass undifferentiated)
- N Unsatisfactory (no credit)
- W Withdrawn
- I Incomplete
- X No grade reported by instructor
- Y No basis for grade

D's and F's are no longer indicated, although the N records less than C-level performance. Grade point averages are no longer computed, but students are disqualified when the percentage of their N grades exceeds acceptable levels (about 20 per cent N).

Appendix B (Continued)

Grinnell College

Effective with the 1972-73 academic year, transcripts record only:

A	Excellent
A-	Superior
B	Very Good
B-	Good
C	Satisfactory
Credit	Satisfactory or better
I	Incomplete
AU	Audit

D's and F's are no longer recorded permanently; transcripts contain no record of course attempts which do not result in the earning of one of the above marks. Students are, however, expected to maintain "normal progress" toward their four-year degrees.

APPENDIX C

—*Montana State University*—
Bozeman, Montana 59715 Tel. 406-587-3121

October 23, 1973

Dear Student:

Your college is one of several institutions that have recently adopted an A-B-C-No Credit or No Record grading system. The Department of Educational Services at Montana State University is sponsoring my research project to document some of the experiences selected colleges are having with the new systems, and an important aspect of this study is a survey of student opinion.

I am making a special effort to contact students who have had experience under both the traditional and new grading systems at this institution. I will very much appreciate your completing the enclosed survey form and returning it in the accompanying pre-paid envelope. The form takes only ten or fifteen minutes to finish--and the results will assist your college and others in their evaluation of grading practices.

I assure you that individual survey responses will be treated confidentially. Summary statistics will be made available to the staff and students of your institution during the coming term. I look forward to including your opinions and experiences in this study. Thank you for your cooperation.

Sincerely,

Gilbert O. Taylor, Jr.

enclosure

APPENDIX D

STUDENT QUESTIONNAIRE

This questionnaire is being administered as part of a study on college grading practices. In particular, the questionnaire is designed to record some of your attitudes toward the traditional ABCDF grading system and the ABC/No Credit or No Record grading system recently adopted by your college. The results of the questionnaire will be used for research purposes only. Thank you for your assistance. (G. Taylor, 104 Colter Hall, Montana State University, Bozeman, MT)

ANSWER Please choose one answer to each of the following questions and enter
COLUMN the appropriate number in the answer column on the left.

- ___ 1. Sex: (1) Male (2) Female
- ___ 2. How old are you? (1) 17 or under (2) 18 (3) 19
(4) 20 (5) 21 (6) 22 (7) 23 (8) 24 (9) 25 or over
- ___ 3. Marital status: (1) Single (2) Married
- ___ 4. Have you ever been on active military duty? (1) Yes (2) No
- ___ 5. Not counting summer employment, have you ever had a full-time job?
(1) Yes (2) No
- ___ 6. Class level: (1) Freshman (2) Sophomore (3) Junior (4) Senior
(5) Graduate Student (6) Other (fill in) _____
- ___ 7. Current school attendance: (1) Full-time student (2) About 3/4 time
(3) About 1/2 time (4) About 1/4 time or less
- ___ 8. In which of the following areas is your major field of study? Choose one.
(1) Humanities and Arts (philosophy, English, art, foreign language, etc.)
(2) Social Sciences (sociology, psychology, history, economics, etc.)
(3) Physical Sciences and Math (physics, math, chemistry, geology, etc.)
(4) Biological Sciences (botany, biology, zoology, microbiology, etc.)
(5) Professional Education (elementary or secondary degree programs, etc.)
(6) Other Professions (engineering, pre-med, pre-law, business admin., etc.)
(7) Vocational-Technical (certificate or two-year degree programs)
(8) Other (fill in) _____
- ___ 9. Which of the following was your overall grade range in high school? Estimate
if you're not sure. (1) A- or A average (3.5 through 4.0 GPA)
(2) B average (3.0 through 3.4 GPA)
(3) B- average (2.5 through 2.9 GPA)
(4) C average (2.0 through 2.4 GPA)
(5) Below C average (under 2.0 GPA)
- ___ 10. Which of the following is your cumulative college grade range? Estimate
if you're not sure. (1) A- or A average (3.5 through 4.0 GPA)
(2) B average (3.0 through 3.4 GPA)
(3) B- average (2.5 through 2.9 GPA)
(4) C average (2.0 through 2.4 GPA)
(5) Below C average (under 2.0 GPA)

11. In what school year did you first attend this college?

- (1) Before September, 1970
- (2) September, 1970 through August, 1971
- (3) September, 1971 through August, 1972
- (4) September, 1972 through August, 1973
- (5) September, 1973 through August, 1974

There will be more than one answer to each of the next few questions. Please rank your answers as indicated, using the spaces provided in the answer column.

12. Please rank the following grading objectives in the order of importance you would give them. Enter on the left of the answer column the number of the most important objective, then the next most important, and so on to the least important on the right.

- (1) Precise evaluation of academic performance
- (2) General evaluation of academic performance
- (3) Indication to student of his academic performance
- (4) Indication to others (e.g., graduate admissions officers, prospective employers, etc.) of student academic performance
- (5) Indication of student ability or potential, as well as performance
- (6) Indication of student effort, as well as academic performance
- (7) Impression of student character and personality, as well as performance

13. Now rank these same grading objectives in the order that most of your college teachers seem to follow when they are grading you.

14. Please rank the following grading systems in order of their desirability to you. Enter the number of the most desirable, the next most, and so on.

- (1) ABCDF only
- (2) ABCDF with Pass-Fail option
- (3) ABC/No Credit or No Record only
- (4) ABC/No Credit or No Record with Pass-No Credit or No Record option
- (5) Pass-Fail only
- (6) Pass/No Credit or No Record only
- (7) Detailed written evaluations only
- (8) Listing of student skills and competencies only

15. In general, when you are graded under the ABCDF system, what motivates you to study or to otherwise make a strong effort in a course? Rank the following items in order of their importance in motivating you. Enter the number of the most important, the next most, and so on to the least.

- (1) Desire to satisfy parents or others close to you
- (2) Desire to satisfy yourself
- (3) Desire to satisfy the teacher of the course
- (4) Desire to earn A or B grades
- (5) Desire to avoid receiving D or F grades
- (6) Desire to learn the subject matter of the course

16. In general, when you are graded under the ABC/No Credit or No Record system, what motivates you to study or to otherwise make a strong effort in a course? Rank the following in order of their importance in motivating you.

- (1) Desire to satisfy parents or others close to you
- (2) Desire to satisfy yourself
- (3) Desire to satisfy the teacher of the course
- (4) Desire to earn A or B grades
- (5) Desire to avoid receiving No Credit or No Record
- (6) Desire to learn the subject matter of the course

Please choose only one answer to each of the following questions.

17. In general, when you are graded under the ABCD system, how accurately do the grades you receive indicate how much you have really learned? Choose one answer.
- (1) My grades indicate that I learned much more than I really did.
 - (2) My grades indicate that I learned slightly more than I really did.
 - (3) My grades indicate fairly accurately how much I've learned.
 - (4) My grades indicate that I learned slightly less than I really did.
 - (5) My grades indicate that I learned much less than I really did.
18. In general, when you are graded under the ABC/No Credit or No Record system, how accurately do the grades you receive indicate how much you have really learned? Choose one answer.
- (1) My grades indicate that I learned much more than I really did.
 - (2) My grades indicate that I learned slightly more than I really did.
 - (3) My grades indicate fairly accurately how much I've learned.
 - (4) My grades indicate that I learned slightly less than I really did.
 - (5) My grades indicate that I learned much less than I really did.
19. On the whole, how has the change from ABCD grading to ABC/No Credit or No Record grading affected the difficulty of earning A's? Choose one answer.
- (1) It is much harder to earn A's now.
 - (2) It is slightly harder to earn A's now.
 - (3) It is neither harder nor easier to earn A's now.
 - (4) It is slightly easier to earn A's now.
 - (5) It is much easier to earn A's now.
20. On the whole, how has the change from ABCD grading to ABC/No Credit or No Record grading affected the difficulty of earning B's? Choose one answer.
- (1) It is much harder to earn B's now.
 - (2) It is slightly harder to earn B's now.
 - (3) It is neither harder nor easier to earn B's now.
 - (4) It is slightly easier to earn B's now.
 - (5) It is much easier to earn B's now.
21. On the whole, how has the change from ABCD grading to ABC/No Credit or No Record grading affected the difficulty of earning C's? Choose one answer.
- (1) It is much harder to earn C's now.
 - (2) It is slightly harder to earn C's now.
 - (3) It is neither harder nor easier to earn C's now.
 - (4) It is slightly easier to earn C's now.
 - (5) It is much easier to earn C's now.

- 22. In general, how has the change from ABCDF to ABC/No Credit or No Record grading affected your tendency to worry over grades? Choose one answer.
- (1) I worry much more about grades now.
 - (2) I worry slightly more about grades now.
 - (3) I worry neither more nor less about grades now.
 - (4) I worry slightly less about grades now.
 - (5) I worry much less about grades now.
- 23. On the whole, how would you say the change from ABCDF to ABC/No Credit or No Record grading has affected incidences of cheating by students?
- (1) Students seem to cheat much more now.
 - (2) Students seem to cheat slightly more now.
 - (3) Students seem to cheat neither more nor less now.
 - (4) Students seem to cheat slightly less now.
 - (5) Students seem to cheat much less now.
- 24. In general, how has the change from ABCDF to ABC/No Credit or No Record grading affected your chances of being placed on scholastic probation?
- (1) I am much more likely to be placed on probation now.
 - (2) I am slightly more likely to be placed on probation now.
 - (3) I am neither more nor less likely to be placed on probation now.
 - (4) I am slightly less likely to be placed on probation now.
 - (5) I am much less likely to be placed on probation now.
- 25. How has the change from ABCDF to ABC/No Credit or No Record affected the frequency of your enrollment in elective courses not required in your major field of study?
- (1) I take many more of these courses now.
 - (2) I take a few more of these courses now.
 - (3) I take neither more nor less of these courses now.
 - (4) I take a few less of these courses now.
 - (5) I take many less of these courses now.
- 26. In general, when you are graded ABCDF, how often do teachers use grades as a threat or reward to enforce conformity to their views?
- (1) Almost always
 - (2) Quite often
 - (3) Once in a while
 - (4) Seldom
 - (5) Almost never
- 27. In general, when you are graded ABC/No Credit or No Record, how often do teachers use grades as a threat or reward to enforce conformity to their views?
- (1) Almost always
 - (2) Quite often
 - (3) Once in a while
 - (4) Seldom
 - (5) Almost never
- 28. On the whole, how has the change from ABCDF grading to ABC/No Credit or No Record grading affected the way you and your teachers get along?
- (1) We get along much better than before.
 - (2) We get along a little better than before.
 - (3) We get along neither better nor worse than before.
 - (4) We don't get along quite as well as before.
 - (5) We don't get along nearly as well as before.

APPENDIX E

— *Montana State University* — *Bozeman, Montana 59715* *Tel. 406-587-3121*

October 23, 1973

Dear Faculty Member:

Your college is one of several institutions that have recently adopted an A-B-C-No Credit or No Record grading system. The Department of Educational Services at Montana State University is sponsoring my research project to document some of the experiences selected colleges are having with the new systems, and an important aspect of this study is a survey of faculty opinion.

I am making a special effort to contact faculty who have had experience under both the traditional and the new systems at your institution. I will very much appreciate your completing the enclosed survey form and returning it in the accompanying pre-paid envelope. The form takes only ten or fifteen minutes to finish--and the results will assist your college and others in their evaluation of grading practices.

I assure you that individual survey responses will remain confidential. Summary statistics will be made available to the staff and students of your institution during the coming term. I look forward to including your opinions and experiences in this study. Thank you for your cooperation.

Sincerely,

Gilbert O. Taylor, Jr.

enclosure

FACULTY SURVEY

183

This survey is part of a larger study on college grading. In particular, the questionnaire is designed to record some of your reactions toward the A-B-C-No Credit or No Record grading system recently adopted at your college. Responses are confidential and will be included in summary statistics only. Thank you for your assistance. G. Taylor, 104 Colter Hall, Montana State University, Bozeman MT 59715.

ANSWER
COLUMN

Please choose one response to each of the following questions and enter the appropriate number in the answer column on the left.

