ABSTRACT

THE NEW HAMPSHIRE TECHNICAL INSTITUTE DROPOUT
ONE TO THREE YEARS LATER

By

George M. Strout

The dropout has, for a number of years, been the subject of concern and study. However, few studies have been directed at determining what effect, if any, the dropouts, themselves, later attributed to their "brief" educational experience.

The purpose of this study was to determine whether the dropout, in his own estimation, had been affected by his "brief" exposure to post-secondary education at a technical institute.

Receiving particular attention in this study were (1) the dropout's original and current jobs and their relationships to his major field of study, his stated opinions concerning the effect his "brief" educational experience had on both his earning capacity and his obtaining a job and (2) the dropout's current status relative to furthering his education, his plans for further education, and his general evaluation of his "brief" educational experience.

The sample included the entire dropout population from two entering freshman classes (fall, 1965 and 1966) at the New Hampshire Technical Institute in Concord, New Hampshire.

The data-gathering instrument was a mailed questionnaire. The questionnaire was developed at the Institute and tested by a sample of ten members of the population. The questionnaire was mailed with a personalized letter. This mailing was followed up with a phone call and two further mailings as necessary. One hundred seventy-six (seventy-five percent) of the population of two hundred thirty-six returned usable responses.

The procedure for analysis included tabulating the responses by (1) the dropout's length of enrollment prior to withdrawal, (2) the dropout's reason for withdrawal, and (3) the total drop-out group. The length-of-enrollment categories used were one term or less, two terms, and three or more terms. Reasons for withdrawal were classified as either "academic" and "other than academic."

Dropout's response patterns by (1) length of enrollment and (2) reason for withdrawal were tested for statistically significant differences using the chi-square test.

Reliability and validity analyses indicated that consistent and accurate responses were being received on about eighty percent of the tested items.

The conclusions were:

1. The statement that students dropped out to accept well-paying jobs in the field of their education could be applied to less than 30 percent of these dropouts.
2. No statistically significant differences were found between the dropout's length of enrollment and his reported job-related status and attitudes.
3. In only one of four instances tested was there found to be statistically significant difference between the dropout's length of enrollment and his reported status in, plans for, and attitudes toward further education.
4. No statistically significant difference was found between the reason for withdrawal and the dropout's stated status in, plans for, and attitudes toward further education.
5. These dropouts generally reported that their educational experience was beneficial.
6. Generally, these dropouts have maintained a positive attitude toward and plan to return, within three years, to further education.
7. Though the length of enrollment for these dropouts did not appear to be related to their employment status, it was evident that dropout's classmates who graduated received substantial

salary and transfer-credit benefits over the dropouts. Therefore, graduation from these programs appeared to have substantial economic value.

8. The demands and pressures of the selective service and armed services, though not easily measurable, were undoubtedly of some significance during the period in which these dropouts were enrolled.
9. Follow-up studies of withdrawal students can be completed with a reasonable rate of response and with reasonable reliability and validity.
10. The use of the telephone for follow-up purposes in studies such as this can be regarded as effective and worthwhile. This may be especially true when the forwarding of mailed materials is important.

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By

George M. Strout

A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Education

1970

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CHAPTER I

THE PROBLEM

Introduction

Social scientists, educators, and economists, among others, have called attention to the growing need for people to have formal education, even beyond high school, if they are to contribute to and benefit from the economy of the United States. In view of this situation, considerable attention has been devoted to studying various aspects of the school-dropout problem. Many, and possibly most, of these studies have related to attempts to identify characteristics of the dropout, his environment, and/or the particular institutional environment that would allow identification of the dropout in advance, or allow for corrective action to prevent such drop out from occurring. Studies directed at determining what effect, if any, the dropouts themselves later attributed to their "brief" educational experience seem to be much less common but, nevertheless, worthy of consideration.

Purpose

The purpose of this study was to determine whether the dropout, in his own estimation, had been affected by

his "brief" exposure to post-secondary education at a technical institute.

Four hypotheses were structured to allow various comparisons. The first hypothesis was structured to allow the comparison of the dropout's length of enrollment with his reported job-related status and attitudes. The second hypothesis was structured to allow comparison of the dropout's length of enrollment with his reported educationally related status, plans, and attitudes. A third hypothesis was structured to allow comparison of the dropout's stated reason for withdrawal with his reported educationally related status, plans and attitudes. Finally, a fourth hypothesis was structured to allow the subjective evaluation of the overall dropout group's reported educationally related status, plans, and attitudes.

The length of enrollment and reason for withdrawal data were obtained from the Registrar's files, while the job and educational status, plans, and attitudes were determined from the dropouts' responses to a mailed questionnaire.

The decision to measure the dropout's educational and employment situations was based on the fact that these are directly related to the stated objectives of the Institute's programs.

Need

The New Hampshire Technical Institute opened its doors in the fall of 1965. The Institute offers two-year

post-secondary programs in Electronic Data Processing, Electronic Engineering Technology, and Mechanical Engineering Technology. Approximately two hundred freshmen students registered in the falls of 1965 and 1966 and about eighty-five graduated two years later in June of 1967 and 1968 respectively (see Table 1.01).

The attrition problem is consistent with that found nationally in most similar institutions as reported on pages 7 and 8 of this chapter. The twenty-three-member full-time faculty, plus a librarian, when combined with a student enrollment of just over 300 in the fall, provides a small student-faculty ratio. Small laboratory sessions assure personal student-faculty contacts.

Over ninety percent of the student body comes to the Institute from New Hampshire schools. The relationship between the high school counselors and the Institute's admissions officer appears satisfactory. Therefore, information concerning the admission requirements, the Institute program requirements, the types of jobs graduates receive, and the overall Institute life is or should be available to most students either from contact with hometown friends who are attending or have attended the Institute, from the high school guidance counselors, from the Institute admissions officer or faculty members, who also visit high schools in some instances, or from employees or other friends of the Institute.

TABLE 1.01.--Student Attrition at New Hampshire Technical Institute for Freshmen Entering in 1965 and 1966. (By Department and Year).

Student's Major Department	1965			1966			Total		
	Enter	Attrition	%	Enter	Attrition	%	Enter	Attrition	%
Electronic Data Processing	53	31	58	60	32	53	113	63	56
Electronic Engineering Technology	107*	60*	56	83	50	60	190*	110*	58
Mechanical Engineering Technology	54	33	61	52	31	60	106	64	60
Total	214*	124*	58	195	113	58	409*	237*	58

*One was deceased at the time of the study.

In addition, a concern for the individual student seems to exist among the faculty. A selective admissions policy, plus the well-known availability of good paying jobs, or transfer credit to area colleges, should provide both assurance of capable students at admission and adequate motivation throughout the program. Therefore, there have been efforts among many to learn, if possible, more about the student who does not complete the two-year program.

A number of the more typical studies comparing academic criterion such as entrance examination scores and high school data of various types with student retention have been completed (see Tables A-1 - A-7). Findings are generally consistent with those in the literature and indicate that dropouts, as a group, can be differentiated from the persisting students using certain test data and high school transcripts as criteria. However, the exceptions in individual instances are sufficient in numbers and magnitude to render these findings apparently useless for any additional refinement in admissions.

As in most institutions, there is an annual follow-up study concerning the placement of graduates. Continuing contact with employers of graduates also provides feedback to the faculty relative to the on-the-job success of these graduates.

The question then arises as to why the same type of follow-up is not done for non-graduates. The results might well provide as much or more information as previous studies in assisting us to better understand and respond to the dropout.

Further indications of the need for this type of study are also available. These are evident from the following observations from national statistics and by writers and researchers from social, economic, and educational disciplines.

Evidence of the interest throughout America for continued education beyond high school abounds. The American Association of Junior Colleges alone reports annual rates of increase in two-year college enrollments in excess of 12 percent and as high as 23 percent from the fall of 1963 through the fall of 1968, with the 1968 reported enrollment being in excess of twice the reported 1963 enrollment.[1] The increases in enrollment are generally considered as being the result of a number of factors, including a growing college-age population, a growing rate of college-age young people graduating from high school, a growing interest among adults as well as youth in participation in higher education, and a growing need for advanced education for job qualification and economic security. Relative to the latter reason,

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[1]William A. Harper, editor, 1969 Junior College Directory, American Association of Junior Colleges (Washington, D.C., 1969), p. 6.

Michael Harrington, in writing about the economic needs of those in poverty, states " . . . the Senate Manpower Sub-Committee to the Presidents' Automation Commission now proclaims that it takes two years of post-high-school training to become a successful member of the working class . . . "[2]

One is tempted to view the reported rapid junior college enrollment increase as an indication of success in meeting the need for two years of education requirement for employment as reported in Harrington's article. However, two factors, both of which reflect on the need for this study, must be considered. These two factors are the low percentage of the enrollees that (1) undertake occupationally oriented courses and (2) actually complete their programs.

The same American Association of Junior Colleges report cited above, and its issues in 1966 and 1967, also report a breakdown of the full-time enrollments by freshmen and sophomore status. The ratio between sophomores and freshmen reported for 1965 sophomores and 1964 freshmen is almost one to two. A similar one to two ratio is indicated between the 1966 sophomores and the 1965 freshmen.[3]

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[2]Michael Harrington, The Dynamics of Misery, Sidney Hillman Foundation (New York, 1968), p. 8.

[3]William A. Harper, op. cit., pp. 68-69.

These figures, while undoubtedly requiring some correction for those who were enrolled in one-year courses and did not plan to return and also, conversely, for those sophomores who do not graduate, are still indicative of a relatively low rate of program completion.