- ___ 1. Sex: (1) Male (2) Female
- ___ 2. Age: (1) 24 or under (2) 25-34 (3) 35-44 (4) 45-54
(5) 55-64 (6) 65 or over
- ___ 3. Marital status: (1) Single (2) Married
- ___ 4. In which of the following areas is your major field of teaching?
(1) Humanities-Arts (philosophy, English, art, foreign language, etc.)
(2) Social Sciences (sociology, psychology, history, economics, etc.)
(3) Physical Sciences-Math (physics, math, chemistry, geology, etc.)
(4) Biological Sciences (botany, biology, zoology, microbiology, etc.)
(5) Professional Education (elementary or secondary ed programs, etc.)
(6) Other Professions (engineering, law, med, business admin., etc.)
(7) Vocational-Technical (certificate or two-year degree programs)
(8) Other (please specify) _____
- ___ 5. Highest degree held: (1) Bachelor's (2) Master's (3) Doctor's
(4) Other (please specify) _____
- ___ 6. Years of teaching experience: (1) 5 or under (2) 6-10 (3) 11-15
(4) 16-20 (5) 21-25 (6) 26 or over
- ___ 7. Tenure status: (1) Non-Tenured (2) Tenured
- ___ 8. Employment status: (1) Full-Time Faculty (2) About 3/4 Time
(3) About 1/2 Time (4) About 1/4 Time or Less
- ___ 9. Do your faculty responsibilities include the academic advisement of students? (1) Yes (2) No
- ___ 10. In what academic year did you begin teaching at this institution?
(1) Before the 1970-1971 academic year
(2) During the 1970-1971 academic year
(3) During the 1971-1972 academic year
(4) During the 1972-1973 academic year
(5) During the 1973-1974 academic year

There will be more than one response to each of the next few questions. Please rank the items as indicated, using the spaces provided in the answer column.

1

11. Please rank the following grading objectives in the order of importance you would give them (1=most important; 7=least important):

RANK	OBJECTIVE
_____	(1) Precise evaluation of academic performance
_____	(2) General evaluation of academic performance
_____	(3) Indication to student of his academic performance
_____	(4) Indication to others (e.g., graduate admissions officers, prospective employers, etc.) of student academic performance
_____	(5) Indication of student ability or potential, as well as performance
_____	(6) Indication of student effort, as well as academic performance
_____	(7) Impression of student character and personality, as well as performance

12. Now rank these same grading objectives in the order you believe most students would choose (1=most important; 7=least important):

RANK	OBJECTIVE
_____	(1) Precise evaluation of academic performance
_____	(2) General evaluation of academic performance
_____	(3) Indication to student of his academic performance
_____	(4) Indication to others (e.g., graduate admissions officers, prospective employers, etc.) of student academic performance
_____	(5) Indication of student ability or potential, as well as performance
_____	(6) Indication of student effort, as well as academic performance
_____	(7) Impression of student character and personality, as well as performance

13. Please rank the following grading systems in order of their desirability to you (1=most desirable; 8=least desirable):

RANK	GRADING SYSTEM
_____	(1) A-B-C-D-F only
_____	(2) A-B-C-D-F with Pass-Fail option
_____	(3) A-B-C-No Credit or No Record only
_____	(4) A-B-C-No Credit or No Record with Pass-No Credit or No Record option
_____	(5) Pass-Fail only
_____	(6) Pass-No Credit or No Record only
_____	(7) Detailed written evaluations only
_____	(8) Listing of student skills and competencies only

14. In general, when graded under the A-B-C-D-F system, what motivates students to study or otherwise make a strong effort in their courses? Rank the following items in order of their importance in motivating students under A-B-C-D-F grading (1=most important; 6=least important):

RANK	MOTIVATING FACTOR
_____	(1) Desire to satisfy parents or others close to students
_____	(2) Desire of students to satisfy themselves
_____	(3) Desire of students to satisfy their teachers
_____	(4) Desire of students to earn A or B grades
_____	(5) Desire of students to avoid receiving D or F grades
_____	(6) Desire of students to learn the subject matter of the course

15. In general, when graded under the A-B-C-No Credit or No Record system, what motivates students to study or otherwise make a strong effort in their courses? Rank the following items in order of their importance in motivating students under A-B-C-No Credit or No Record grading (1=most important; 6=least important):

RANK	MOTIVATING FACTOR
_____	(1) Desire to satisfy parents or others close to students
_____	(2) Desire of students to satisfy themselves
_____	(3) Desire of students to satisfy their teachers
_____	(4) Desire of students to earn A or B grades
_____	(5) Desire of students to avoid receiving No Credit or No Record
_____	(6) Desire of students to learn the subject matter of the course

ANSWER
COLUMNPlease choose one response to each of the following questions and enter the appropriate number in the answer column on the left.

16. In general, when graded under the A-B-C-D-F system, how accurately do grades indicate how much students have really learned?
- (1) Their grades indicate they learned much more than they really did.
 - (2) Their grades indicate they learned slightly more than they really did.
 - (3) Their grades indicate fairly accurately how much they learned.
 - (4) Their grades indicate they learned slightly less than they really did.
 - (5) Their grades indicate they learned much less than they really did.
17. In general, when graded under the A-B-C-No Credit or No Record system, how accurately do grades indicate how much students have really learned?
- (1) Their grades indicate they learned much more than they really did.
 - (2) Their grades indicate they learned slightly more than they really did.
 - (3) Their grades indicate fairly accurately how much they learned.
 - (4) Their grades indicate they learned slightly less than they really did.
 - (5) Their grades indicate they learned much less than they really did.
18. On the whole, how has the change from A-B-C-D-F to A-B-C-No Credit or No Record grading affected the difficulty of earning A's?
- (1) It is much harder to earn A's now.
 - (2) It is slightly harder to earn A's now.
 - (3) It is neither harder nor easier to earn A's now.
 - (4) It is slightly easier to earn A's now.
 - (5) It is much easier to earn A's now.
19. On the whole, how has the change from A-B-C-D-F to A-B-C-No Credit or No Record grading affected the difficulty of earning B's?
- (1) It is much harder to earn B's now.
 - (2) It is slightly harder to earn B's now.
 - (3) It is neither harder nor easier to earn B's now.
 - (4) It is slightly easier to earn B's now.
 - (5) It is much easier to earn B's now.
20. On the whole, how has the change from A-B-C-D-F to A-B-C-No Credit or No Record grading affected the difficulty of earning C's?
- (1) It is much harder to earn C's now.
 - (2) It is slightly harder to earn C's now.
 - (3) It is neither harder nor easier to earn C's now.
 - (4) It is slightly easier to earn C's now.
 - (5) It is much easier to earn C's now.
21. In general, how has the change from A-B-C-D-F to A-B-C-No Credit or No Record grading affected your tendency to worry over grading?
- (1) I worry much more about grading now.
 - (2) I worry slightly more about grading now.
 - (3) I worry neither more nor less about grading now.
 - (4) I worry slightly less about grading now.
 - (5) I worry much less about grading now.
22. In general, how has the change from A-B-C-D-F to A-B-C-No Credit or No Record grading affected student tendency to worry over grades?
- (1) Students seem to worry much more about grades now.
 - (2) Students seem to worry slightly more about grades now.
 - (3) Students seem to worry neither more nor less about grades now.
 - (4) Students seem to worry slightly less about grades now.
 - (5) Students seem to worry much less about grades now.

- ___ 23. On the whole, how would you say the change from A-B-C-D-F to A-B-C-No Credit or No Record grading has affected student cheating?
- (1) Students seem to cheat much more now.
 - (2) Students seem to cheat slightly more now.
 - (3) Students seem to cheat neither more nor less now.
 - (4) Students seem to cheat slightly less now.
 - (5) Students seem to cheat much less now.
- ___ 24. In general, how has the change from A-B-C-D-F to A-B-C-No Credit or No Record grading affected student chances of being placed on academic probation?
- (1) Students are much more likely to be placed on probation now.
 - (2) Students are slightly more likely to be placed on probation now.
 - (3) Students are neither more nor less likely to be placed on probation now.
 - (4) Students are slightly less likely to be placed on probation now.
 - (5) Students are much less likely to be placed on probation now.
- ___ 25. On the whole, how has the change from A-B-C-D-F to A-B-C-No Credit or No Record grading affected the frequency of student enrollment in elective courses not required in their major field of study?
- (1) Students seem to take many more such courses now.
 - (2) Students seem to take a few more such courses now.
 - (3) Students seem to take neither more nor less of these courses now.
 - (4) Students seem to take a few less such courses now.
 - (5) Students seem to take many less such courses now.
- ___ 26. In general, when grading under the A-B-C-D-F system, how often do college teachers use grades as a threat or reward to enforce conformity to their views?
- (1) Almost always
 - (2) Quite often
 - (3) Once in a while
 - (4) Seldom
 - (5) Almost never
- ___ 27. In general, when grading under the A-B-C-No Credit or No Record system, how often do college teachers use grades as a threat or reward to enforce conformity to their views?
- (1) Almost always
 - (2) Quite often
 - (3) Once in a while
 - (4) Seldom
 - (5) Almost never
- ___ 28. On the whole, how has the change from A-B-C-D-F to A-B-C-No Credit or No Record grading affected the way students and teachers get along?
- (1) They get along much better than before.
 - (2) They get along a little better than before.
 - (3) They get along neither better nor worse than before.
 - (4) They do not get along quite as well as before.
 - (5) They do not get along nearly as well as before.

APPENDIX G

LIST OF TRANSFER AND GRADUATE SCHOOLS SURVEYED

Undergraduate admissions officers at the following colleges within 500 miles of Flathead Valley Community College, Kalispell, Montana, were surveyed. Institutions participating in the study are indicated by an asterisk (*).

Idaho

1. Boise State College *
2. College of Idaho *
3. Idaho State University *
4. Lewis and Clark State College *
5. Northwest Nazarene College *
6. University of Idaho *

Montana

7. Carroll College *
8. College of Great Falls *
9. Eastern Montana College *
10. Montana College of Mineral
Science and Technology *
11. Montana State University *
12. Northern Montana College *
13. Rocky Mountain College *
14. University of Montana *
15. Western Montana College *

Oregon

16. Columbia Christian College *
17. Eastern Oregon College *
18. George Fox College *
19. Lewis and Clark College
20. Linfield College *
21. Marylhurst College *
22. Portland State University
23. Pacific University *
24. Reed College *
25. University of Portland
26. Warner Pacific College *

Utah

27. Brigham Young University *
28. University of Utah *
29. Utah State University *
30. Weber State College *
31. Westminster College *

Washington

32. Central Washington State Col.*
33. Eastern Washington State Col.*
34. Evergreen State College *
35. Fort Wright College of the
Holy Names *
36. Gonzaga University *
37. Northwest College *
38. Pacific Lutheran University *
39. Saint Martin's College
40. Seattle Pacific College
41. Seattle University *
42. University of Puget Sound
43. University of Washington *
44. Walla Walla College *
45. Washington State University *
46. Western Wash. State College *
47. Whitman College *
48. Whitworth College *

Appendix G (Cont.)

Graduate admissions officers at the following colleges within 500 miles of the University of Oregon, Eugene, Oregon, were surveyed. Institutions participating in the study are indicated by an asterisk (*).

California

1. Armstrong College
2. Calif. State College, Sonoma *
3. Calif. State Univ., Chico *
4. Calif. State Univ., Hayward *
5. Calif. State Univ., Humboldt
6. Calif. State Univ., Sacramento
7. Calif. State Univ., San Francisco *
8. Calif. State Univ., San Jose *
9. College of the Holy Names *
10. College of Notre Dame *
11. D-Q University *
12. Dominican College of San Rafael *
13. Golden Gate University
14. John F. Kennedy University *
15. Mills College *
16. Monterey Institute of Foreign Studies
17. Pacific Union College *
18. Saint Mary's College of Calif.
19. Stanford University *
20. Univ. of California, Berkeley
21. Univ. of California, Davis
22. Univ. of California, Santa Cruz
23. Univ. of the Pacific, Stockton *
24. University of San Francisco *
25. University of Santa Clara *
26. Wright Institute *

Idaho

27. Boise State College *
28. College of Idaho *
29. Idaho State University *
30. University of Idaho

Nevada

31. University of Nevada *

Montana

32. University of Montana *

Oregon

33. Eastern Oregon College *
34. Lewis and Clark College *
35. Linfield College *
36. Marylhurst College *
37. Oregon College of Education *
38. Oregon Graduate Center *
39. Oregon State University *
40. Pacific University *
41. Portland State University *
42. Reed College *
43. Southern Oregon College *
44. University of Portland
45. Willamette University *

Utah

46. Brigham Young University *
47. University of Utah
48. Utah State University *
49. Weber State College

Washington

50. Central Wash. State College *
51. Eastern Wash. State College *
52. Fort Wright College of the Holy Names
53. Gonzaga University *
54. Pacific Lutheran University *
55. Seattle Pacific College *
56. Seattle University
57. University of Puget Sound
58. University of Washington *
59. Walla Walla College *
60. Washington State University *
61. Western Wash. State College *
62. Whitworth College *

Graduate admissions officers at the following colleges within 400 miles of Grinnell College, Grinnell, Iowa, were surveyed. Institutions participating in the study are indicated by an asterisk (*).