The above figures are consistent with other national rates reported by Thornton,[4] with technical institute rates reported by Righthand,[5] and with those experienced at the New Hampshire Technical Institute in Concord.

The full-time occupational enrollment figures in two-year science and engineering related programs indicate that, in addition to high attrition, the enrollments in these programs are not increasing at the same high rate as are those in two-year programs generally. Interpolating figures reported by Simon[6] and by the Engineering Manpower Commission of the Engineers Joint Council,[7] a growth rate, using the

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[4] James W. Thornton, Jr., The Community Junior College, (First ed., New York: John Wiley and Sons, Inc., 1960), pp. 156-57.

[5] Herbert Righthand, "A Comparison of Technical Institute Freshmen Dropouts and Persisting Students with Respect to Sociological and Psychological Characteristics," (unpublished doctoral dissertation, University of Connecticut, Storrs, 1964), p. 5.

[6] Kenneth A. Simon and W. Vance Grant, Digest of Educational Statistics 1968, U.S. Department of Health, Education and Welfare, (Washington, D.C.: Government Printing Office), pp. 77-78.

[7] Advanced Edition of the 1966 Engineering and Technician Enrollments, A Mimeographed Report Prepared by Engineering Manpower Commission of the Engineers Joint Council (New York, 1966).

number of graduates as a measure, of less than five percent from 1963-64 to 1965-66 and from 1966-67 to 1967-68, respectively, was shown.

The situation is further compounded by the anticipated effects on the individuals concerned and on their future as well as upon the nation's economic system. In an age of increased automation and a growing need for two-year post-secondary education, we can ill afford these high attrition rates.

Grant Venn recently wrote the following relative to personal and economic problems of our young:

> There are now more than one million young men and women under twenty-two who have left school and are not at work. At any given time 30 percent of the high school dropouts will be unemployed; even high school graduates average 15 percent unemployed. The figure for college dropouts is considerably lower, but they share the same problem as those who have dropped out of the system earlier; there is little room in the labor market for the undereducated, unskilled young worker. Instead of initiation they find rejection.[8]

and

> At the present time only one student in ten leaving the education system without a bachelor's degree has some specific occupational preparation. This is only a small fraction of the real student potential for occupational preparation within the educational system.[9]

Norman Harris, using statistics from the U.S. Department of Labor, U.S. Office of Education, and The Center

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[8] Grand Venn, Man, Education and Work, American Council on Education (Washington, D.C., 1964), p. 12.

[9] Ibid., p. 23.

for the Study of Higher Education at the University of Michigan, cites projections indicating a reduction in the unskilled and the semi-skilled positions open to high school and vocational school graduates or less from nearly 90 percent of the work force in 1930 to 32 percent in 1970, while the need for persons having post-high school and predominantly two-year education grows from nearly none in 1930 to approximately 50 percent or one-half of the total work force in 1970.[10]

Norman Harris also listed " . . . the problem of selection and retention of students and the allied problem of attrition rates during the two-year program . . . "[11] as number two among major issues in junior college technical education.

Schultz, writing on the economic value of education to both the recipient and to society, states " . . . the rate of return to investment in schooling is as high or higher than it is to nonhuman capital."[12] He further states that "with respect to growth in the United States, there is now a considerable body of evidence which indicates that

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[10]Norman C. Harris, Technical Education in the Junior College/New Programs for New Jobs, American Association of Junior Colleges (Washington, D.C., 1964), pp. 26-28.

[11]Norman C. Harris, "Major Issues in Junior College Technical Education," The Educational Record, Vol. 45, No. 1 (1964), p. 135.

[12]Theodore W. Schultz, The Economic Value of Education (New York: Columbia University Press, 1963), p. 11.

schooling and university research are major sources of growth." (economic growth)[13]

The promise and high expectations resulting from the growing enrollment in two-year post-secondary programs, while encouraging, is, however, as noted above somewhat blighted by the dropout problem. Past and present studies and the future needs in attacking this problem have been summarized by John Roueche in the October, 1967 Junior College Research Review as follows:

> While most of the studies focus attention on reasons for student attrition, little research has been implemented that evaluates the accomplishments of students who leave the junior college prior to earning a degree or completing a program of instruction. This group, representing the overwhelming majority of junior college students, has not yet been the subject of major junior college institutional research efforts.[14]

In another article in the November, 1967 Junior College Journal, Roueche again reiterates this point and again notes that this problem was listed by Peterson as the third most important area requiring further study in California junior colleges.[15]

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[13] Ibid., p. 52.

[14] John E. Roueche, "Research Studies of the Junior College Dropout," Junior College Research Review, Vol. 2, No. 2 (October 1967), p. 2.

[15] John E. Roueche, "Gaps and Overlaps in Institutional Research," Junior College Journal, Vol. 38, No. 3 (1967), pp. 20-23.

Concerning follow-up studies of college dropouts, Dressel stated:

> A study might well be made of the effect on individuals of an unsuccessful stay in a college or university. We too blithely assume that a tour of a college campus can do no one any harm. It is possible that for some individuals failure in a college may have some permanent effects. On the other hand, we should not too readily assume that this is always the case. In some small communities even a brief attendance at a college or university may make the man of distinction. However, a careful study of a group of academic casualties is difficult; the individuals simply do not respond well to the usual questionnaire. (And who can blame them?) Other types of contact are expensive.[16]

In the same context Sanford writes:

> Sometimes counseling will prevent a student's hasty or ill-considered withdrawal, and sometimes a college that is plagued by a high attrition rate has to think of changing itself. But withdrawal is not always a misfortune for the student or for the college. Sometimes it is the best way to correct an obvious mistake or to help a student face reality, and sometimes students withdraw before graduation because they have already gained from their college all that could be expected. Leaving college, not to enter another, may leave a student with a sense of unfinished business that will, in some cases, make him want to go on learning for the rest of his life.[17]

That the dropout is with us appears amply evident; that various studies of the dropout and matters relating to him are needed is equally evident. Aspects of this problem deserving attention appear to include consideration of the dropout after the fact with respect to determining what happens to him economically and educationally. Also needed

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[16]Paul E. Dressel, Evaluation in the Basic College at Michigan State University (New York: Harper and Brothers, 1958), pp. 65-66.

[17]Nevitt Sanford, College and Character (New York: John Wiley and Sons, 1964), p. 26.

is consideration as to whether or not there appears, in fact, to be any significant effect on the dropout from his brief college experience since, if any effect is observed, there should be further consideration as to how the college experience might be used to the fullest advantage for the dropout.

The findings from such a study conceivably could have implications for the New Hampshire Technical Institute and possibly other institutions and their relationship with the individual student. These implications could lead to, among other concepts, revised admissions and/or retention policies and procedures, revised counseling policies and/or procedures, as well as providing additional data for counseling use, revised curriculum plans, or new attitudes toward part-time versus full-time programs.

Hypotheses

As stated earlier, hypotheses were prepared to allow for the comparison of the dropout's length of enrollment with (1) his reported job-related status and attitudes and (2) his reported educationally related status, plans, and attitudes. A third hypothesis was structured to allow comparison of the dropout's stated reason for withdrawal with his reported educationally related status, plans, and attitudes. Finally, a fourth hypothesis was structured to allow the subjective evaluation of the overall dropout group's reported educationally related status, plans, and attitudes.

The job and educational items were selected since they related directly to two of the major goals of the Institute programs in which these dropouts had been enrolled.

These two goals as taken from the catalog are:

> To provide the student with a background that will prepare him or her for placement at a semi-professional level immediately upon graduation.[18]

and

> To provide a broad background to enable the graduate to continue his education formally or informally so that he may adapt to a changing technological, civic, and social environment.[19]

The hypotheses themselves are:

1. The longer a dropout was enrolled prior to withdrawal, the more "beneficial" the reported job-related status and attitudes.
2. The length of enrollment had a direct relationship to the dropout's reported educational status, plans, and attitudes.
3. Those who withdrew for other than academic reasons will most often report having returned to or planning to return to and having favorable attitudes toward further education.
4. Failure to complete these two-year programs did not generally mean the end of the road relative to further education for these dropouts.

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[18] New Hampshire Technical Institute, catalog, New Hampshire Technical Institute (Concord, New Hampshire, 1967), p. 6.

[19] Ibid., p. 6.

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Rationale

In addition to relating the hypotheses to the goals of the Institute in the light of the previously expressed needs, the following theoretical considerations were involved in arriving at the hypotheses and in evaluating these matters as those most suitable for study in a follow-up such as this.

The New Hampshire Technical Institute is established and operates on the assumption that data indicating the dual needs of industry for semi-skilled help and the interest and needs of a number of students for this type of education are, in fact, valid. To now both of these assumptions have appeared to be correct.

The need of industry, however, is far greater than the supply of either the Institute graduates or that from other similar sources. This shortage of graduates has forced industry to recruit from sources other than graduates. This has resulted in increased wage scales for many positions in the State. Students frequently leave during, or fail to return to the Institute after the end of, a term with reports that they either accepted a good paying job or that

they have a full-time job and are not able to maintain a satisfactory academic record and continue to work at their present job.

Combining the above and the fact that the longer a student is enrolled the more education he receives toward the development of a saleable skill, one is led to consider whether a relationship does, in fact, exist between length of enrollment and the development of a saleable skill.

Furthermore, the deep concern with the dropout is partially based on the assumption that two full years are required to develop the required knowledge and skills for the engineering technician. One should consider equally whether a shorter period might be adequate for many students particularly in occupationally oriented programs.

The results of findings on this matter could provide data for consideration of curriculum changes, changes of the concept of full-time versus part-time study, and changes in counseling and retention policies and procedures.