Arkansas

1. University of Arkansas *

Illinois

2. Augustana College *
3. Bradley University
4. Chicago State University *
5. Concordia Teachers College
6. Depaul University *
7. Eastern Illinois University *
8. George Williams College
9. Governor's State University *
10. Illinois Institute of Technology
11. Illinois State University
12. Illinois Wesleyan University
13. Lincoln Christian College
14. Loyola University of Chicago
15. Midwest College of Engineering *
16. Milikin University
17. Mvndelein College
18. National College of Education
19. Northeastern Illinois State Univ.
20. Northern Illinois University *
21. Northwestern University *
22. Rockford College
23. Roosevelt University *
24. Rosary College *
25. Saint Xavier College
26. Sangamon State University *
27. Southern Illinois University *
28. University of Chicago
29. University of Ill., Chicago Cir.
30. University of Illinois, Urbana *
31. Western Illinois University *
32. Wheaton College *

Indiana

33. Butler University
34. DePauw University

Indiana (continued)

35. Huntington College
36. Indiana Central College *
37. Indiana State University *
38. Indiana Univ., Bloomington *
39. Indiana Univ., Indianapolis *
40. Indiana Univ. NW, Gary *
41. Purdue University, Lafayette *
42. Purdue University, Calumet *
43. Purdue Univ. NC, Westville
44. Rose-Hulman Institute of Tech. *
45. University of Evansville *
46. University of Notre Dame *
47. Valparaiso University *

Iowa

48. Clarke College
49. Drake University *
50. Iowa State University *
51. Loras College *
52. Marycrest College *
53. Morningside College *
54. University of Dubuque
55. University of Iowa *
56. University of Northern Iowa *
57. Vennard College

Kansas

58. Ft. Hays Kansas State College *
59. Kansas State College of
Pittsburg *
60. Kansas State Teachers College
61. Kansas State University *
62. University of Kansas
63. Wichita State University *

Appendix G (Cont.)

Grinnell College (Continued)Michigan

- 64. Andrews University
- 65. Aquinas College
- 66. Western Michigan University *

Minnesota

- 67. College of St. Thomas
- 68. Mankato State College *
- 69. St. Cloud State College *
- 70. St. John's University
- 71. St. Mary's College
- 72. University of Minnesota, Duluth
- 73. University of Minnesota,
Minneapolis *
- 74. Winona State College

Missouri

- 75. Calvary Bible College
- 76. Central Missouri State Univ. *
- 77. Drury College *
- 78. Lincoln University
- 79. Northeast Missouri State College*
- 80. Northwest Missouri State Univ.*
- 81. St. Louis University
- 82. Southeast Missouri State Col. *
- 83. Southwest Missouri State College
- 84. University of Missouri, Columbia
- 85. University of Missouri, Kansas City
- 86. University of Missouri, Rolla *
- 87. University of Missouri, St. Louis
- 88. Washington University of St. Louis
- 89. Webster College

Nebraska

- 90. Concordia Teachers College *
- 91. Creighton University *
- 92. Kearny State College *
- 93. University of Nebraska, Lincoln *
- 94. University of Nebraska, Omaha *
- 95. Wayne State College *

South Dakota

- 96. Augustana College *
- 97. Northern State College *
- 98. South Dakota State Univ., *
- 99. University of South Dakota

Wisconsin

- 100. Cardinal Stritch College
- 101. Marquette University *
- 102. Univ. of Wisconsin, Eau Claire*
- 103. Univ. of Wisconsin, La Crosse *
- 104. Univ. of Wisconsin, Madison *
- 105. Univ. of Wisconsin, Milwaukee *
- 106. Univ. of Wisconsin, Oshkosh *
- 107. Univ. of Wisconsin, Platteville
- 108. Univ. of Wisconsin, River Falls*
- 109. Univ. of Wisconsin, Stevens Pt.*
- 110. Univ. of Wisconsin, Stout *
- 111. Univ. of Wisconsin, Superior *
- 112. Univ. of Wisconsin, Whitewater *

—Montana State University—

Bozeman, Montana 59715

Tel. 406-587-3121

College of Letters and Science
Office of the Dean

October 15, 1973

I am conducting a survey on non-traditional grading that differs from other recent studies with which you may be familiar. Rather than attempting to poll admissions officers throughout the nation on the many possible alternatives to traditional grading, this survey specifically concerns the acceptability of the Flathead Valley (Montana) Community College A-B-C-No Record grading system to admissions officers at transfer institutions in the Northwest region.

The survey is proceeding under the sponsorship of the Montana State University Department of Educational Services--as part of my doctoral program in higher education, and the College of Letters and Science--in connection with a committee proposal to modify this institution's grading practices.

Although return envelopes are coded for follow-up mailings, I assure you that individual survey responses will be treated confidentially. Only summary statistics will be reported.

I will very much appreciate your completing the brief survey form enclosed and your returning it in the accompanying pre-paid envelope. Results will be sent to survey participants during the coming winter term. Thank you for your cooperation.

Sincerely,

Gilbert O. Taylor, Jr.
Administrative Assistant

enclosure

APPENDIX I: Regional Admissions Officer Survey: The Acceptability
of the Flathead Valley CC A-B-C-No Record Grading System

1. Location of your institution: (Enter name of state) _____
2. Institutional control: (Check one) _____ Public _____ Private
3. Number of undergraduate students enrolled this term: (Enter number) _____
4. About what percentage of your undergraduate students came from high schools and/or community colleges within 500 miles of your school? (Enter percentage) _____
5. Please rank the following criteria in order of their importance in your evaluation of applicants who have graduated from community colleges with traditional A-B-C-D-F grading systems (1=Most important; 5=Least important):
 - _____ (a) Scores on ACT, SAT, or other standardized tests
 - _____ (b) High school grades
 - _____ (c) Community college grades
 - _____ (d) Acknowledged quality of community college
 - _____ (e) Other (Please specify) _____
6. Please rank these same criteria in order of their importance in your evaluation of applicants who have graduated under Flathead Valley CC's A-B-C-No Record grading system (1=Most Important; 5=Least important):
 - _____ (a) Scores on ACT, SAT, or other standardized tests
 - _____ (b) High school grades
 - _____ (c) Community college grades
 - _____ (d) Acknowledged quality of community college
 - _____ (e) Other (Please specify) _____
7. Although Flathead Valley CC no longer computes grade point averages, do you compute a GPA for transfer applicants from FVCC? (Check one) _____ Yes _____ No
8. All else being equal, when applicants from Flathead Valley CC compete with applicants from community colleges with A-B-C-D-F grading for limited spaces in your school, the FVCC A-B-C-No Record grading system generally gives (Check one):
 - _____ (a) a considerable advantage to FVCC applicants
 - _____ (b) a slight advantage to FVCC applicants
 - _____ (c) neither an advantage nor a disadvantage to FVCC applicants
 - _____ (d) a slight disadvantage to FVCC applicants
 - _____ (e) a considerable disadvantage to FVCC applicants
9. If you had to choose between two applicants from community colleges with A-B-C-No Record systems, one from Flathead Valley CC and the other from a college with which you were less familiar in another region, all else being equal, your familiarity with FVCC would give (Check one):
 - _____ (a) a considerable advantage to the FVCC applicant
 - _____ (b) a slight advantage to the FVCC applicant
 - _____ (c) neither an advantage nor a disadvantage to the FVCC applicant
 - _____ (d) a slight disadvantage to the FVCC applicant
 - _____ (e) a considerable disadvantage to the FVCC applicant
10. All else being equal, when applicants from Flathead Valley CC compete with applicants from community colleges with A-B-C-D-F grading for limited scholarships, the FVCC A-B-C-No Record system generally gives (Check one):
 - _____ (a) a considerable advantage to FVCC applicants
 - _____ (b) a slight advantage to FVCC applicants
 - _____ (c) neither an advantage nor a disadvantage to FVCC applicants
 - _____ (d) a slight disadvantage to FVCC applicants
 - _____ (e) a considerable disadvantage to FVCC applicants

—Montana State University—

Bozeman, Montana 59715

Tel. 406-587-3121

APPENDIX J

College of Letters and Science
Office of the Dean

October 15, 1973

I am conducting a survey on non-traditional grading that differs from other recent studies with which you may be familiar. Rather than attempting to poll graduate schools throughout the nation on the many possible alternatives to traditional grading, this survey specifically concerns the acceptability of the University of Oregon's A-B-C-No Credit grading system to graduate schools in the Northwest region.

The survey is proceeding under the sponsorship of the Montana State University Department of Educational Services--as part of my doctoral program in higher education, and the College of Letters and Science--in connection with a committee proposal to modify this institution's grading practices.

Although return envelopes are coded for follow-up mailings, I assure you that individual survey responses will be treated confidentially. Only summary statistics will be reported.

I will very much appreciate your completing the brief survey form enclosed and your returning it in the accompanying pre-paid envelope. Results will be sent to survey participants during the coming winter term. Thank you for your cooperation.

Sincerely,

Gilbert O. Taylor, Jr.
Administrative Assistant

enclosure

APPENDIX K: Regional Graduate School Survey: The Acceptability
of the University of Oregon A-B-C-No Credit System

1. Location of institution: (Enter name of state) _____
2. Institutional control: (Check one) _____ Public _____ Private
3. Number of graduate students enrolled this term: (Enter number) _____
4. About what percentage of your graduate students came from undergraduate institutions within 500 miles of your school? (Enter percentage) _____
5. Please rank the following criteria in order of their importance in your evaluation of applicants from undergraduate colleges with traditional A-B-C-D-F grading systems (1=Most important; 5=Least important):
 - ____ (a) Scores on GRE or other standardized graduate tests
 - ____ (b) Undergraduate grades
 - ____ (c) Letters of recommendation
 - ____ (d) Acknowledged quality of undergraduate institution
 - ____ (e) Other (Please specify) _____
6. Please rank these same criteria in order of their importance in your evaluation of applicants who have been graded A-B-C-No Credit at the University of Oregon (1=Most important; 5=Least important)
 - ____ (a) Scores on GRE or other standardized graduate tests
 - ____ (b) Undergraduate grades
 - ____ (c) Letters of recommendation
 - ____ (d) Acknowledged quality of undergraduate institution
 - ____ (e) Other (Please specify) _____
7. Although the University of Oregon no longer computes grade point averages, do you compute a GPA for applicants from U of O? (Check one) ____ Yes ____ No
8. All else being equal, when applicants from the University of Oregon compete with applicants from institutions with A-B-C-D-F grading for limited spaces in your graduate school, the Oregon A-B-C-No Credit grading system generally gives (Check one):
 - ____ (a) a considerable advantage to the U of O applicants
 - ____ (b) a slight advantage to the U of O applicants
 - ____ (c) neither an advantage nor a disadvantage to the U of O applicants
 - ____ (d) a slight disadvantage to the U of O applicants
 - ____ (e) a considerable disadvantage to the U of O applicants
9. If you had to choose between two applicants from institutions with A-B-C-No Credit systems, one from the University of Oregon and the other from an institution with which you were less familiar in another region, all else being equal, your familiarity with the U of O would give (Check one):
 - ____ (a) a considerable advantage to the U of O applicant
 - ____ (b) a slight advantage to the U of O applicant
 - ____ (c) neither an advantage nor a disadvantage to the U of O applicant
 - ____ (d) a slight disadvantage to the U of O applicant
 - ____ (e) a considerable disadvantage to the U of O applicant
10. All else being equal, when applicants from the University of Oregon compete with applicants from institutions with A-B-C-D-F grading for limited fellowships and teaching assistantships, the Oregon A-B-C-No Credit grading system generally gives (Check one):
 - ____ (a) a considerable advantage to the U of O applicant
 - ____ (b) a slight advantage to the U of O applicant
 - ____ (c) neither an advantage nor a disadvantage to the U of O applicant
 - ____ (d) a slight disadvantage to the U of O applicant
 - ____ (e) a considerable disadvantage to the U of O applicant

APPENDIX L

—Montana State University—

Bozeman, Montana 59715

Tel. 406-587-3121

College of Letters and Science
Office of the Dean

October 15, 1973

I am conducting a survey on non-traditional grading that differs from other recent studies with which you may be familiar. Rather than attempting to poll graduate schools throughout the nation on the many possible alternatives to traditional grading, this survey specifically concerns the acceptability of the Grinnell College A-B-C-No Record grading system to graduate schools in the Midwest region.

The survey is proceeding under the sponsorship of the Montana State University Department of Educational Services--as part of my doctoral program in higher education, and the College of Letters and Science--in connection with a committee proposal to modify this institution's grading practices.

Although return envelopes are coded for follow-up mailings, I assure you that individual survey responses will be treated confidentially. Only summary statistics will be reported.