Results of numerous studies, including one by Iffert,[20] indicate that many dropouts from four-year colleges later return to some four-year college to continue their education. Meanwhile, there continues to be significant concern with the "dropout problem" as is evidenced by the many studies

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[20]Robert E. Iffert and Betty S. Clarke, College Applicants, Entrants, Dropouts, U.S. Department of Health, Education and Welfare, Superintendent of Documents (Washington, D.C., 1965).

directed at identifying the dropout or potential dropout in advance. The reports indicating that many dropouts ultimately return to higher education are taken by some as encouraging. On the other hand, the failure to identify and counsel potential dropouts is discouraging. The discouraging aspect is no doubt related to the triple assumptions that (a) the dropout has failed in higher education at a time when higher education is an economic necessity, (b) the best time for the student to receive this education is the time of his current enrollment, and (c) failure is the result of the lack of motivation, or some psychological set toward failure, or some stems from antagonism toward teachers or the educational system.

It is with the above and related conflicting evidence from studies showing that many dropouts return to college versus our often bleak assumptions concerning the future and its outlook for dropouts that this current educational status study of dropouts is being considered.

In a similar vein, the lengths of enrollment, even for graduates of two-year college programs, are not great when compared with the total length of the student's life and previous formal and informal education. Much of the evidence from reports of studies such as those of Pace[21]

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[21]Robert C. Pace, They Went to College (Minneapolis: University of Minnesota Press, 1941).

and Jacob[22] indicate that the effects of four full years of college are often not dramatic in terms of certain factors or changes. However, more recent evidence such as that reported by Freedman[23] does indicate some apparent changes particularly early in the college student's life. One might then ask whether there is, in fact, any evidence indicating a relationship between the length of enrollment of a dropout and his later actual and perceived status and attitudes.

When considering the dropout, the fact that students withdraw for a number of reasons should also be considered. Academic, health, and financial causes are among those reasons stated most frequently. While it is clear that stated reasons and actual reasons are not always identical, it is generally rationalized, and to a degree statistically verified, that the academic withdrawals are related to deficiencies in background and ability. On the other hand, they may be the result of a change of interest or inadequate academic motivation. In any case, these reasons might lead one to expect that the causes of a student's withdrawal might be related to the perceived value of the eduational experience when viewed in the light of his long-range

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[22]Philip E. Jacob, Changing Values in College (New York: Harper, 1957).

[23]Mervin B. Freedman, The College Experience (San Francisco: Jossey-Bass, Inc., 1967).

aspirations. Therefore, the consideration of plans for and attitudes toward further education and one's reason for withdrawal also appears worthy of consideration.

Another aspect of the dropout problem is related to the frequent findings, such as those reported by Newcomb,[24] which indicate a major role of the student peer group on the changes occurring during the college years. This, and the effect of parental influences noted by many, including Summerskill,[25] might be particularly effective in causing dropouts among commuting students.

Not only may the dropout be influenced by his peer groups and/or his parents, but the dropping out process may, in reality, be the result of a very serious choice between dropping out of (or remaining in) college versus remaining in some other grouping. This choice may be necessitated by peer group pressures or by other pressures including economic or health matters.

Dropping out, when viewed from this latter perspective, while still serious, is quite a different matter from dropping out due to academic failure, a poor attitude toward education, or just plain lack of motivation. The response to the student who enters college and withdraws

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[24]Theodore M. Newcomb, "Student Peer Group Influence," in Nevitt Sanford, Editor, The American College (New York: John Wiley and Sons, Inc., 1964), pp. 469-488.

[25]John Summerskill, "Dropouts from College," in Nevitt Sanford, Editor, Ibid., p. 641.

because of the above type influences or pressures might be quite different from the present common responses. This dropout may well have actually benefited considerably from his brief experience. He may well leave education only temporarily. The educational institution's responsibility in the counseling situation might, in this instance, be more related to assisting the student to place his problem(s) in proper perspective for decision making and toward visualizing and planning for his future in light of the problem(s) as well as the ultimate decision that is to be made.

Studies cited earlier, and more to be reviewed in the next chapter, provide some evidence supporting the above possibility at least in terms of the numbers of dropouts ultimately returning to college and the attitudes of dropouts toward the institution which they left.

Measures of student attitudes toward and plans for further education as determined at some time after dropout, while not verifying the above, might well further reflect on their possibilities.

Limitations

The original sample to which questionnaires (the major measuring instrument) were mailed included two groups of students who entered the New Hampshire Technical Institute in Concord, New Hampshire, in 1965 or in 1966 as freshmen but who were not enrolled when their respective classes graduated in 1967 and 1968. This original sample represents the entire universe with the stated dropout characteristics.

The very nature of a study such as this in which one attempts to determine the influence of an experience on an apparently unsuccessful and possibly disgruntled clientele presents an additional survey problem.

The proposed study is obviously limited to a degree in applicability, since it involves persons enrolled in only two entering classes and at one institution. The study covers a somewhat atypical period of time during which employment opportunities were very plentiful and a time during which Selective Service demands were both extensive and uncertain. The latter situation had a secondary effect, as a number of the dropouts were in the service, making follow-up difficult. Phone calls aided in reducing this problem somewhat.

The validity one can expect from a mailed questionnaire depending upon subjective analysis for response is limited and, of course, by being limited to those responding to a questionnaire, one's data are usually somewhat biased.

CHAPTER II

RELATED RESEARCH

Introduction

The college dropout has been and continues to be the subject of considerable concern and study. Most of the study and concern is related to determining the magnitude of the problem, or the academic, socioeconomic, personality, and similar characteristics that might aid in early identification of the potential dropout. Some of the more recent studies, in fact, consider the college setting and possible compatible or incompatible relationships between the college environment and identifiable characteristics of persisting students and dropouts, respectively. A few, primarily recent, follow-up studies, including a very few of dropouts from occupationally oriented programs, are available. The findings of some of the more pertinent of these various studies will be reviewed in this chapter. Due to the limited number of these studies directed to the two-year student in general, or to the occupationally oriented student in particular, the review will also include reports of some studies of the four-year college student.

The Magnitude of the Problem

Evidence of a long-standing national attrition problem has been reported by many authorities. Thornton (1960) used American Association of Junior Colleges data and found sophomore enrollments in 1956 and 1957 to be just over 50 percent of the previous year's freshman enrollment in each instance.[1] Medsker (1960) reported a study indicating that a mean of 35 percent of the 1952 two-year college entrants graduated in two years.[2]

Ifferts, in his 1954-1957 study, reported 39 percent of the entering four-year college students graduated in the normal four-year period, with less than 60 percent graduating if more than four years was allowed,[3] and Summerskill (1964) reported other studies that tend to verify Iffert's findings.[4]

Righthand (1964) reported first-year attrition alone at two Connecticut technical institutes in the three-year period from 1960-61 through 1962-63 ranged from a low of 35 percent to a high of 51 percent.[5] The 1967 fall enrollment report of the Engineering Manpower Commission of the Engineers' Joint Council showed the freshman enrollment in

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[1]Thornton, op. cit., pp. 156-157.

[2]Leland L. Medsker, The Junior College Progress and Prospect, (New York: McGraw-Hill Book Company, 1960), p. 91.

[3]Robert E. Iffert, Retention and Withdrawal of College Students, U.S. Department of Health, Education, and Welfare, Superintendent of Documents (Washington, D.C., 1958), p. 16.

[4]Summerskill, op. cit., p. 630.

[5]Righthand, op. cit.

two-year post-secondary engineering technology programs was 64,761 versus the sophomore enrollment of 34,912, again indicative of the attrition problem.[6]

Eckland, however, challenged attrition figures such as the above when used to indicate the seriousness of the attrition problem. Eckland studied 1,300 dropouts by category of withdrawal. He reported rates of non-graduation for these withdrawals ranged from a low of 27 percent to a high of 71 percent. He further cited long-range studies at both the University of Illinois and at Vanderbuilt University in which well over 50 percent of those withdrawing returned to college and ultimately received their degrees within ten years.[7] Supporting Eckland's position were data from a recent study by Hughes, who reported that 80 percent of those dropouts responding (61 responded from 100 questioned) to his questionnaire eventually returned to college. Hughes further reported that in his study the dropouts varied little from those who continued college without withdrawing.[8]

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[6] Degrees in Engineering and Industrial Technology 1967-1968, A Report by the Engineering Manpower Commission of Engineers Joint Council, Engineers Joint Council (New York, 1968).

[7] Bruce K. Eckland, "College Dropouts Who Came Back," Harvard Educational Review, Vol. 34, No. 3 (1964), pp. 402-420.

[8] Harold G. Hughes and others, "A Follow-up Study on Discontinuing Students at Grossmont College," as reported in Research in Education, U.S. Department of Health, Education, and Welfare, Superintendent of Documents (Washington, D.C., October 1968), p. 77.

Medsker both indicates the magnitude of the dropout problem and adds additional cautions, particularly for those considering this problem in two-year institutions when he says:

> The fact that only a third of those entering public two-year colleges and slightly fewer than three-fifths of those entering private junior colleges were graduated provokes questions concerning the holding power of both types of junior colleges. Two-year college personnel have several explanations of the situation. One is that many entering students have definite short-term personal or vocational goals which are satisfied in less than the two-year period. Also, some students transfer to senior colleges before completing the two-year period. A sizable number of students complete two years in the junior college but do not choose to satisfy the graduation requirements.[9]

Matson, in fact, reported the finding of statistical significance between dropouts and graduating students when the educational plan was considered. In her sample of junior college students from one college, the dropouts had a plan of education requiring less time to complete than was true of persisting students. Matson also reported that the withdrawal group tended (statistical significance) to report either undecided or clerical goals.[10] Care should be observed in considering the latter finding, as the effect of the clerical group alone might have been responsible for the statistical significance.

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[9]Medsker, op. cit., p. 95.

[10]Jane Elizabeth Matson, "Characteristics of Students Who Withdrew from a Public Junior College," (unpublished doctoral dissertation, Stanford University, Stanford, 1955).

Larson, in a recent follow-up study of graduates and non-graduates enrolled in industrial and technical programs during the 1958-1959 year, reported interesting responses relative to education and employment. Fifty-two percent of the total sample and 66 percent of the graduates reported that they worked part-time while enrolled in college, while 22 percent of the total group and 17 percent of those graduating reported full-time employment. Twenty percent of the dropouts were in educational programs when surveyed, and nearly 40 percent of the dropouts reported that they were working in technical or skilled jobs, while only 40 percent of the graduates reported they were employed in technical jobs. Forty percent of the dropouts, compared with 53 percent of the graduates, reported that they were in jobs closely related to their educational field. Both groups reported nearly the same rates of satisfaction with their jobs, while about 40 percent of the dropouts and 60 percent of the graduates felt their college education helped them get their first job.[11]

Miller found in his study of engineering and technical institute freshmen that, of 44 dropouts, 13, or 56 percent

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[11]Milton E. Larson, "A Study of the Characteristics of Students, Teachers, and the Curriculum of Industrial-Technical Education in the Public Community Colleges of Michigan," (unpublished doctoral dissertation, Michigan State University, East Lansing, 1965).

of the 23 that responded (30 percent of the total) to the follow-up letter, reported they had transferred.[12]

The data related to the numbers of students who drop out of colleges certainly have presented the researchers with challenges. While the magnitude, percentage-wise, appears high, some have been reported as suggesting that the impact has not been as great as might have appeared at first glance due to the reported rates of dropouts who return to college. There does seem to be some suggestion here that a study of the dropout might be expanded also to determine whether, as a group, dropouts tend to be repeating offenders and, as multiple dropouts, raise the dropout rate by virtue of their own frequent in and out behavior.

Evidence as to the severity of the problem for dropouts is generally consistent, but specifics seem to be somewhat meager. Venn, Harris, and Harrington were cited in Chapter One as having indicated the growing need, both by the individual and by our economy, for a minimum of two years of post-secondary education for those employed in many occupational fields. A number of studies, including

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[12]Aaron Julius Miller, "A Study of Engineering and Technical Institute Freshman Enrollees and Dropouts in Terms of Selected Intellectual and Non-Intellectual Factors," (unpublished doctoral dissertation, Oklahoma State University, Stillwater, 1966), p. 60.

that by Havemann, have provided evidence as to the fact that college graduates as a group report earning well above the reported national average.[13]

A study completed for the National Science Foundation, in which the status of 40,000 1958 graduates from 1,200 four-year colleges was determined two years after graduation, stated that most felt their education was essential for obtaining and appropriate to their job. Over 60 percent said they make considerable use of their knowledge gained in their specialized field, and most would select the same field again. This latter study also indicated that the remuneration received was higher for those with professional or technical degrees.[14] Harris reported realistic salaries for high school graduates employed in semi-skilled jobs at entry as about $300 a month as compared with entry level salaries of $425 a month for the highly skilled technician graduates of two-year junior colleges and $490 a month for those graduating as semi-professional engineering technicians.[15] Further, the rate of growth both of the general educational level in the United States and of the projected 54 percent increase in the professional, technical, and

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[13]Ernest Havemann and Patricia West, They Went to College (New York: Harcourt, 1952), pp. 178-179.

[14]Two Years After the College Degree, Prepared by the Bureau of Social Science Research, Inc. for the National Science Foundation, Superintendent of Documents (Washington, D.C., 1963).

[15]Harris, op. cit., p. 28.

kindred job classifications from 1964 to 1975 was noted in the 1966 report of the National Commission on Technology.[16]

In a pre-World War II (1936-37) study of students who entered the University of Minnesota in 1924, 1925, 1928, and 1929, Pace found that, while graduates tended more to be working in professions than did non-graduates, there was otherwise little difference between the two groups. The slight difference did include a small income differential and the fact that non-graduates were more apt to be unemployed and unemployed for somewhat longer periods than were graduates.[17]

Tunis, writing about Ivy League graduates of 1911 and using somewhat subjective data, wrote basically in terms critical of the apparently limited impact made by and the self-satisfaction he observed among this group of gradautes.[18]

While from an earlier period and concerned with four-year college graduates, the findings of Pace, Tunis, and those of Eckland to be cited later might well lead to further caution relative to a final conclusion of serious concern for the dropout. The above and other evidence suggest the need for further study of the dropout and what happens to him.

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[16] Technology in the American Economy, Vol. 1, Report of the National Commission on Technology, Automation, and Economic Progress (Washington: Government Printing Office, 1966), p. 30.

[17] Pace, op. cit., Chapter 4.

[18] John R. Tunis, Was College Worthwhile?,(New York: Harcourt, Brace and Company, 1936).

Intellectual Factors

For admissions purposes, the effort to identify the potential dropout for counseling purposes or to differentiate between those with a high probability of success versus those who will probably drop out has focused for many years primarily on the study of various academically related or achievement test data. The findings of these studies have been reported as consistently showing a statistical significance between "success" in college and such measures as high school class standing, high school grade point average, or achievement test scores. However, the researchers have been equally consistent in reporting that the findings are of little or almost no use in admissions or prediction in the all-important role of identifying individual dropouts.

Research related to the two-year technical dropout and involving test or academic data as measuring criteria has been conducted by Greenwood (1963),[19] Righthand (1965),[20] Turner (1966),[21] Miller (1966)[22] Anderson

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[19]Leroy Greenwood, "Predicting Success in Technical Programs," Technical Education News, Vol. 23 (1963), pp. 22-23.

[20]Righthand, op. cit.

[21]Charles J. Turner and Others, Differential Identification of Successful Technical Students in Junior College, Central Florida Junior College (Ocala, Florida, 1966).

[22]Miller, op. cit.

(1966),[23] and Taylor (1967).[24] In each of these studies significant differences between dropouts and persisting students were found using achievement test scores or previous academic achievement data when considering groups. Turner, who reported significance at the .05 level, also stated relative to the value of these findings " . . . but questionable from a practical point of view (since correct predictions were made only 58 percent of the time, compared with a purely chance prediction rate of 50 percent)."[25]

Two significant studies, done about ten years apart and based on four-year students, generally support the above position when one generalizes to the two-year student. Wolfle's (1954) report included a comparison of 137 students who entered college with standings in the upper 40 percent of their high school class and in the upper 39 percent I.Q. range with 117 students who entered with standings in the lower 60 percent of their high school class and in the lower 61 percent of the I.Q. range. Of the top 137 who

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[23]Roger Clare Anderson, "A Study of Academic and Biographical Variables for Predicting Achievement in Technical Programs," a doctoral dissertation, University of North Dakota, as reported in Dissertation Abstracts, University Microfilms Library Services, Vol. 27 (Ann Arbor, Michigan, 1966), p. 2046A.

[24]Ronald G. Taylor, Donald L. Hecker, Interest and Intellectual Indices Related to Successful and Non-Successful Male College Students in Technical and Associate Degree Programs, Final Report, Ferris State College (Big Rapids, Michigan, 1967).

[25]Taylor and Others, op. cit., p. 32.

entered, 113 graduated, and of the 117 from the lower group, only 41 graduated. The difference in rate of success is obvious, but also to be considered is the fact that 41 of 113 from the lower group did graduate.[26] Seibel's (1966) more recent study of 10,000 seniors and his later follow-up of 2,500 of these involved a similar comparison with that of Wolfle. Seibel compared "high ability" high school seniors with "low ability" classmates. When comparing those from the top and those from the bottom quarters, Seibel found seven percent of the "high-ability" males versus 34 percent of the "low-ability" males either on probation or withdrawn from college after the first year.[27]

Fishman reported 580 studies in the decade from 1948-1958 related to college guidance and selection. He concluded:

> What is the upshot of all of this research on college selection and guidance? Unfortunately it can be summarized rather briefly. The most usual predictors are high school grades and scores on a standardized measure of scholastic aptitude. The usual criterion is the freshman average. The average multiple correlation obtained when aiming the usual predictors at the usual criterion is approximately 0.55.[28]

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[26]Dael Wolfle, editor, America's Resources of Specialized Talent (New York: Harper and Row Publishers, 1954).

[27]Dean W. Seibel, "The Relationship of Some Academic Ability Characteristics of High School Seniors to College Attendance and Performance," College and University, Vol. 42, No. 1 (1966), pp. 41-52.

[28]Joshua A. Fishman, "Some Socio-Psychological Theory for Selecting and Guiding College Students," from Nevitt Sanford, Editor, The American College (New York: John Wiley and Sons, Inc., 1964), p. 669.

The need for extreme care in using even the implications of relating academic or achievement-type criteria to admissions was further emphasized in findings reported by Eckland. Eckland, in a study of 1,300 dropouts, completed an item analysis by the category of withdrawal versus the success of students who later returned to college. The findings indicate that the usual predictors of success, including rank-in-class and high school grades, were not valid measures of success in the instances of those students who dropped out and later returned.[29]

The emphasis on and reliability of grades as predictors are challenged even further by Hoyt. After reviewing 46 studies, Hoyt is reported to have found a lack of general correlation between academic brilliance and later "success." Further, Hoyt is said to have related this lack of correlation to the fact that college grades tend to measure knowledge acquired, whereas later success depends on the individual's being able to use the knowledge effectively.[30]

The above findings relative to the use of "academic" intellectual criteria in admissions to reduce dropout rates

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[29]Bruce K. Eckland, "A Source of Error in College Attrition Studies," Sociology of Education, Vol. 38, No. 1, pp. 60-72.