I will very much appreciate your completing the brief survey form enclosed and your returning it in the accompanying pre-paid envelope. Results will be sent to survey participants during the coming winter term. Thank you for your cooperation.

Sincerely,

Gilbert O. Taylor, Jr.
Administrative Assistant

enclosure

APPENDIX M: Regional Graduate School Survey: The Acceptability
of the Grinnell College A-B-C-No Record System

1. Location of institution: (Enter name of state) _____
2. Institutional control: (Check one) ☐ Public ☐ Private
3. Number of graduate students enrolled this term: (Enter number) _____
4. About what percentage of your graduate students came from undergraduate institutions within 400 miles of your school? (Enter percentage) _____
5. Please rank the following criteria in order of their importance in your evaluation of applicants from undergraduate colleges with traditional A-B-C-D-F grading systems (1=Most important; 5=Least important):
 - ☐ (a) Scores on GRE or other standardized graduate tests
 - ☐ (b) Undergraduate grades
 - ☐ (c) Letters of recommendation
 - ☐ (d) Acknowledged quality of undergraduate institution
 - ☐ (e) Other (Please specify) _____
6. Please rank these same criteria in order of their importance in your evaluation of applicants who have been graded A-B-C-No Record at Grinnell College (1=Most important; 5=Least important):
 - ☐ (a) Scores on GRE or other standardized graduate tests
 - ☐ (b) Undergraduate grades
 - ☐ (c) Letters of recommendation
 - ☐ (d) Acknowledged quality of undergraduate institution
 - ☐ (e) Other (Please specify) _____
7. Although Grinnell College no longer computes traditional grade point averages, do you compute a GPA for applicants from Grinnell? (Check one) ☐ Yes ☐ No
8. All else being equal, when applicants from Grinnell compete with applicants from institutions with A-B-C-D-F grading for limited spaces in your graduate school, the Grinnell A-B-C-No Record system generally gives (Check one):
 - ☐ (a) a considerable advantage to the Grinnell applicants
 - ☐ (b) a slight advantage to the Grinnell applicants
 - ☐ (c) neither an advantage nor a disadvantage to the Grinnell applicants
 - ☐ (d) a slight disadvantage to the Grinnell applicants
 - ☐ (e) a considerable disadvantage to the Grinnell applicants
9. If you had to choose between two applicants from institutions with A-B-C-No Record grading systems, one from Grinnell and the other from a college with which you were less familiar in another region, all else being equal, your familiarity with Grinnell would give (Check one):
 - ☐ (a) a considerable advantage to the Grinnell applicant
 - ☐ (b) a slight advantage to the Grinnell applicant
 - ☐ (c) neither an advantage nor a disadvantage to the Grinnell applicant
 - ☐ (d) a slight disadvantage to the Grinnell applicant
 - ☐ (e) a considerable disadvantage to the Grinnell applicant
10. All else being equal, when applicants from Grinnell compete with applicants from institutions with A-B-C-D-F grading for limited fellowships and teaching assistantships, the Grinnell A-B-C-No Record grading system generally gives (Check one):
 - ☐ (a) a considerable advantage to the Grinnell applicants
 - ☐ (b) a slight advantage to the Grinnell applicants
 - ☐ (c) neither an advantage nor a disadvantage to the Grinnell applicants
 - ☐ (d) a slight disadvantage to the Grinnell applicants
 - ☐ (e) a considerable disadvantage to the Grinnell applicants

Appendix N

Student Questionnaire Responses, by Sub-groups

Ques*	M/F	Age ≤25/25+	Marital Sgl/Mar	Class 1-2/3-4/5	Attend Full/Part	Major Field Hum/SSci/PhSci/Bio/Edu/Prof					Col GPA ≤3/3+
12a	4.6/4.9	4.8/4.4	4.7/4.6	4.8/4.8/4.4	4.7/4.6	4.7/	4.4/	4.5	/5.0/4.9/5.0	5.1/4.7	
b	3.7/3.6	3.6/3.8	3.5/3.9	4.2/3.6/3.1	3.5/4.3	3.7/	3.7/	3.0	/3.8/3.6/3.6	3.7/3.6	
c	3.0/2.6	2.8/2.8	2.8/2.9	3.2/2.9/2.5	2.8/2.9	2.5/	2.6/	3.0	/2.6/2.9/3.3	3.1/2.8	
d	4.6/4.7	4.7/4.4	4.7/4.5	4.8/4.7/4.3	4.6/4.6	4.8/	4.6/	4.1	/5.4/4.5/4.4	4.1/4.7	
e	3.3/3.9	3.4/3.4	3.5/3.3	3.1/3.3/4.2	3.5/3.1	3.6/	3.5/	3.7	/2.8/4.1/3.1	3.2/3.3	
f	3.3/2.8	3.0/3.2	3.0/3.2	2.8/3.0/3.4	3.1/3.2	3.0/	3.2/	3.5	/3.0/2.7/3.1	2.8/3.1	
g	5.6/5.8	5.7/5.8	5.7/5.7	5.1/5.6/6.0	5.8/5.4	5.7/	5.9/	6.3	/5.5/5.4/5.5	6.0/5.7	
n	253/192	322/124	304/141	65/277/88	375/71	91/	119/	39	/36/37/76	31/414	
W	.2@/.3@	.2@/.2@	.2@/.2@	.2@/.2@/.3@	.2@/.2@	.3@/	.3@/	.3@/	.4@/.2@/.2@	.3@/.2@	
χ ²	81.6@	49.1	75.9@	193.4@	36.4	358.7@					58.5#
14a	5.5/5.8	5.8/5.1	5.8/5.2	5.2/5.7/5.9	5.6/5.6	5.6/	5.6/	4.7	/5.5/5.9/5.8	5.3/5.7	
b	3.9/3.5	3.6/3.8	3.7/3.8	3.9/3.7/3.5	3.6/3.9	3.7/	3.6/	2.9	/3.2/3.5/4.2	4.5/3.6	
c	3.8/3.7	3.8/3.6	3.9/3.6	2.8/4.0/3.8	3.9/3.3	4.4/	3.9/	3.0	/3.8/3.5/3.5	3.2/3.8	
d	3.0/2.8	2.8/3.1	3.0/2.8	2.8/2.9/2.9	2.9/3.2	3.4/	2.9/	2.6	/2.7/3.1/2.8	3.1/2.9	
e	5.1/5.6	5.3/5.2	5.3/5.3	5.2/5.3/5.5	5.3/5.0	5.0/	5.1/	5.7	/6.0/5.3/5.2	5.0/5.3	
f	4.8/5.1	4.9/5.0	4.8/5.2	5.1/4.8/5.1	5.0/4.7	4.7/	4.9/	5.7	/5.3/4.9/5.0	4.0/5.0	
g	4.3/4.2	4.1/4.7	4.1/4.6	5.1/4.0/4.4	4.1/5.0	3.8/	4.3/	5.0	/4.0/4.3/4.2	5.5/4.1	
h	5.6/5.5	5.6/5.6	5.6/5.6	5.8/5.6/5.4	5.6/5.3	5.3/	5.6/	6.5	/5.5/5.4/5.4	5.4/5.6	
n	251/195	329/119	306/140	64/282/86	373/75	91/	121/	41	/37/37/74	30/416	
W	.1@/.2@	.2@/.2@	.2@/.2@	.2@/.2@/.3@	.2@/.1@	.1@/	.2@/	.4@	/3@/.1@/.2@	.2@/.2@	
χ ²	106.9@	123.7@	122.7@	287.6@	101.0@	438.4@					124.4@

Appendix N (Continued)

Ques*	M/F	Age ≤25/25+	Marital Sgl/Mar	Class 1-2/3-4/5	Attend Full/Part	Major Field Hum/SSci/PhSci/Bio/Edu/Prof				Col GPA ≤3/3+
15a	4.4/4.2	4.2/4.6	4.2/4.6	4.2/4.2/4.7	4.4/4.4	4.4/	4.4/	4.3	/4.0/4.5/4.5	3.7/4.4
b	2.1/2.1	2.2/1.8	2.1/2.1	2.1/1.8/1.9	2.1/2.0	2.0/	2.1/	2.0	/2.2/2.2/2.2	2.6/2.1
c	4.5/4.1	4.4/4.1	4.4/4.2	4.3/4.4/4.2	4.5/3.9	4.1/	4.3/	4.7	/4.6/4.0/4.6	4.2/4.4
d	2.9/3.0	2.9/3.2	3.1/2.8	3.1/3.0/2.7	2.9/3.4	3.2/	3.0/	2.7	/2.7/2.4/3.0	3.6/2.9
e	4.3/4.5	4.2/4.7	4.3/4.5	4.3/4.3/4.6	4.4/4.5	4.7/	4.3/	4.6	/4.4/4.4/4.2	3.4/4.4
f	2.8/2.9	3.0/2.5	2.9/2.7	3.0/2.9/2.7	2.8/3.1	2.4/	2.9/	2.7	/3.1/3.5/2.6	3.5/2.8
n	256/193	327/122	307/141	65/280/88	373/75	88/	122/	41	/ 37/ 37/ 77	31/417
W	.3@/.2@	.2@/.4@	.3@/.3@	.3@/.2@/.3@	.3@/.4@	.3@/	.2@/	.4@	/ .3@/.3@/.3@	.1#/.3@
χ^2	34.2	81.6@	45.6#	94.7@	38.2	249.4@				96.5@
15v16	64@/74@	98@/46#	76@/67@	27/122@/45#	84@/51@	25/	29	/ 25	/ 43/47# / 40	39/102@
16a	4.5/4.6	4.5/4.7	4.4/4.8	4.5/4.4/4.8	4.5/4.7	4.5/	4.5/	4.4	/4.2/4.7/4.7	4.1/4.6
b	2.0/2.0	2.0/2.0	1.9/2.1	2.3/1.6/2.0	2.0/2.0	2.0/	1.9/	2.1	/1.7/1.9/2.0	2.5/1.9
c	4.7/4.2	4.5/4.4	4.5/4.5	4.7/4.6/4.1	4.6/4.0	4.2/	4.6/	4.5	/4.5/4.2/4.8	4.6/4.5
d	3.0/3.2	3.0/3.4	3.1/3.1	3.1/3.0/3.2	3.0/3.8	3.4/	3.1/	2.6	/2.9/2.7/3.1	3.7/3.0
e	4.5/4.7	4.6/4.6	4.6/4.5	4.7/4.6/4.5	4.6/4.3	4.8/	4.5/	5.0	/5.2/4.5/4.2	3.5/4.7
f	2.3/2.4	2.5/1.9	2.5/2.0	2.1/2.4/2.2	2.3/2.2	2.2/	2.4/	2.5	/2.5/2.4/2.3	2.7/2.3
n	247/189	322/116	302/136	63/280/82	369/70	87/	117/	40	/ 37/ 36/ 77	31/407
W	.4@/.4@	.4@/.5@	.4@/.5@	.5@/.3@/.3@	.4@/.4@	.4@/	.4@/	.4@	/ .5@/.2@/.4@	.2@/.4@
χ^2	56.5@	98.0@	53.3@	74.5	76.0@	261.2@				113.7@
17a	8/7	8/7	9/5	7 / 7 / 11	8/6	8	/ 4	/ 0	/ 11/ 5 / 10	12/7
b	15/16	15/16	16/13	7 / 16/ 20	16/14	16/	15	/ 16	/ 13/ 26/ 19	9/16
c	33/42	35/43	34/44	42/ 34/ 41	38/35	38/	39	/ 53	/ 42/ 33/ 28	30/38
d	21/17	20/15	21/14	16/ 24/ 7	20/14	13/	22	/ 21	/ 13/ 18/ 25	15/19
e	12/ 9	12/ 7	11/10	20/ 10/ 9	10/14	12/	7	/ 5	/ 11/ 15/ 13	27/10
n	238/184	302/121	288/134	64/260/83	352/71	80/111	/ 41	/ 34/	38/ 75	31/392
χ^2	4.9	5.5	7.9	45.6@	2.5	22.7				11.0#
17v18	7/4	6/3	4/6	43@/ 2 / 1	6/4	1/	4	/ 1	/ 5 / 2 / 5	7/8

Appendix N (Continued)