[30]Donald P. Hoyt, "The Relationship Between College Grades and Adult Achievement," American College Testing Program, as reported in Phi Delta Kappan, Vol. 47 (1966), p. 66.

were not encouraging. Other findings and philosophical matters compound the problem even further. Where Eckland and Seibel indicated that prediction could be improved when considering the very "top" students as having a high probability of success, Seashore (1958) and Cross (1968) reported that the two-year college enrollees, as a group, are already less academically oriented and able than their four-year college counterparts.

Seashore, after a study of nearly 8,000 junior college students from 20 junior colleges in 14 states, found the mean college qualification test scores of these junior college students to be at the 25th percentile of the four-year college scores. While some junior college student scores were near the top of senior college range, a general difference in ability level was noted. Seashore also found that within the junior colleges the terminal student group exhibited lower scores than the transfer group.[31] Cross, in her report synthesizing data from the past research findings, particularly those of the School to College; Opportunities for Post-secondary Education (SCOPE) study of 1967, and using reports by high school seniors in California, Illinois, Massachusetts, and North Carolina, provided data generally supporting that of Seashore. The following from Cross also related to the study under consideration.

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[31]Harold Seashore, "Academic Abilities of Junior College Students," Junior College Journal, Vol. 29 (1958), pp. 74-80.

> The student new to higher education - the student now entering the junior college - is of necessity going to come increasingly from the second, third, and lowest quartiles. According to Turnbull:
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> 'To look at the student body along the narrow dimensions of academic talent is, of course, grossly inadequate. For the students newly represented on college rolls, skills and aptitudes of quite different orders are probably the pertinent dimensions of comparison. It is symptomatic of our problem that we do not have the data to show systematically the ways in which the college-going population is changing with respect to dimensions other than scholastic aptitude. Clearly, in education we are moving away from the relatively uniform academic program of earlier decades to a much more diversified assortment of offerings. At the higher education level, the community college in particular offers a ready example of an institution that has accepted just this responsibility.'[32]

Test and academic data then may apparently, at this point in time, be used as indicators to a degree and be used to distinguish dropouts as a group but are not very useful in predictions for junior college students.

Socioeconomic Factors

The report by Cross also provided data on the relative socioeconomic characteristics of the two-year college students.[33] These recent data generally confirm the earlier findings reported by Clark[34] and Wolfle[35] indicating that the two-year college students as a group tend to come from homes

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[32] K. Patricia Cross, The Junior College Student: A Research Description, Educational Testing Service (Princeton, New Jersey, 1968), p. 14.

[33] Ibid, pp. 15-18.

[34] Burton R. Clark, The Open Door College: A Case Study (New York: McGraw-Hill Book Co., 1960).

[35] Wolfle, op. cit.

of lower socioeconomic levels than do four-year students as a group.

Righthand reported a household median family income for students in two northeastern public technical institutes as being about $7,200 per year as compared with the $8,430 overall median for the city in which one of the institutes was located and an estimated median of in excess of $10,000 for the entire state in which these institutions were located.[36]

Figures similar to the above have also resulted in a number of studies comparing retention and the socio-economic status of college students. However, with respect to socioeconomic status and retention, Summerskill points out, "Research findings on this . . . . are equivocal."[37]

A number of studies do report that socioeconomic factors may well relate to whether or not a student completes high school, whether he attends college, and to which college program he selects. There is, however, little conclusive evidence that socioeconomic status is, per se, a factor contributing to retention or to dropping out of college any more than are certain other factors.

Miller, in his study at the Oklahoma State University, found that technical institute students tended to come from

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[36]Righthand, op. cit., p. 96.

[37]Summerskill, op. cit., p. 188.

lower socioeconomic family backgrounds than did engineering students in the same institution. Miller reported no significant difference in retention and attrition by socioeconomic category.[38]

Berdie, writing on factors associated with vocational interests, states that: "People with technical interests tend to come from low-income families while people with business interests tend to come from high-income families.[39]

In a similar vein, Slater stated that:

> . . . persistence would be greater for students enrolled in colleges which prepared them to enter occupations similar to those in which their fathers were employed than for others in the same college whose fathers were otherwise employed.[40]

While the above data on the socioeconomic make-up of two-year college student populations had implications for the educational program, per se, there has been little reported of value in terms of differentiating dropouts from other students.

There have been some studies, in fact, that have provided indications that there may be a slight selective or inverse relationship in some programs between socioeconomic status and retention. Hakanson (1967) used data from a High School Graduate Study conducted at the University of

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[38]Miller, op. cit.

[39]R. F. Berdie, "Factors Associated with Vocational Interests," Journal of Educational Psychology, Vol. 34 (1943), p. 274.

[40]J. M. Slater, "Influences on Students' Perception and Persistence in the Undergraduate College," Journal of Educational Research, Vol. 54 (1960), p. 7.

California and, for four years, followed up 1,011 freshmen who enrolled in six public junior colleges in 1959. Hakanson found that 67 and 23 percent of the terminal students came from middle and low socioeconomic class homes, respectively. These data confirmed the previous findings relative to the socioeconomic backgrounds of terminal students. However, he also found an inverse relationship between the rate of program completion and social class among women. He found further that, for those with medium scholastic aptitude, significantly more middle-class students completed their "terminal" program than did those students from the upper or lower-class groups. While the number of upper-class students enrolled was not high, it is worth noting that the findings for these medium ability students show a higher rate of lower-class completion (23%) than of higher-class completion (17%).[41]

Eckland commented conversely on a meaningful aspect of the socioeconomic situation that for this study is worthy of consideration but often overlooked. In one instance he noted that, when considering graduates from college and the significance of the college degree, social class was highly relevant. But of equal importance was his

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[41]John Warren Hakanson, "Selected Characteristics, Socioeconomic Status, and Levels of Attainment of Students in Public Junior College Occupation-Centered Education," doctoral dissertation, University of California at Berkeley, as reported in Dissertation Abstracts, Vol. 29, University Microfilms Library Services (Ann Arbor, Michigan, 1967), p. 91A.

position that, while all social class persons with a degree competed about equally for high status jobs, social class was important in lesser job level areas. The latter statement was based on data showing that high social status people who do not graduate were more apt to get at least middle status jobs than were those from lower status groups.[42]

In another report Eckland hypothesized that social class made a difference in college graduation. Eckland then reported he confirmed the hypothesis in a follow-up study. His hypothesis was based on two assumptions he claimed were usually overlooked in dropout studies. The factors related to the failure in most studies to follow-up those who dropped out and later returned and graduated and to the related fact that, except for the top students in the lower socioeconomic group, the motivation to complete college would be greater for higher socioeconomic background students.

Eckland's 10-year follow-up study of 1,332 male dropouts (1,180 useful responses were received) who had originally enrolled in a mid-western university in 1952 produced figures indicating that over 74 percent had ultimately graduated or were expected to graduate. The statistical analysis of the reported status of these former students after 10 years did indicate that, except for those

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[42]Bruce K. Eckland, "Academic Ability, Higher Education and Occupational Mobility," American Sociological Review, Vol. 30 (1965), pp. 735-746.

coming from the upper quarter of their high school class, social class did make a difference. Most measures of social class used produced significant differences, indicating that after 10 years those from the upper-class backgrounds had a higher rate of graduation than did those from lower-class backgrounds.[43]

While some interesting reports relating to the dropout and his socioeconomic position have been made available, the results have, as a group, generally not been of great help in dealing with the dropout.

Student and College Characteristics as Factors

Student personality and interest factors alone and student personality vis-a-vis the college setting or character have also received attention as possible factors related to student retention and/or success in college. Brown reported findings at Harvard, Yale, and Vassar that indicated that one's home and social and educational background may, at least in group data, be indicative of one's approach to the college situation.[44] Summerskill noted that student attitudes

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[43] Bruce K. Eckland, "Social Class and College Graduation: Some Misconceptions Corrected," The American Journal of Sociology, Vol. 70, No. 1, (1964), pp. 36-50.

[44] Donald Brown, "Personality, College Environments, and Academic Productivity," in Nevitt Sanford, Editor, The American College, (New York: John Wiley and Sons, Inc., 1964), pp. 536-562.

may be a factor in probable success,[45] and Dressel found that students characterized as rigid were more apt to withdraw from one college than were students classified as flexible.[46]

Miller, in his study of technical institute students, reported that dropouts tended to show characteristics of dependence and irresponsibility as compared with characteristics of independence, desire for self-expression, and advancement shown by high achievers.[47] Consistent with Miller's findings were those reported by Winborn, by Tibbetts as cited in Thornton, and by Peck as reported in Blocker, and by Hall.

Winborn, in a study of transfer students admitted on probation, found successful students showed an increase in need dominance as opposed to an increase in need nurturance on the part of unsuccessful students.[48] Thornton cited Tibbetts as reporting that the junior college student was, in the 1930's, more apt to seek immediate than future pleasures,[49] and Peck is reported by Blocker as noting that

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[45]Summerskill, op. cit., p. 19.

[46]Dressel, op. cit., Parts 2 and 5.

[47]Miller, op. cit., pp. 75-6.

[48]R. Winborn and K. A. Moroney, "Effectiveness of Short Term Group Guidance with a Group of Transfer Students Admitted on Academic Probation," Journal of Educational Research, Vol. 58, No. 10 (1965), pp. 463-465.

[49]Thornton, op. cit., p. 157.

short-sightedness was among the traits of low mental health in junior college students.[50]

Hall was also reported as having found in a study carried on over an 11-year period that " . . . terminal students may place greater emphasis on occupational skills than on earning a degree, and (3) perseverence is a factor which contributes greatly to the average student's chances for success after transfer."[51]

Summerskill, reviewing primarily studies of four-year college students, reported over-achievers as usually vocationally oriented,[52] and Murphy reported the vocationally oriented as rigid and less effected by change in college.[53] Heilburn found that, in his matched study of dropouts and non-dropouts from a sample from 2,149 University of Iowa students, the dropouts were significantly higher in dominance and aggresion while the non-dropouts were higher in achievement, order, and endurance when only high ability

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[50]Clyde C. Blocker, Robert A. Plummer and Richard C. Richardson, Jr., The Two-Year College: A Social Synthesis (Englewood Cliffs, New Jersey: Prentice Hall, Inc., 1965), p. 122.

[51]Lincoln H. Hall, "Performance of Average Students in a Junior College and in Four Year Institutions," California State Department of Education, Sacramento, 1967, as reported in Research in Education, Superintendent of Documents, Vol. 3, No. 2 (Washington, D.C., 1968), pp. 68-69.

[52]Summerskill, op. cit., pp. 639-640.

[53]Lois Murphy and Esther Rausenbush, Achievement in the College Years (New York: Harper Brothers, 1960).

males were considered. Heilburn then suggested that the independent and bright student tends to drop out when insufficiently challenged.[54]

The possible impact of these personality factors on persistence of enrollment in the two-year college, while not frequently reported, has been indicated by a number of findings. Wise has reported that students from different economic strata usually have different college and vocational expectations.[55] The major source of two-year college students from the lower economic strata has previously been noted in this chapter. Consistent with these factors were the findings from Cross which noted differences in self-concept and confidence in leadership ability, as reported by students attending four-year institutions when compared with those attending two-year institutions.[56] Cross also stated:

> Students at private colleges were the most venturesome, impulsive, ready to commit themselves to courses of action in a variety of situations, and more involved with other students. Junior college students were the most cautious, prudent, and controlled, most apprehensive

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[54]Alfred B. Heilburn, Jr., "Personality Factors in College Dropout," Journal of Applied Psychology, Vol. 49, No. 1 (1965), pp. 1-7.

[55]Max W. Wise, "Evaluation and Utilization of the Informal Education of Students: Student to Student and Teacher to Teacher Relationships on Residential and Non-Residential Campuses," Current Issues in Higher Education (1962), pp. 76-78.

[56]Cross, op. cit., pp. 25-27.

and rigid in their concerns over grades and academic standing.[57]

Stewart,[58] Taylor,[59] and Turner,[60] all in separate but recent studies, reported that their data allowed them to differentiate between students in different curricula and, in some cases, in different programs. In each instance, among the data involved were interest and/or personality characteristics of junior college occupationally oriented students. Although these studies provided data indicating that students in different programs tended to exhibit different characteristics, none of the studies provided really useful findings to aid in distinguishing dropouts from persisting students. The studies, while applicable to the consideration of personality and interest factors in college enrollment, in no case actually involved consideration as to whether or not these were useful or desirable characteristics for success in these programs. They were primarily, it appears, status studies, although Turner's findings did result in some suggested possibilities relative to their use in counseling and guidance. The findings from each study also provided useful information relative to the types of

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[57]Cross, op. cit., p. 33.

[58]Laurence H. Stewart, Characteristics of Junior College Students in Occupationally Oriented Curricula, University of California, Berkeley (1966).

[59]Taylor and Hecker, op. cit.

[60]Turner and Others, op. cit., p. 27.

students that appear to be entering these occupational programs.

With possible implications for the above was Berdie's suggestion that interests may be regarded as one phase of a personality matrix, and he stated that " . . . people with technical interests tend to come from low income families . . . ."[61]

Pervin has suggested that students should select their colleges on a different basis and that more attention should be devoted to consideration of the interaction between the student and his environment. He proposed that college was a social system and that too often the parts, including students, faculty, and administration, were studied independently rather than as a system. In a study of 20 colleges selected from across the country, Pervin used TAPE (Transactional Analysis of Personality and Environment) as an instrument for student testing. Among his findings was the fact that at one college dissatisfied students saw the college in quite a different way than did satisfied students. Further study indicated that on yet another campus the satisfied students and dissatisfied students saw things in the reverse situation from that seen by their counterparts at the first campus.[62]

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[61]Berdie, op. cit., p. 274.

[62]Laurence A. Pervin, "College as a Social System," Journal of Higher Education, Vol. 38, No. 6 (1967), pp. 317-322.

Stern observed the results of a classroom situation involving an "authoritarian" group and another involving an "antiauthoritarian" group and concluded that:

> . . . the same educational ends can be achieved by very different types of students if the environment is appropriately modified for each type.[63]

Fishman, while holding out hope for the ultimate use of personality factors in admissions and in guidance and counseling, was simultaneously skeptical as to their usefulness at least for the time being. He indicated that generally prediction has been improved by a factor of only about .05 when "nonintellective" factors have been added to high school grades and test results in the admissions process. Fishman suggested at least two reasons for this. One was related to his view that little real creative energy was being devoted to relate this personality factor to college success. The second reason concerned his feeling that these "nonintellective" predictors actually were only different measures of the ability to get along in and with the school system, and he wrote:

> High school grades reflect nonintellective factors to a much greater extent than has been commonly appreciated. They are very frequently indices of how closely the student's personality agrees with the model of the preferred personality of the middle-class academic world. High school grades (and scholastic aptitude test scores) are also indices of

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[63]George G. Stern, "Environments for Learning," in Nevitt Sanford, Editor, College and Character, op. cit., p. 226.

> important social variables, a number of which have been revealed by the Elmtown studies (Hollingshead, 1949). Since college grades are also indices of many of these very same personality and social preferences, it is scarcely surprising that high school grades should be the best predictors of college grades. What is more surprising, however, is that educators and social scientists tend to regard this as intellective prediction solely or primarily. Perhaps it is indicative of the state of our social sciences that so many have been 'talking social psychology' for so long without actually being aware of it.[64]

Therefore, while student personality and college climate studies show promise as providing useful information to assist students in effective college selection and colleges in effective student selection, the results to now appear at best to be promising and worthy of further study.

Student personality factor and college characteristic factor findings, while promising, have not been generally useful in detecting the dropout. A number of outcomes have seemed to provide direction for further study, and at the two-year occupational level there have been indications of student origins, characteristics, interests, and aspirations in general.

Nadler[65] and Righthand[66] among others have expressed the urgent need for more adequate early counseling of the

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[64]Fishman, op. cit., p. 676.

[65]Eugene Nadler, Gilbert K. Krulee, "Personality Factor Among Science and Technology Freshmen," Journal of Educational Psychology, Vol. 52 (1961), pp. 223-231.

[66]Righthand, op. cit.

potential student. The need to provide accurate information relative to the programs and the ultimate expected outcomes of the programs might well assist students in selecting their program and, at times, their college more effectively.

Summary

In summary, the aspects of student and college characteristics that have received significant attention in relationship to the dropout problem include:

1. The determination of the extent, and by implication, the seriousness of the problem. Most reports indicated that in all aspects of undergraduate collegiate education the attrition is high. However, the exact seriousness of the problem remains open to question, as many follow-up studies have provided information indicating that many dropouts not only return but ultimately complete their degree requirements. Few, if any, other than Pace and Larson have followed up and reported on the employment, social, cultural, or other status of dropouts after leaving college. Pace's report was not indicative of as serious a situation for the dropout as is often assumed, and Larson's report indicated that many vocational-technical dropouts were using their educational background and doing well.

2. High school academic and achievement test results have been the object of many comparisons with dropouts versus graduates or persisting students. The results of

these studies consistently indicated a significant correlation between student "success" versus the dropout. The results were even more dramatic in studies of the top tenth or quarter of the students versus the lower tenth or quarter. However, the results have, with equal consistency, been found to apply only to group analysis and have not been useful in selection except in the high prestige private colleges.

Criticism of these studies has been focused in a large measure on the fact that few of them involved more than a study of the freshman class. Further, few have involved any follow-up to determine how many leave for another college or similar change.

For the purpose of this study and the two-year college program, however, the consistent reports that students in these programs are generally of lesser academic ability than the four-year student are significant. The significance is not related directly to identifying the dropout but rather to a realistic focus on the student and the educational programs.

3. Concern with the effects of one's socioeconomic background as related to attrition has led to many studies. The assumption behind these studies has been related to the middle-class structure of most colleges and the middle-class origins of most of the faculty, with the expectation that this middle-class orientation would lead to higher than

usual dropout rates among those with values gathered from living in lower-socioeconomic environments. Findings have generally been inconclusive, but there have been indications that socioeconomic factors were related to the probability of a student entering college and to the type of program he would select when entering. Once enrolled, however, the evidence of the effect, if any, of socioeconomic background on retention has not been definitive.

A recent challenge to the conclusion on persistence has been raised. The challenge is based on the fact that the reported studies have been primarily concerned with first-year students only and have also ignored the student who returned and/or received his degree from another college. The contention, verified in one study, is based on an inter-relationship between social class and motivation.

Just as was the case relative to the academic backgrounds of students, so too have been the findings relative to socioeconomic class and the two-year college student. Predominantly, the two-year student and, particularly, the occupationally oriented student has come from a lower socioeconomic background than has his four-year college counterpart.