Ques*	M/F	Age 25/25+	Marital Sgl/Mar	Class 1-2/3-4/5	Attend Full/Part	Major Field Hum/SSci/PhSci/Bio/Edu/Prof						Col GPA 3/3+
18a	6/ 3	5/ 5	6/ 3	1/ 5/10	5/ 4	5/ 5	/ 0	/ 0/ 3/ 8				6/ 5
b	18/15	17/16	18/15	12/ 17/21	18/12	20/ 19	/ 21	/ 16/ 21/ 14				9/17
c	41/47	40/51	39/53	64/ 38/44	44/42	37/ 43	/ 44	/ 50/ 49/ 44				30/45
d	15/19	19/10	21/ 8	7/ 23/ 5	17/16	15/ 13	/ 28	/ 18/ 13/ 20				39/15
e	9/6	9/5	8/7	9/ 8/ 5	8/ 6	10/ 8	/ 2	/ 8/ 10/ 8				9/8
n	237/184	304/118	289/132	64/262/80	354/68	80/ 112/ 41	/ 35/ 37/ 74					31/391
χ^2	6.0	9.6#	17.0@	34.6@	1.6			15.5				13.3@
19a	3/ 5	5/ 1	5/ 1	7/ 5/ 0	5/ 1	1/ 5	/ 0	/ 5/ 3/ 8				3/ 4
b	12/15	16/ 7	15/10	12/ 16/ 5	14/12	13/18	/ 12	/ 3/ 18/ 13				21/13
c	67/69	69/64	67/70	61/ 68/72	68/68	75/65	/ 56	/ 71/ 72/ 63				64/68
d	12/ 8	8/14	10/ 9	10/ 10/11	11/ 5	8/ 7	/ 28	/ 16/ 3/ 14				6/10
e	3/ 1	1/ 5	1/ 3	4/ 0/ 6	2/ 2	3/ 0	/ 5	/ 3/ 3/ 1				3/ 2
n	259/198	333/125	313/144	65/287/89	383/75	92/122/ 43	/ 37/ 38/ 78					32/426
χ^2	7.1	22.5@	8.4	30.2@	4.8			38.0@				2.6
20a	0/ 1	1/ 1	1/ 0	4/ 1/ 0	1/ 0	2/ 1/	0 / 0/ 0/ 0					0/ 1
b	7/10	9/ 6	9/ 8	14/ 7/ 5	9/ 5	8/ 12/	0 / 0/ 8/ 11					9/ 8
c	61/66	65/58	62/66	48/ 67/65	62/67	65/ 61/	51 / 74/ 77/ 58					79/62
d	23/16	19/21	22/15	23/ 19/17	20/16	18/ 17/	33 / 21/ 10/ 25					6/21
e	6/ 2	4/ 5	4/ 5	6/ 3/ 6	5/ 0	3/ 4/	16 / 13/ 13/ 3					3/ 4
n	256/196	330/123	308/144	66/283/88	378/75	89/121/ 43	/ 37/ 38/ 77					32/421
χ^2	8.5	2.1	4.6	18.6#	7.4			38.0@				5.1
21a	1/ 2	2/ 1	2/ 1	3/ 2/ 1	2/ 0	5/ 1/	0 / 0/ 0/ 1					0/ 2
b	5/ 9	8/ 4	7/ 8	3/ 9/ 5	7/ 5	12/ 7/	2 / 3/ 13/ 4					9/ 7
c	39/46	41/44	40/47	41/ 41/46	39/55	46/ 41/	28 / 47/ 49/ 40					58/41
d	30/23	31/18	31/19	25/ 29/23	29/18	22/ 28/	26 / 29/ 21/ 36					15/28
e	18/13	15/16	16/14	20/ 16/14	17/ 8	8/ 16/	44 / 13/ 10/ 14					15/16
n	250/191	327/115	313/136	63/278/84	369/73	85/119/ 43	/ 36/ 36/ 76					32/410
χ^2	8.4	6.3	8.3	6.4	14.3@			51.6@				4.6

Appendix N (Continued)

Ques*	M/F	Age 25/25+	Marital Sgl/Mar	Class 1-2/3-4/5	Attend Full/Part	Major Field Hum/SSci/PhSci/Bio/Edu/Prof				Col GPA 3/3+
22a	3/ 6	6/ 3	6/ 2	6/ 6/ 0	6/ 0	8/ 6 / 2 /	5/ 0/ 3			0/ 5
b	6/13	12/ 3	10/ 7	7/ 13/ 1	10/ 4	14/ 8 / 7 /	3/ 15/ 13			15/ 9
c	57/51	54/54	55/53	55/ 52/60	53/58	61/ 57 / 51 /	61/ 49/ 51			42/55
d	23/19	22/19	23/18	14/ 26/17	23/15	10/ 20 / 26 /	29/ 21/ 29			18/22
e	8/ 8	5/14	5/14	13/ 4/16	6/14	5/ 5 / 14 /	3/ 13/ 5			21/ 7
n	259/199	333/126	313/145	47/288/88	382/77	90/123 / 43 /	38/ 38/ 80			32/427
χ^2	8.9	20.2@	16.7@	38.1@	16.8@		30.2			12.9#
23a	1/ 1	1/ 3	1/ 2	1/ 1/ 1	1/ 1	0/ 2 / 2 /	3/ 0/ 0			6/ 1
b	3/ 3	4/ 1	3/ 1	0/ 4/ 0	3/ 2	2/ 0 / 5 /	5/ 5/ 6			6/ 3
c	68/67	74/54	68/67	71/ 69/63	70/58	66/ 80 / 70 /	61/ 69/ 59			52/69
d	14/12	12/15	14/11	7/ 14/14	12/19	12/ 6 / 19 /	21/ 5/ 21			12/13
e	8/ 7	6/12	8/ 7	13/ 7/ 7	7/ 7	5/ 4 / 5 /	5/ 10/ 13			15/ 7
n	248/186	320/115	298/136	64/275/80	361/74	79/117 / 42 /	36/ 35/ 79			30/405
χ^2	.87	18.2@	3.9	11.7	4.4		36.0#			12.2#
24a	6/ 3	5/ 4	4/ 5	3/ 7/ 1	5/ 1	4/ 8 / 0 /	0/ 0/ 5			6/ 5
b	4/ 6	6/ 3	6/ 2	6/ 6/ 2	5/ 5	2/ 5 / 7 /	3/ 5/ 8			6/ 5
c	61/66	65/57	64/60	59/ 63/66	63/60	75/ 70 / 60 /	53/ 59/ 58			48/64
d	10/15	13/11	12/13	10/ 13/12	12/12	5/ 5 / 14 /	26/ 13/ 19			27/11
e	16/ 6	10/17	11/13	14/ 11/14	12/ 9	11/ 6 / 19 /	18/ 18/ 10			6/12
n	255/198	330/124	311/142	64/285/89	380/74	90/121 / 43 /	38/ 37/ 79			31/423
χ^2	15.2@	7.5	4.5	8.5	2.6		42.1@			9.0
25a	9/11	7/17	9/13	13/ 10/11	10/12	2/ 10 / 5 /	18/ 5/ 14			15/10
b	18/23	20/21	18/24	25/ 16/33	20/21	21/ 16 / 28 /	11/ 36/ 20			30/19
c	64/55	63/52	63/54	52/ 66/47	62/52	65/ 63 / 63 /	66/ 54/ 58			45/61
d	4/ 4	5/ 1	5/ 2	3/ 5/ 3	4/ 2	5/ 3 / 5 /	3/ 0/ 6			0/ 4
e	1/ 3	3/ 0	3/ 0	1/ 3/ 0	2/ 0	4/ 4 / 0 /	0/ 0/ 0			0/ 2
n	255/198	331/123	310/143	65/286/88	380/74	90/124 / 43 /	37/ 37/ 78			30/424
χ^2	6.3	19.3@	12.0#	19.6#	3.5		33.8#			6.3

Appendix N (Continued)

Ques*	Sex M/F	Age ≤25/25+	Marital Sgl/Mar	Class 1-2/3-4/5	Attend Full/Part	Major Field Hum/SSci/PhSci/Bio/Edu/Prof					Col GPA ≤3/3+
26a	5/ 5	4/ 7	4/ 8	17/ 4/ 2	5/ 8	4/ 2/ 7 / 3/ 3/ 10					6/ 5
b	20/27	26/15	22/25	23/ 25/13	24/21	18/ 20/ 21 / 34/ 28/ 20					21/23
c	27/26	29/21	28/23	26/ 26/33	27/26	33/ 27/ 21 / 18/ 28/ 30					27/27
d	20/16	18/18	19/16	12/ 19/22	20/11	17/ 14/ 26 / 18/ 10/ 26					30/17
e	24/22	21/28	23/23	14/ 24/26	22/27	24/ 32/ 23 / 26/ 28/ 11					6/24
n	256/197	331/123	307/146	64/284/90	375/79	89/ 123/ 42 / 38/ 38/ 78					30/424
χ^2	4.2	10.1#	5.2	33.1@	5.8	29.9					7.8
26v27	20@/12#	24@/ 7	17@/17@	12#/19@/ 2	20@/16@	5/ 8/ 1 / 6/ 5/ 7					4/27
27a	2/ 2	2/ 4	3/ 2	7/ 1/ 2	2/ 4	2/ 0/ 9 / 0/ 3/ 3					3/ 2
b	9/15	13/ 7	12/11	12/ 13/ 7	13/ 4	10/ 11/ 14 / 13/ 13/ 13					6/12
c	27/32	31/24	28/30	32/ 31/28	29/26	36/ 28/ 16 / 32/ 21/ 35					27/29
d	26/20	24/21	25/20	22/ 24/26	24/22	16/ 20/ 30 / 24/ 26/ 29					39/22
e	32/26	27/35	30/29	30/ 29/31	29/32	34/ 38/ 28 / 29/ 31/ 19					12/31
n	254/196	327/124	308/142	64/284/88	377/74	90/ 123/ 42 / 37/ 36/ 78					29/422
χ^2	8.2	8.6	1.0	11.7	6.7	31.0					9.1
28a	9/ 8	9/ 8	9/ 9	13/ 10/ 3	9/ 7	8/ 5/ 9 / 11/ 5/ 11					36/ 7
b	19/14	18/14	17/18	9/ 20/11	17/18	9/ 16/ 14 / 32/ 26/ 21					9/18
c	67/73	70/70	72/66	71/ 67/81	71/64	82/ 72/ 74 / 55/ 67/ 65					45/72
d	1/ 2	2/ 0	2/ 1	1/ 2/ 0	2/ 0	2/ 3/ 2 / 3/ 0/ 0					0/ 2
e	1/ 0	0/ 1	0/ 1	0/ 0/ 1	0/ 1	0/ 1/ 0 / 0/ 0/ 0					0/ 0
n	258/200	333/126	314/144	65/288/90	383/76	92/ 123/ 43 / 38/ 38/ 78					30/429
χ^2	4.2	6.6	3.9	20.6@	7.0	23.7					38.4@

*Responses to questions 12-16 are shown as $\bar{x}$ ranks; other responses are shown as percentages. For complete question and item statements, see Appendix D, pp. 178-181.

Significance: # = .05 level, @ = .01 level

Degrees of freedom: Question 12, major = 210, class = 84, other groups = 42; question 14, major = 280, class = 112, other = 56; questions 15-16, major = 150, class = 60, other = 30; questions 17-28, major = 20, class = 8, other = 4; comparisons 15v16 = 30, 17v18 and 26v27 = 4.

Appendix 0

Faculty Questionnaire Responses, By Sub-groups

Ques*	Sex M/F	Age <45/45+	Marital Sgl/Mar	Major Field Hum/SSci/PhSci/Bio/Edu/Prof				Degree <Dr/Dr	Exper. <16/16+	Tenure Non/Ten
11a	4.1/3.9	3.9/4.4	4.2/4.1	3.7/	4.5/	3.7	/4.8/3.8/4.3	4.6/3.9	3.9/4.3	4.3/4.1
b	2.8/3.4	2.9/2.9	3.6/2.8	3.2/	3.1/	2.5	/2.4/3.1/2.8	3.2/2.8	2.8/3.1	2.8/2.9
c	2.2/2.4	2.3/2.3	2.4/2.3	2.4/	2.0/	2.7	/2.4/2.2/1.9	2.1/2.3	2.3/2.2	2.3/2.3
d	3.8/3.9	3.8/3.9	4.0/3.8	4.2/	3.5/	3.2	/4.0/4.0/4.1	4.1/3.8	3.8/4.0	4.1/3.8
e	4.2/3.4	4.2/4.0	3.3/4.3	3.9/	4.1/	4.6	/4.1/4.1/3.9	3.6/4.3	4.3/3.9	4.0/4.1
f	4.3/4.4	4.5/4.2	4.3/4.3	4.3/	4.3/	4.5	/3.7/4.6/4.5	4.0/4.4	4.4/4.2	4.3/4.3
g	6.4/6.5	6.5/6.3	6.1/6.5	6.3/	6.5/	6.8	/6.3/6.1/6.4	6.3/6.5	6.5/6.2	6.2/6.4
n	181/34	112/103	36/177	50/45	/	32	/16/31/32	53/161	129/87	43/171
W	.4@/.3@	.4@/.3@	.2@/.4@	.3@/	.4@/	.5@	/ .3@/.3@/.5@	.3@/.4@	.4@/.3@	.3@/.4@
χ^2	75.0@	41.6	55.0	255.2#				32.7	33.4	49.3
13a	3.9/4.0	3.9/4.0	4.8/3.7	3.4/	4.2/	2.8	/3.9/5.1/4.2	4.9/3.6	4.0/3.8	4.0/3.9
b	3.0/2.2	2.9/2.8	2.7/2.9	2.4/	3.0/	2.0	/3.0/3.1/3.7	3.1/2.7	2.9/2.7	2.9/2.8
c	3.6/3.9	3.8/3.5	3.9/3.6	4.0/	3.4/	3.0	/3.2/4.1/4.2	3.8/3.6	3.7/3.6	3.5/3.7
d	3.4/3.4	3.5/3.3	3.5/3.4	3.8/	3.0/	2.9	/3.4/3.4/3.6	3.4/3.5	3.4/3.4	3.4/3.4
e	4.9/5.0	5.0/4.8	4.9/4.9	4.7/	5.4/	5.5	/4.6/4.7/4.4	4.7/5.0	5.0/4.9	4.6/5.0
f	5.3/5.9	5.4/5.3	5.2/5.4	5.6/	5.3/	5.9	/5.3/5.1/4.9	4.8/5.7	5.3/5.5	5.2/5.4
g	5.4/5.8	5.2/5.7	5.3/5.4	5.1/	5.0/	6.5	/5.8/5.7/5.0	5.3/5.4	5.2/5.7	5.8/5.3
h	6.5/5.9	6.2/6.6	5.7/6.6	6.7/	6.7/	7.4	/6.8/4.7/6.2	6.2/6.5	6.3/6.5	6.5/6.3
n	182/33	115/100	34/179	49/	47/	29	/18/31/33	55/159	133/84	46/169
W	.2@/.3@	.2@/.3@	.2@/.3@	.3@/	.3@/	.7@	/ .3@/.1@/.1@	.2@/.3@	.2@/.3@	.3@/.2@
χ^2	70.7	72.6	82.4#	335.7@				107.8@	81.5#	37.1
14a	4.0/3.7	4.0/3.9	3.8/3.9	3.7/	3.7/	4.1	/4.3/4.3/4.2	3.6/4.1	4.0/3.9	3.8/4.0
b	2.9/3.1	2.8/3.1	3.4/2.8	2.8/	2.8/	3.2	/3.2/3.0/2.8	3.3/2.8	3.0/2.9	2.9/2.9
c	4.6/4.6	4.5/4.7	4.3/4.6	4.4/	4.8/	4.8	/4.9/4.5/4.4	4.4/4.6	4.5/4.6	4.5/4.6
d	2.1/1.7	2.2/1.9	1.7/2.1	2.4/	2.3/	1.9	/1.5/1.6/2.3	1.9/2.1	2.0/2.1	1.9/2.1
e	3.7/3.5	3.6/3.8	3.5/3.8	4.0/	3.5/	3.7	/3.5/3.5/3.6	3.5/3.7	3.5/4.0	3.7/3.7
f	3.7/4.4	3.9/3.7	4.4/3.7	3.7/	3.9/	3.5	/3.5/4.2/3.8	4.3/3.7	4.0/3.6	4.2/3.7
n	174/34	113/95	36/170	49/	41/	30	/15/32/32	54/152	129/80	44/164
W	.2@/.3@	.2@/.3@	.3@/.2@	.2@/	.2@/	.3@	/ .4@/.3@/.2@	.2@/.2@	.3@/.2@	.3@/.2@
χ^2	37.1	33.8	46.9#	101.8				25.7	43.2	27.6
14v15	18/27	38/17	27/17	20/	23/	12	/13/9/17	21/17	33/17	15/18

Appendix O (Continued)

Ques*	Sex M/F	Age ≤45/45+	Marital Sgl/Mar	Major Field Hum/SSci/PhSci/Bio/Edu/Prof				Degree ≤Dr/Dr	Exper. ≤16/16+	Tenure Non/Ten
15a	4.1/4.0	4.1/4.0	3.9/4.1	4.0/	3.8/	3.9	/4.3/4.3/4.5	4.0/4.1	4.1/4.0	4.0/4.1
b	2.7/2.6	2.6/2.8	2.7/2.7	2.7/	2.4/	3.0	/3.1/2.8/2.5	2.8/2.6	2.7/2.7	2.6/2.7
c	4.6/4.6	4.5/4.7	4.5/4.7	4.4/	4.8/	4.7	/5.0/4.7/4.5	4.4/4.7	4.6/4.7	4.5/4.7
d	2.4/2.0	2.4/2.2	2.2/2.3	2.8/	2.5/	1.8	/1.4/1.7/2.9	2.4/2.3	2.2/2.4	2.4/2.3
e	3.8/3.8	3.9/3.8	4.0/3.8	4.0/	3.9/	4.1	/3.9/3.6/3.5	3.7/3.9	3.8/3.9	3.9/3.8
f	3.4/4.1	3.5/3.4	3.6/3.4	3.3/	3.5/	3.4	/3.2/3.9/3.1	3.7/3.4	3.5/3.4	3.7/3.4
n	170/34	109/95	35/167	48/	39/	29	/15/32/32	53/149	125/80	43/161
W	.2@/.3@	.2@/.2@	.2@/.2@	.1@/	.2@/	.3@	/4@/4@/2@	.2@/.2@	.2@/.2@	.2@/.2@
χ^2	54.7@	38.8	27.1	151.8				32.9	35.3	22.1
16a	2/ 6	1/ 5	7/ 2	3/	2 /	0	/ 4 / 6 / 3	3/ 3	1/ 5	4/ 2
b	14/14	14/13	14/14	8/	16 /	11	/ 0 /15 /25	26/10	14/13	20/12
c	58/60	58/59	57/58	69/	40 /	79	/61 /50 /53	49/62	59/58	56/59
d	7/ 9	7/ 7	7/ 7	8/	7 /	0	/17 /15 / 0	7/ 7	6/ 8	6/ 7
e	2/ 0	3/ 1	2/ 2	2/	4 /	3	/ 0 / 0 / 3	0/ 2	3/ 0	2/ 2
n	184/31	106/109	37/176	55/	39 /	35	/19 /29 /30	52/161	125/91	44/171
χ^2	2.1	5.4	3.3	29.7				11.5#	6.7	2.1
16v17	26@/ 5	19@/12#	5/27@	13@/ 4	/	16@/ 5	/ 3 / 4	2/32@	19@/ 6	12#/ 7
17a	6/ 9	5/ 7	14/ 5	8/	7 /	5	/ 4 / 3 / 6	5/ 7	6/ 7	2/ 7
b	29/20	29/26	17/30	25/	19 /	39	/17 /21 /33	30/27	28/26	38/25
c	37/34	34/39	38/36	37/	32 /	42	/52 /35 /36	39/36	37/37	32/39
d	8/23	9/10	17/ 9	15/	4 /	5	/ 9 /24 / 6	13/ 9	7/13	12/ 9
e	3/ 0	4/ 2	0/ 3	3/	5 /	0	/ 0 / 3 / 3	0/ 3	4/ 1	2/ 3
n	183/30	105/108	36/175	54/	38 /	35	/19 /29 /30	53/158	123/91	43/170
χ^2	9.1	2.2	10.7#	21.0				3.0	4.3	5.2
18a	1/ 6	2/ 1	2/ 1	2/	4 /	0	/ 0 / 0 / 0	2/ 2	2/ 1	2/ 1
b	3/11	4/ 5	5/ 4	7/	2 /	0	/ 0 / 6 / 6	7/ 4	3/ 6	2/ 5
c	65/66	63/68	57/66	56/	61 /	74	/78 /82 /56	72/63	68/62	78/63
d	24/14	27/19	31/21	32/	21 /	21	/17 / 6 /33	16/25	22/23	16/23
e	4/ 3	3/ 5	2/ 4	3/	7 /	5	/ 4 / 3 / 0	0/ 5	3/ 5	0/ 5
n	214/35	126/123	41/206	59/	54 /	38	/23 /33 /34	59/189	148/103	49/200
χ^2	10.4#	3.4	2.4	24.9				6.2	1.9	5.7

Appendix O (Continued)

Ques*	Sex M/F	Age <45/45+	Marital Sgl/Mar	Hum/SSci/PhSci/Bio/Edu/Prof					Degree <Dr/Dr	Exper. <16/16+	Tenure Non/Ten
19a	0/ 3	0/ 1	2/ 0	2/ 0	/ 0	/ 0	/ 0	/ 0	2/ 0	0/ 1	0/ 0
b	4/20	8/ 4	12/ 5	3/ 7	/ 3	/ 0	/12	/ 6	8/ 5	7/ 5	6/ 6
c	55/34	51/53	40/54	44/ 58	/ 47	/65	/59	/50	62/48	55/49	60/51
d	27/29	28/26	26/27	32/ 16	/ 39	/26	/18	/28	18/30	25/29	22/27
e	12/14	11/13	17/11	17/ 14	/ 11	/ 9	/ 9	/11	7/14	11/14	8/13
n	213/35	125/123	41/205	58/ 54	/ 38	/23	/33	/34	59/188	147/103	48/200
χ^2	22.0@	3.1	10.0	18.9					10.3#	2.7	2.2
20a	0/ 3	2/ 0	2/ 0	2/ 0	/ 0	/ 0	/ 3	/ 0	0/ 1	1/ 0	0/ 1
b	7/ 9	9/ 6	10/ 7	8/ 7	/ 5	/ 4	/15	/ 3	5/ 8	9/ 5	8/ 7
c	25/20	22/26	19/24	19/ 19	/ 18	/30	/32	/36	33/21	27/21	26/24
d	35/37	34/35	31/36	36/ 42	/ 29	/39	/29	/31	36/34	31/40	40/34
e	31/31	30/31	36/30	34/ 28	/ 47	/26	/21	/25	21/34	29/33	22/32
n	215/35	125/125	41/207	58/ 55	/ 38	/23	/34	/34	58/191	147/105	48/202
χ^2	2.6	3.7	2.9	20.2					6.5	6.3	2.4
21a	7/14	8/ 8	5/ 9	15/ 4	/ 11	/ 9	/ 0	/ 6	10/ 7	8/ 7	6/ 8
b	23/14	23/20	24/21	25/ 18	/ 32	/26	/ 9	/22	18/23	20/23	28/20
c	47/63	46/53	55/48	39/ 54	/ 45	/48	/79	/33	51/49	49/51	52/50
d	18/ 6	16/16	12/17	15/ 19	/ 11	/17	/ 3	/31	16/16	18/13	12/17
e	3/ 3	5/ 2	2/ 3	3/ 4	/ 3	/ 0	/ 6	/ 3	2/ 3	4/ 2	0/ 3
n	215/35	126/124	41/207	58/ 56	/ 38	/23	/33	/34	59/190	148/104	49/201
χ^2	7.2	3.0	1.7	35.4#					1.3	2.3	3.8
22a	3/ 3	3/ 2	0/ 3	5/ 2	/ 3	/ 9	/ 0	/ 0	0/ 4	3/ 3	4/ 2
b	8/11	11/ 6	7/ 9	7/ 5	/ 13	/17	/ 3	/ 8	8/ 8	9/ 7	10/ 8
c	34/34	35/33	38/34	36/ 37	/ 29	/22	/50	/28	36/34	35/33	40/33
d	38/31	38/37	36/37	34/ 33	/ 42	/30	/44	/42	34/38	35/39	36/37
e	9/17	7/13	17/ 8	12/ 7	/ 5	/ 9	/ 3	/19	18/ 7	9/11	6/10
n	202/34	120/116	41/193	55/ 48	/ 35	/20	/34	/35	59/175	137/100	48/187
χ^2	2.8	3.8	4.2	23.2					8.2	1.0	1.7

Appendix O (Continued)