4. Considerable evidence supporting relationships between personality and "success" in college has been reported. Some of this evidence has related to matching the student to the college as recent findings pointed also to distinctive college personality types.

Concrete and long-lasting research has not yet brought these findings to real fruition in predicting dropouts or in the selection process generally. In fact, some students in the field have proposed that, since generally the addition of personality factors to academic and test data added little to prediction of retention, these personality factors, or many of them, were also measures of the middle-class social and cultural value system in education.

Again, certain interest patterns and personality characteristics have been reported as more common among two-year than among four-year college students, and some have been found to distinguish as a group those enrolled in particular two-year programs.

5. Generally, then, the research concerned with the dropout has been extensive. However, whether due to the lack of coordination, the proper measuring tools, the needed creativity, or to the complexity of the human, results have not been definitive enough to more than scratch the surface in prediction. There does not seem to have been adequate consideration, however, of determining what happens to the dropout in terms of his future as related to the effect on him of the educational program in which he was enrolled.

CHAPTER III

METHODS AND PROCEDURES

Introduction

Consideration of the previously stated hypotheses, comparing the dropout's reported status plans and attitudes relative to employment and education with his length of enrollment or reason for withdrawal, directs attention to a number of specific matters. These matters, including the definition of the population and the terms to be used, the source of criterion data, including the instrumentation and the means of evaluating the final data, will be discussed in this chapter.

Population

The dropout subjects selected for this study were the entire population of students who entered the New Hampshire Technical Institute as freshmen in 1965 and 1966 but who were not enrolled when their classes graduated in 1967 and 1968. This population of 237 included 22 females. One hundred and twenty-four of these former students entered in the fall of 1965, and 113 entered in the fall of 1966. In each instance, they represent 58 percent of their entering classes, which included 214 and 195, respectively.

While the age range of these entering students was between 17 and 35, most (88 percent) of these entering freshmen were in the 17 to 21 age group. These students were high school graduates (two held equivalency diplomas), and all but about five percent had been evaluated as acceptable on the basis of the general entrance criteria. These criteria included: For Electronic Data Processing - one year of algebra as a minimum, recommendation from their high school guidance counselor, their overall high school record, and their success on the Programmer Aptitude Test; For the Engineering Technologies - two years of algebra and a year of geometry or its equivalent, their score on parts 1, 2, and 4 of the Engineering Physical Science Aptitude Test, their overall high school record, and the recommendation from their high school guidance counselor. Physics and/or chemistry were recommended but not required.

Considerable emphasis was placed on the guidance counselor recommendations. In some instances (less than five percent per year), students who appeared to be poor risks based on their high school records and entrance examination scores were accepted on the basis of very positive confidential counselor recommendations. Among the findings of the early retention studies was the fact that these few "special" acceptances achieved a retention and graduation rate equal to or slightly better than did the

overall student body. The practice has, needless to say, been continued.

A listing of selected student characteristics in profile form has been placed in Appendix A. These characteristics by curricular grouping include: High school class standing, high school program, high school mathematics and science backgrounds, and entrance examination scores.

These students, with very few exceptions, were graduates of the public or parochial schools of New Hampshire. Eighty-three of the ninety-one public and parochial secondary schools in New Hampshire were represented by one or more of these students.

Definitions

The above population of dropouts has been subdivided at times during the study into distinct categories in accordance with the following definitions.

Length of Enrollment

(A "term" as used here represents a typical quarter or ten-week period).

One or less terms = those students who registered as freshmen in the fall term but who did not complete the final examinations for the second (winter) term.

Two terms = those students who completed at least two full terms but who did not complete the final examinations for the third (spring) term.

Three or more terms = those students who were enrolled at the end of their first year (spring term).

Type of Withdrawal

Academic.--The student withdrew voluntarily following the receipt of a "warning" letter as a result of low grades, or was suspended by action of the Institute Academic Standing Committee. The Academic Standing Committee, during the period involved in this study, consisted of the Dean of Admissions and Instruction and a faculty representative from each of the five Institute academic departments. This committee met at the end of each term and considered each student with a "deficient" academic record and then made recommendations as to the student's academic status at the Institute for the following term. A suspended student could apply for readmission after a period of six months.

Other.--All withdrawal categories other than those related to academic reasons.

Instrument

Questionnaire

The follow-up information relative to determining the status, plans, and some attitudes of the dropout was obtained by a questionnaire. This questionnaire was, as noted earlier, mailed to the entire defined population of 237.

The questionnaire was selected as the data gathering instrument following an extensive review of the literature concerning the use of questionnaires and interviews. Considered in determining the type of instrument to use were the probable status, geographic location, and availability of those in the population, as well as the relative merits of each type of instrument in this type of situation.

Some writers suggested that when considering questionnaires, "don't" (use them). However, others, including Walsh,[1] found that the questionnaire seems to elicit as accurate a self-response as does the interview (specifically, neither method is more accurate). Others, to be reported later, provided evidence supporting the reasonable validity of responses to questions such as those with which this study is concerned.

The limited population size and the fact that a number of the male students would undoubtedly be in the service, with another few being out-of-state, led to further considerations. A random sample would, due to the small size of the population, require that a fair proportion of the population be included. A sample of fifty, for example, would represent one-fifth of the population, and the inability to interview those in the service or out-of-state would unduly bias a small interview sample, as it will, to a degree, the questionnaire sample. Further, the reports concerning the use of interviews were weighed relative to

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[1]W. Bruce Walsh, "Validity of Self-Report," Journal of Counseling Psychology, Vol. 14 (1967), pp. 18-23.

the tendencies of those interviewed to respond in the direction of socially accepted norms and to be influenced by the interviewer who, in this instance, would be both known, and known to be directly associated with the institution being evaluated. These facts might well have led to unacceptable bias in an interview situation.

The questions were generated using principles suggested by Cantril,[2] Good,[3] and Travers.[4] Interest, to the point, avoidance of ambiguity, clear directions, simplicity of response, clear purpose, attempt to avoid leading the respondent, either by the question itself or by the preceeding question, use of understandable words, relatively few but comprehensiveness of possible responses, along with pretrials using a sampling of the total population followed by a personal interview were considered and pursued throughout the process of development.

Further, the follow-up studies by Time, which were reported by Babcock[5] and by Havemann,[6] the National Science

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[2]Hadley Cantril and Associates, Gauging Public Opinion, (Princeton, N.J.: Princeton University Press, 1944), pp. 1-83.

[3]Carter V. Good and Douglas E. Scates, Methods of Research, Appleton-Century-Crofts, (New York, 1954), pp. 604-634.

[4]Robert M. W. Travers, Educational Measurement, (New York: The MacMillan Co., 1955), pp. 251-287.

[5]F. Lawrence Babcock, The U.S. College Graduate, (New York: The MacMillan Co., 1941).

[6]Havemann and West, op. cit.

Foundation Study,[7] and Pace's[8] follow-up studies were all reviewed. In addition, a study of high school graduates from trade and industrial programs was considered[9] as was a nationwide study then underway of both graduates and dropouts from academic and from vocational programs in secondary schools and in colleges.[10]

The questionnaire went through three major revisions after the initial development. These revisions included attention to comments resulting from:

1. A review by members of the faculty and staff at the Institute.
2. A test run during which the second form of the questionnaire was sent to a sample of ten former students. These ten were selected as a reasonably representative sample of the population. They were called in advance and asked to complete the questionnaire and return it. Each person was also interviewed personally after the questionnaire was returned.

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[7] Two Years After the College Degree, op. cit.

[8] Pace, op. cit.

[9] Max U. Eninger, Project Director, The Process and Product of T & I High School Level Vocational Education in the United States, American Institute for Research (1965).

[10] Richard Whinfield, Vocational Education Programs in the United States (and associated materials), Center for the Studies in Vocational and Technical Education, University of Wisconsin, Madison, Wisconsin (1968).

3. The questionnaire in a further revised form was reviewed by the candidate's doctoral committee.

The resulting questionnaire, while restricted to the objectives of this study and to those of a concurrent self-evaluation at the Institute, was consistent generally with those items mentioned above.

A final usable response was received from 176 members, or 75 percent of the population.

Reliability.--The reliability of the questionnaire was evaluated first by comparing the responses from the pilot group on the two questionnaires submitted by four of the group (the original pilot questionnaire and the final questionnaire were administered at an interval of about two months). The question by question (items 1 through 15 except numbers 2 and 3, which were not on the pilot instrument) comparison, in which only identical or identifiably similar responses were considered as correct, provided a range of reliability from a low of 20 percent on number 7 to 100 percent on numbers 1, 5, 8, 11, 13, and 14. The low rate reported on number 7 was due, in large measure, to the fact that one-half of the group failed to respond to this item on the pilot form.

The overall comparison by this method found 52 of the 65 responses as the same. Based on this, the responses were the same (directly comparable) on 80 percent of the items.

A second method of evaluating the reliability of the test instrument involved comparing the responses to certain questions or parts of questions for consistency.

The following table (3.01) indicates the method used and the results. The range of the rate of consistent responses on comparable items was from a low of 68 percent to a high of 100 percent. The overall average rate of consistency from the 48 questionnaires reviewed was 85 percent.

Validity.--Estimates of the validity of the questionnaire are difficult due to the effects of the non-respondents, the known tendency for people to overreport in the direction of social acceptability, the uncertainty of the frankness of responses from such a population, and the uncertainty for common question interpretation by all respondents.

However, personal interview verification of data on the earlier (pilot) questionnaire testing indicated that, at least for those interviewed, the indications on the questionnaire of anonymity, along with the desire to assist in improving a situation (assist in this evaluation), led these people to answer honestly and frankly. Further, this group of ten indicated both good recall and reasonable rationale for their recall on both factual and attitudinal responses. A reasonably common interpretation of questions was also noted. (There were some indications of misinterpretation. When these were noted by more than one person, they were, hopefully, adequately revised in the final form).