Ques*	Sex M/F	Age ≤45/45+	Marital Sgl/Mar	Major Field Hum/SSci/PhSci/Bio/Edu/Prof				Degree ≤Dr/Dr	Exper. ≤16/16+	Tenure Non/Ten
23a	1/ 0	2/ 0	0/ 1	0/ 0 / 5	/ 0 / 0 / 0			2/ 1	1/ 0	4/ 0
b	2/ 0	2/ 1	0/ 2	0/ 0 / 5	/ 9 / 0 / 0			2/ 2	3/ 0	2/ 1
c	75/89	73/80	83/75	83/ 70 / 79	/70 /71 /72			77/75	72/81	72/77
d	9/ 6	9/ 8	7/ 9	10/ 9 / 0	/ 0 /18 /14			11/ 8	7/10	10/ 8
e	2/ 3	2/ 2	2/ 2	3/ 2 / 0	/ 4 / 0 / 6			3/ 2	3/ 2	4/ 2
n	195/34	114/115	39/188	57/ 46 / 34	/19 /30 /33			58/168	129/100	46/182
χ ²	1.8	3.4	1.6	38.0@				1.4	5.3	9.0
24a	3/ 9	6/ 2	5/ 4	3/ 5 / 3	/ 4 / 9 / 0			3/ 4	6/ 1	6/ 3
b	20/ 9	20/17	24/18	17/ 30 / 18	/ 4 /12 /19			10/20	19/17	6/21
c	21/11	21/18	14/20	15/ 14 / 24	/ 9 /26 /31			26/17	18/21	14/20
d	30/37	30/32	31/31	39/ 26 / 26	/17 /47 /25			26/33	27/36	38/29
e	13/17	10/17	19/13	15/ 11 / 5	/26 / 3 /19			21/11	14/13	16/13
n	192/29	112/109	39/181	53/ 49 / 29	/14 /33 /34			53/165	126/95	40/179
χ ²	6.8	6.8	2.1	31.8#				8.8	6.5	8.3
25a	9/26	13/ 9	21/ 9	12/ 12 / 5	/ 9 /15 / 8			15/10	12/ 9	12/11
b	48/43	45/49	52/46	49/ 44 / 37	/30 /56 /61			52/44	46/48	46/47
c	33/29	32/33	24/34	29/ 30 / 47	/39 /24 /28			31/33	31/34	30/32
d	1/ 0	0/ 2	0/ 1	2/ 0 / 0	/ 4 / 0 / 0			0/ 1	0/ 2	0/ 1
e	1/ 0	1/ 1	0/ 1	3/ 0 / 0	/ 0 / 0 / 0			0/ 1	1/ 1	2/ 0
n	201/34	116/119	41/192	56/ 49 / 34	/19 /32 /35			60/172	135/100	45/188
χ ²	8.3	2.7	6.7	22.4				2.5	3.3	1.8
26a	2/ 0	2/ 1	2/ 1	2/ 4 / 3	/ 0 / 0 / 0			2/ 2	2/ 1	0/ 2
b	14/ 9	16/10	19/12	15/ 7 / 5	/ 4 /18 /28			21/10	15/10	18/12
c	21/29	24/20	24/22	22/ 35 / 11	/ 9 /21 /19			25/21	23/21	22/21
d	27/23	22/31	29/27	25/ 25 / 24	/39 /26 /28			21/27	23/31	28/26
e	20/26	19/23	21/20	17/ 16 / 42	/22 /21 /11			23/21	21/21	16/22
n	185/30	107/108	40/173	48/ 49 / 32	/17 /29 /31			56/157	126/90	42/173
χ ²	2.7	6.1	1.2	35.7#				4.4	3.1	2.8
26v27	6/ 1	4/ 3	2/ 4	3/ 1 / 3	/ 1 / .1 / 3			5/ 2	3/ 3	3/ 3

Appendix O (Continued)

Ques*	Sex M/F	Age <45/45+	Marital Sgl/Mar	Major Field Hum/SSci/PhSci/Bio/Edu/Prof					Degree <Dr/Dr	Exper. <16/16+	Tenure Non/Ten
27a	1/ 0	2/ 0	0/ 1	0/ 4	/ 0	/ 0	/ 0	/ 0	0/ 1	1/ 0	0/ 1
b	8/ 9	9/ 6	12/ 7	8/ 5	/ 0	/ 0	/ 18	/ 11	10/ 7	9/ 6	8/ 8
c	23/20	27/19	29/22	25/ 30	/ 16	/ 13	/ 18	/ 25	30/21	24/21	28/21
d	31/29	27/35	31/31	29/ 32	/ 26	/ 35	/ 29	/ 36	30/30	28/34	32/30
e	21/29	20/25	24/21	20/ 16	/ 42	/ 22	/ 21	/ 14	23/23	21/24	18/24
n	185/30	107/108	40/173	49/ 49	/ 32	/ 16	/ 29	/ 31	56/157	126/90	43/172
χ^2	1.2	6.7	1.3	30.3					2.1	3.8	2.0
28a	2/ 6	4/ 1	7/ 1	3/ 2	/ 0	/ 0	/ 3	/ 6	3/ 2	3/ 1	4/ 2
b	22/ 9	17/23	21/19	19/ 23	/ 16	/ 13	/ 15	/ 28	26/17	21/19	16/21
c	65/83	73/63	69/68	69/ 65	/ 74	/ 65	/ 74	/ 58	62/70	68/67	74/66
d	5/ 0	4/ 4	0/ 5	3/ 4	/ 5	/ 9	/ 3	/ 3	5/ 4	4/ 4	4/ 3
e	0/ 0	0/ 0	0/ 0	0/ 0	/ 0	/ 0	/ 0	/ 0	0/ 0	0/ 0	0/ 0
n	206/34	125/115	41/197	56/ 53	/ 36	/ 20	/ 32	/ 34	59/179	144/97	49/190
χ^2	7.3	4.2	6.6	8.7					2.7	1.5	1.4

*Responses to questions 11-15 are shown as $\bar{x}$ ranks; other responses are shown as percentages.
For complete question and item statements, see Appendix F, pp. 183-186.

Significance: # = .05 level; @ = .01 level.

Degrees of freedom: Question 11, major = 210, other groups = 42; question 13, major = 280, other = 56; questions 14-15, major = 150, other = 30; questions 16-28, major = 20, other = 4; comparisons 14v15 = 42, 16v17 and 26v27 = 4.

Appendix P

Undergraduate Admissions Officer Questionnaire Responses, Flathead Region, By Sub-groups

Question*	Control Public/Private	Undergraduate Enrollment <1000/1000-3999/4000-6999/7000+			Location Montana/Out-of-State
5a	3.0/3.5	3.8/3.4	/3.3	/2.6	3.5/3.3
b	2.9/2.9	2.9/2.9	/2.3	/3.3	3.2/2.8
c	1.2/1.1	1.2/1.0	/1.3	/1.1	1.3/1.1
d	2.9/3.1	2.4/3.4	/3.3	/3.0	2.0/3.5
e	5.0/4.4	4.7/4.2	/5.0	/5.0	5.0/4.6
n	13/17	9/9	/4	/8	6/24
W	.72@/.61@	.69@/.59@	/ .78@	/ .77@	.81@/.63@
χ^2	15.59		35.79		16.19
5v6	7.69/10.88	5.64/10.94	/3.56	/5.81	.70/12.28
6a	2.7/3.4	3.9/3.1	/2.8	/2.5	3.4/3.0
b	2.9/2.8	2.7/3.0	/2.3	/3.0	3.2/2.8
c	1.4/1.5	1.7/1.0	/1.8	/1.6	1.2/1.5
d	3.0/3.0	2.1/3.6	/3.3	/2.9	2.2/3.2
e	5.0/4.3	4.6/4.3	/5.0	/5.0	5.0/4.6
n	14/15	7/10	/4	/8	5/24
W	.66@/.43@	.57@/.61@	/ .63@	/ .62@	.81@/.48@
χ^2	23.12		55.02		14.09
7 Yes	90/81	73/85	/100	/100	78/88
No	5/10	9/15	/0	/0	11/ 6
n	19/19	9/13	/ 5	/ 9	8/30

Appendix P (Continued)

Question*	Control Public/Private	Undergraduate Enrollment <1000/1000-3999/4000-6999/7000+			Location Montana/Out-of-State
8a	15/ 0	18/ 0	/20	/ 0	22/ 3
b	15/14	9/15	/20	/22	11/16
c	55/48	27/77	/20	/56	56/50
d	10/14	18/ 8	/20	/11	11/13
e	5/14	9/ 0	/20	/11	0/13
n	20/19	9/13	/ 5	/ 9	9/30
χ^2	4.22		11.29		4.58
9a	5/ 5	18/ 0	/ 0	/ 0	11/ 3
b	0/38	36/31	/ 0	/ 0	33/16
c	90/48	27/69	/80	/100	56/72
d	5/ 0	0/ 0	/20	/ 0	0/ 3
e	0/ 5	9/ 0	/ 0	/ 0	0/ 3
n	20/20	10/13	/ 5	/ 9	9/31
χ^2	12.28#		23.20#		2.83
10a	15/ 0	9/ 0	/20	/11	22/ 3
b	10/10	9/ 8	/ 0	/22	0/13
c	40/62	45/77	/20	/22	44/53
d	10/14	9/15	/20	/11	11/13
e	15/10	18/ 0	/20	/22	11/13
n	18/20	10/13	/ 4	/ 8	8/30
χ^2	4.50		11.27		4.89

*Responses to questions 5-6 are shown as $\bar{x}$ ranks; other responses are shown as percentages.
For complete question and item statements, see Appendix I, p. 192.

Significance: # = .05 level, @ = .01 level.

Degrees of freedom: Questions 5-6, enrollment = 60, other groups = 20; question 8-10,
enrollment = 12, other = 4; comparison 5v6 = 20.

Appendix Q

Graduate Admissions Officer Questionnaire Responses, Oregon Region, By Sub-groups

Question*	Control	Graduate Enrollment				Location
	Public/Private	<100/100-499/500-999/1000-2999/3000+				Oregon/Out-of-State
5a	2.6/3.0	3.0/2.9	/2.4	/2.8	/2.8	3.2/2.7
b	1.3/1.2	1.0/1.3	/1.2	/1.1	/1.8	1.2/1.3
c	3.2/3.1	3.2/3.0	/3.6	/3.1	/3.0	3.0/3.2
d	2.9/3.4	3.2/3.5	/2.8	/3.0	/2.8	3.4/3.1
e	5.0/4.3	4.7/4.3	/5.0	/4.9	/4.8	4.2/4.8
n	17/22	6/15	/ 5	/ 8	/ 4	10/29
W	.71@/.51@	.68@/.49@	/ .80@	/ .71@	/ .48	.48@/.62@
χ^2	17.63	58.85				20.61
5v6	9.58/8.90	3.34/14.60	/1.73	/9.14	/7.43	7.97/13.21
6a	2.4/2.9	3.1/2.7	/2.2	/2.4	/2.8	3.1/2.5
b	1.7/1.6	1.1/1.8	/1.2	/1.8	/2.3	1.7/1.6
c	2.9/2.9	3.1/2.7	/3.6	/2.6	/2.8	2.8/2.9
d	3.0/3.3	3.0/3.5	/3.0	/3.3	/2.5	3.1/3.2
e	5.0/4.4	4.6/4.3	/5.0	/5.0	/4.8	4.3/4.8
n	17/22	7/15	/ 5	/ 8	/ 4	10/29
W	.61@/.40@	.60@/.36@	/ .82@	/ .62@	/ .40	.34@/.53@
χ^2	19.50	68.94				19.34
7 Yes	90/65	60/65	/100	/100	/100	67/79
No	10/31	40/29	/ 0	/ 0	/ 0	25/21
n	20/25	10/16	/ 5	/ 9	/ 4	11/34

Appendix Q (Continued)

Question*	Control		Graduate Enrollment				Location	
	Public/Private		<100/100-499/500-999/1000-2999/3000+				Oregon/Out-of-State	
8a	5/ 0	0/ 0	/ 0	/11	/ 0		8/ 0	
b	10/ 8	10/ 6	/ 0	/11	/25		0/12	
c	70/65	80/76	/80	/67	/ 0		75/65	
d	10/19	10/12	/20	/11	/50		8/18	
e	5/ 4	0/ 6	/ 0	/ 0	/25		8/ 3	
n	20/25	10/17	/ 5	/ 9	/ 4		12/33	
χ^2	2.05			17.55			5.40	
9a	15/ 4	0/18	/20	/ 0	/ 0		0/12	
b	20/35	40/18	/20	/11	/100		25/29	
c	65/50	50/59	/60	/89	/ 0		67/53	
d	0/ 8	10/ 6	/ 0	/ 0	/ 0		8/ 3	
e	0/ 0	0/ 0	/ 0	/ 0	/ 0		0/ 0	
n	20/25	10/17	/ 5	/ 9	/ 4		12/33	
χ^2	4.42			19.00			2.32	
10a	0/ 0	0/ 0	/ 0	/ 0	/ 0		0/ 0	
b	15/ 4	10/ 6	/20	/ 0	/25		0/12	
c	60/62	70/71	/60	/56	/25		75/56	
d	10/23	20/12	/20	/22	/25		8/21	
e	5/ 8	0/12	/ 0	/ 0	/25		8/ 6	
n	18/25	10/17	/ 5	/ 7	/ 4		11/31	
χ^2	2.84			8.57			2.82	

*Responses to questions 5-6 are shown as $\bar{x}$ ranks; other responses are shown as percentages.
For complete question and item statements, see Appendix K, p. 194.

Significance: # = .05 level, @ = .01 level.

Degrees of freedom: Questions 5-6, enrollment = 80, other groups = 20; questions 8-10,
enrollment = 16, other = 4; comparison 5v6 = 20.

Appendix R

Graduate Admissions Officer Questionnaire Responses, Grinnell Region, By Sub-groups

Question*	Control Public/Private	Graduate Enrollment 100/100-499/500-999/1000-2999/3000+				Location Iowa/Out-of-State
5a	3.0/2.9	3.0/3.0	/3.4	/2.7	/2.7	3.0/2.9
b	1.1/1.2	1.4/1.0	/1.1	/1.0	/1.2	1.2/1.1
c	3.2/3.1	3.1/3.2	/3.1	/3.4	/2.9	3.0/3.2
d	2.9/2.9	2.6/2.8	/2.6	/3.1	/3.2	3.0/2.9
e	4.9/4.9	4.9/5.0	/4.8	/4.8	/5.0	4.8/4.9
n	39/13	7/10	/9	/16	/10	5/47
W	.72@/.69@	.61@/.81@	/71@	/75@	/74@	.65@/.72@
χ^2	16.71	71.82				23.02
5v6	27.22/4.23	2.03/6.97	/10.16	/10.11	/9.00	7.43/23.99
6a	2.5/2.6	2.6/2.8	/2.6	/2.4	/2.1	2.7/2.5
b	1.7/1.5	1.6/1.3	/2.0	/1.6	/2.0	2.0/1.7
c	3.0/3.1	3.4/3.3	/3.0	/3.0	/2.7	3.0/3.1
d	3.0/2.9	2.6/3.0	/2.5	/3.2	/3.2	2.7/3.0
e	4.8/4.9	4.8/4.6	/4.9	/4.8	/5.0	4.7/4.8
n	37/10	5/10	/8	/15	/9	3/44
W	.51@/.60@	.57@/.56@	/49@	/56@	/60@	.40/.54@
χ^2	11.20	54.72				26.84
7-Yes	86/77	78/86	71/86	69/91	69/91	71/85
No	10/0	0/7	1/8	1/9	1/9	14/6
n	49/17	7/13	/13	/21	/11	6/60

Appendix R (Continued)

Question*	Control Public/Private	Graduate Enrollment				Location Iowa/Out-of-State
		100/100-499/500-999/1000-2999/3000+				
8a	4/ 0	0/ 0	/ 0	/ 4	/ 9	0/ 3
b	4/ 9	22/ 7	/ 0	/ 4	/ 0	14/ 5
c	47/55	56/36	/57	/63	/18	43/50
d	25/14	11/36	/14	/ 8	/55	29/21
e	12/ 0	0/ 7	/14	/ 4	/18	0/ 9
n	47/17	8/12	/12	/20	/11	6/58
χ^2	5.37		44.09@			2.20
9a	6/ 0	0/ 0	/ 7	/ 8	/ 0	29/ 2
b	14/18	22/14	/14	/ 8	/18	29/14
c	67/59	56/79	/64	/67	/55	43/67
d	6/ 0	0/ 0	/ 0	/ 0	/27	0/ 5
e	6/ 0	0/ 0	/14	/ 4	/ 0	0/ 5
n	50/17	7/13	/14	/21	/11	7/60
χ^2	3.89		24.36			12.37#
10a	0/ 0	0/ 0	/ 0	/ 0	/ 0	0/ 0
b	6/14	22/ 0	/ 7	/ 8	/ 0	14/ 8
c	47/55	44/57	/43	/63	/27	57/48
d	24/ 5	11/14	/36	/ 8	/27	14/18
e	24/ 0	0/14	/14	/13	/45	14/17
n	51/16	7/12	/14	/22	/11	7/60
χ^2	9.66		18.53			.43

*Responses to questions 5-6 are shown as $\bar{x}$ ranks; other responses are shown as percentages.
For complete question and item statements, see Appendix M, p. 196.

Significance: # = .05 level, @ = .01 level.

Degrees of freedom: Questions 5-6, enrollment = 80, other groups = 20; questions 8-10,
enrollment = 16, other = 4; comparison 5v6 = 20.

BIBLIOGRAPHY

BIBLIOGRAPHY

- American Association of Collegiate Registrars and Admissions Officers (AACRAO). The AACRAO Survey of Grading Policies in Member Institutions. ERIC 055 546, 1971.
- _____. "User-Experiences with Non-Traditional Grading Systems." College and University. Summer, 1972, pp. 531-36.
- Becker, Howard, et. al. Making the Grade: The Academic Side of College Life. New York: John Wiley and Sons, 1968.
- Blalock, Hubert M. Social Statistics. New York: McGraw-Hill, 1960.
- Bowers, William J. Student Dishonesty and Its Control in College. Cooperative Research Project No. 1672, USOE. New York: Bureau of Applied Social Research, Columbia University, 1964.
- Brown University. Freedom to Learn: A New Curriculum for Brown & Pembroke. Providence, Rhode Island: Brown University, 1969.
- Burke, Ronald. "Student Reactions to Grades," Journal of Experimental Education, Summer, 1968, pp. 11-13.
- Cureton, Louise Witmer. The History of Grading Practices: A Special Report from the National Council on Measurement in Education (NCME). East Lansing, Michigan: Michigan State University, 1971.
- Dewey, John. Schools of Tomorrow. New York: E. P. Dutton, 1915.
- _____. Democracy and Education. New York: Macmillan, 1917.
- Edwards, Allen L. Statistical Methods, Second Edition. New York: Holt, Rinehart and Winston, 1967.
- Erickson, Stanford C. "Grading/Evaluation." Memo to the Faculty (Center for Research on Learning and Teaching, University of Michigan). No. 46, October, 1971.
- _____. "Learning Theory and the Teacher: IV, The Reinforcement Principle." Memo to the Faculty. No. 48, April, 1972.
- Feldmesser, Robert A. "The Positive Functions of Grades." Educational Record, Winter, 1972, pp. 66-72.

Fisher, Richard I. "Components of a Motive to Succeed," Journal of Experimental Education. Vol. 41, No. 3, Spring, 1973, pp. 17-21.

George Peabody College for Teachers. Untitled Survey on the Acceptability of Non-Traditional Grading. Nashville: George Peabody College for Teachers, 1971.

Glasser, William. Schools Without Failure. New York: Harper & Rowe, 1969.

Hall, John. "Descriptive Grading Practice--Post Secondary Education" in AACRAO, Resource Information Relating to the AACRAO Workshop on the Evaluation of Non-Traditional Grading Patterns--1973. Springfield, Illinois: Office of Admissions and Records, Governor's State University, 1973.

Harris, William T. "Moral Education in the Common Schools," in John P. Strain (ed.), Modern Philosophies of Education. New York: Random House, 1971, pp. 152-162.

Herzberg, Frederick. Work and the Nature of Man. Cleveland: World Publishing Company, 1966.

_____. "One More Time: How Do You Motivate Employees?" Harvard Business Review. January-February, 1968, pp. 53-62.

Hofeller, Margaret A. A Survey of Graduate School Attitudes Toward Non-Traditional Grading Systems. New York: Center for the Study of Higher Education, Hofstra University, 1971.

Holt, John. How Children Fail. New York: Pitman, 1964.

Hoyt, Donald P. ACT Research Report No. 7: The Relationship Between College Grades and Adult Achievement. A Review of the Literature. Iowa, City: American College Testing Program, 1965.

_____. "College Grades and Adult Accomplishment." Educational Record. Winter, 1966, pp. 70-75.

Karlins, Marvin. Academic Attitudes and Performance as a Function of Differential Grading Systems: An Evaluation of Princeton's Pass-Fail System. Paper read at the Eastern Psychological Association. Washington, April, 1968.

Kirschenbaum, Howard, et al. Wad-Ja-Get? The Grading Game in American Education. New York: Hart Publishing Company, 1971.

Larson, Carl. "A Fail-Safe Program for the Liberal Arts College." Peabody Journal of Education, Vol. 46, May, 1969, pp. 355-57.

Levin, Henry M., et al. "School Achievement and Post-School Success: A Review." Review of Educational Research. Vol. 41, No. 1, February, 1971, pp. 1-16.

Maehr, Martin L. and Sjogren, Douglas. "Atkinson's Theory of Achievement Motivation: First Step Toward A Theory of Academic Motivation?" Review of Educational Research. Vol. 41, No. 2, April, 1971, pp. 143-161.

Merryman, M. F., and Kerwin, L. A Three Semester Study of the Credit-No Credit Option in the College of Arts and Sciences, University of Missouri, Kansas City. Kansas City, University of Missouri, ERIC 051 750, 1971.

Mousley, Woodrow. "Report Cards Across the Nation." Phi Delta Kappan. March, 1972, pp. 436-437.

Noble, Milton. "Grading Systems: All Win, No Lose." College and University. No. 46, 1971, pp. 717-731.

Ohio Education Association. "The Search for Grading Reform." Ohio Schools. December, 1972, pp. 21-23.

Postman, Neil, and Weingartner, Charles. Teaching as a Subversive Activity. New York: Dell (Delta), 1969.

Priest, Robert F. "Why College Students Favor Grading Reforms." Journal of College Student Personnel. No. 12, 1971, pp. 120-125.

Quann, Charles C. The Pass/Fail Option: Analysis of an Experiment in Grading. Paper read at the AACRAO convention, New Orleans, April, 1971.

_____. Address, Montana Association of College Registrars and Admission Officers (MACRAO). Dillon, Montana, May, 1973.

Rafferty, Max. Suffer Little Children. New York: Devin-Adair, 1962.

_____. What Are They Doing to Your Children? New York: New American Library, 1963.

Shoemer, James R., et al. "A Study of the Effect of Non-Traditional Grades on Admission to Graduate School and the Awarding of Financial Assistance." College and University, Spring, 1973, pp. 147-53.

Skinner, Burrhus F. The Behavior of Organisms: An Experimental Analysis. New York: Appleton-Century-Crofts, 1938.

_____. Science and Human Behavior. New York: Macmillan, 1953.

_____. "Why Teachers Fail." Saturday Review. Vol. 48, October 16, 1965, pp. 80+.

_____. The Technology of Teaching. New York: Appleton-Century-Crofts, 1968.

_____. Cumulative Record: A Selection of Papers, Third Edition. New York: Appleton-Century-Crofts, 1972.

_____. "The Free and Happy Student." Phi Delta Kappan. September, 1973, pp. 13-16.

Sorenson, Herbert. Psychology in Education, Third Edition. New York: McGraw-Hill, 1954.

Stallings, William M., et al. Student Attitudes Toward Grades and Grading Practices. Urbana: Office of Instructional Resources, University of Illinois, ERIC 060 054, 1968.

Stanford University. Student and Faculty Evaluations of the New Undergraduate Grading System: A Preliminary Report, Palo Alto: Academic Planning Office, Stanford University, 1972.

Stevens, Edward I. "Grading Systems and Student Mobility." Educational Record. Fall, 1973, pp. 308-312.

Thayer, Robert E. "Do Low Grades Cause College Students to Give Up?" Journal of Experimental Education. Vol. 41, No. 3, Spring, 1973, pp. 71-74.

Torrance, E. Paul. "Creativity in the Educational Process," in Gerald S. Lesser, Psychology and Educational Practice, Glenview, Illinois: Scott, Foresman, and Company, 1971.

United States Department of Health, Education, and Welfare (DHEW).
Education Directory, 1972-73: Higher Education. Washington,
National Center for Educational Statistics, DHEW, 1972.

University of California, Santa Cruz. The Grading System at UCSC-- A
Critique. Santa Cruz: University of California, ERIC 037 174,
1970.

University of Washington. Acceptability of Non-Traditional Grading:
The Views of College and University Admissions Officers and
Prospective Employers. Seattle: Office of Institutional
Educational Research, University of Washington, 1972.

Western Washington State College. Grading Patterns in the College of
Arts and Sciences. Bellingham, Washington: Ad Hoc Committee
on Academic Standards, Western Washington State College, 1972.

Yamane, Taro. Statistics, An Introductory Analysis, Second Edition.
New York: Harper and Rowe, 1967.

THE
FEDERAL
BUREAU OF
INVESTIGATION
UNITED STATES
DEPARTMENT OF JUSTICE
WASHINGTON, D. C.
20535

MONTANA STATE UNIVERSITY LIBRARIES



3 1762 10011551 6

D378

T214

Taylor, Gilbert O.

cop.2

Making the grade without D's and F's: some effects of non-punitive grading...

NAME AND ADDRESS

L. F. Fermon

T. Marshall

Tom Marshall

L. F.

JUL 15 1972

Chick

AUG 2 1972

lib. use

APR 1

D378

T214

cop.2