TABLE 3.01.--Summary of Observed Consistency (Reliability) of Response Study.

Questionnaire Item(s)	vs	Questionnaire Item(s)	Judged As Consistent Responses	Judged As Inconsistent Responses	% Consistency Rate
5(c) or (d)		1 and/or 4	10	2	83
5(e)		1 and/or 4, 6(b), (c), or (d)	7	0	100
6(e)		4(d) or (e)	11	1	92
9		6	32	3	91
11(a) or (b)		9, 10	26	3	90
12		7	13	6	68
14		5	30	6	83
13		11 or others	13	2	87
Total			142	23	86

Total questionnaires examined = 48

The validity of the instrument was further evaluated using two other methods and the final response data.

First, when over 50 percent of the non-graduates had responded, the questionnaires were reviewed to determine those who checked item 5(e) stating that they had received transfer credit to another college. The Registrar's file was then used to determine whether these former students had transcripts of their records mailed to another college. It was noted that all 17 respondents did have verifiable records of transcripts being mailed or other data supporting their statements. While this method of evaluating validity obviously does not assure us that all of those actually receiving transfer credit so responded, it does provide an indication of the veracity of the responses actually received. It further should indicate the dependability of other responses to questions concerning employment, armed service, and similar status condition items.

Secondly, questionnnaires from the 1966 group were reviewed to determine the care of response and attention to detail in responses. Question number 36 on the second part of the questionnaire was used for this. The coding system was such that, with very few, if any, exceptions, students within certain number ranges would not have taken some of the courses. Of 48 questionnaires reviewed, there were only two in which responses were shown where none would usually have been indicated. It is even possible

that these two were legitimate, as there were instances in which a student received transfer credit for certain courses, yet elected other courses not usually considered a part of his or her regular program. This attention to detail, while not verifying the correctness of the response, was, however, certainly an indication of careful reading, reasonable thought, and a good degree of accurate memory.

The general validity and reliability estimates of the responses involved in questions 1 through 15, which are those with which this report is concerned, were further supported by the literature.

Walsh reviewed 34 previous studies concerning the relative validities of questionnaires and interviews. In addition, Walsh carried out his own research project using university sophomores, juniors, and seniors. Walsh concluded:

> No one method elicits more accurate self-report than another. In general the subjects gave quite accurate reports to most of the informational items.[11]

Dole noted conflicting reports on the accuracy of retrospective self-reports. However, in his own study involving 520 college seniors, he concluded that, while one's recall relating to value and influence items was apt not to be highly accurate, the recall of factual and personal information and recollections of previous educational and

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[11]Walsh, op. cit., p. 22.

vocational plans, especially when considered in group form, were acceptable with reasonable confidence.[12]

Smith concluded, in a study based on the responses of only 50 persons using estimates of such things as the length of a line, the number of beans in a jar, that validity of responses related to factual data was better than that requiring responses in which opinion and judgement were involved. He also stated that validity could be improved by using group data and large groups.[13]

In studies involving the reporting of grade point averages by college seniors and of pay by insurance company employees, Dunnette and Hardin, respectively, found generally accurate reporting of such data.[14,15]

Keating, in a study of the unemployed, used interview data and, verifying the reported data with employer records, reported a "surprisingly high" validity. The validity

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[12]Arthur A. Dole, "Accuracy of Retrospective Self-Reports by College Students," Vocational Guidance Quarterly, Vol. 17, No. 1 (1968), pp. 33-40.

[13]Francis F. Smith, "The Direct Validation of Questionnaire Data," Educational Administration and Supervision, Vol. 21, No. 8 (1965), pp. 561-575.

[14]Marvin D. Dunnette, "Accuracy of Students' Reported Honor Point Averages," Journal of Applied Psychology, Vol. 36, No. 1 (1952), pp. 20-22.

[15]Einar Hardin and Gerald L. Hershey, "Accuracy of Employee Reports on Changes in Pay," Journal of Applied Psychology, Vol. 44, No. 4 (1960), pp. 269-275.

remained high even when job histories of up to six years prior to the interview were considered.[16]

The assumption, then, was that the validity of the responses to those questions relating to facts such as employment status, attending another college, military service, present salary, and unemployment should be adequate. The validity of the other responses was very difficult to determine, as responses undoubtedly would often vary with one's emotional and mental condition when responding. Since only group data was being considered, and since it was the intent to determine self-perceived attitudes in these instances, the validity should be adequate in light of the means of generating the questionnaire.

Procedure for Gathering and Sorting Data

The necessary data on each student were gathered from the Registrar's records and from the questionnaire. The data in each instance were ultimately coded and placed on standard, 80-column data processing cards. Anonymity was maintained by assigning students a coded number such that at no time was a student's name associated with the corresponding data. However, the student characteristics, such as reason for withdrawal and length of enrollment, were associated with the corresponding questionnaire response patterns.

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[16]Elizabeth Keating, Donald G. Paterson, and C. Harold Stone, "Validity of Work Histories Obtained by Interview," Journal of Applied Psychology, Vol. 34, No. 1 (1950), pp. 6-11.

The questionnaire mailing and follow-up procedures included the use of personalized letters as done successfully by Dressel.[17]

The first follow-up was done three weeks after the first mailing and included a personal phone call to as many non-respondents as could be located by phone. A second follow-up mailing using a letter and a third copy of the questionnaire was completed about six weeks after the first mailing.

The telephone follow-up was done using the Institute's Wide Area Telephone Service, or WATS, line. This procedure appeared to be quite useful. Many questionnaires had not been forwarded by parents or spouse, particularly when the former student was overseas on an armed forces assignment. The telephone call, in these instances, usually elicited the new address or led to the questionnaire being forwarded directly. In other instances, the questionnaire had been put aside for completion at a "convenient" time. In these latter instances, the phone call frequently stimulated a reasonably prompt response.

An effort to adjust for the effect of non-responses by evaluating the late responses separately was planned. However, due to the large number in the armed services

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[17]Dressel, op. cit., pp. 73-74.

overseas and the delays of parents and others in forwarding the questionnaire even to those away from home working or at college, this effort was abandoned.

Approximately two months after the first mailing, the rate of receipt of the responses indicated that few, if any, additional returns would be received. At this time, the response patterns were tabulated for each of the questionnaire items by categories of length of enrollment, reason for withdrawal, and the total group. Tabulation was done using an IBM 1401 computer.

Additional tabulations relative to the questionnaire return rates for varying student characteristics were also run. These included the student's year of enrollment, major department, high school class standing, high school program, age, and whether the student had previous military experience. These tabulations allowed an evaluation of the responses relative to determining whether any group with these characteristics was over- or under-represented in the final data. The response rates for each of these groups (except for those with previous military experience) were considered to be quite similar, ranging from 60 to 80 percent (see Table B-1).

Hypotheses

Null Hypothesis I

The dropout's length of enrollment prior to withdrawal had no relationship to his reported job-related

status (i.e., job satisfaction, persistence of employment, salary, and the relationship between his education and his employment) and attitudes at a time of from one to three years after withdrawal.

Alternate Hypothesis I

The longer a dropout was enrolled prior to withdrawal, the more beneficial the reported job-related status and attitudes.

Null Hypothesis II

The dropout's length of enrollment was not related to his status in, plans for, and attitudes toward continuing his education as reported at a time of from one to three years after withdrawal.

Alternate Hypothesis II

The length of enrollment had a direct relationship to the dropout's reported status in, plans for, and attitudes toward continuing his education.

Null Hypothesis III

The reason for withdrawal was unrelated to the dropout's status in, plans for, and attitudes toward continuing his education as reported at a period of from one to three years after withdrawal.

Alternate Hypothesis III

Those students withdrawing for other than academic reasons will more often report having returned to or planning to return to and having favorable attitudes toward education than will those who withdrew for academic reasons.

Null Hypothesis IV

These withdrawal students will generally report alienation from higher education.

Alternate Hypothesis IV

Failure to complete these two-year programs did not generally mean an end of the road relative to further education for these dropouts.

Analysis

Hypotheses one, two, and three were evaluated on the basis of chi-square tests applied to response patterns of selected items from the questionnaire. The chi-square values were computed using the program on the G.E. 625 computer at Dartmouth College, while the response patterns were accumulated from a sorting program on an IBM 1401 installed at the Institute. The use of the chi-square test involved the assumption that those responding were adequately representative of the entire N.H.T.I. dropout population.

Hypothesis one was analyzed using the responses to questions 1, 2, 3, 4, 5, 8, 14, and 15 versus the length of enrollment categories of one or less terms, two terms, and three or more terms in chi-square tests appropriate to the respective configuation; i.e., 4 x 3 in questions 1, 4 (d and e were combined in 4), and 15 (in 15, items d, e, and f were combined), 2 x 3 in question 2, 3 x 3 in questions 3, 8, and 14 (in 14, c and d were combined), and 6 x 3 in question 5.

Hypotheses two and three were analyzed by comparing the length of enrollment categories of one or less terms, two terms, and three or more terms or the reasons for withdrawal using "Academic" versus "Other" with the responses to items number 6, 9, 10, and 11. The appropriate chi-square test was again used; i.e., 3 x 3 for length of enrollment and 3 x 2 for reasons for withdrawal in questions 9, and 10, 5 x 3 and 5 x 2 in question 6, and, similarly, 7 x 3 and 7 x 2 in question 11. Also considered in each instance were the distributions by length of enrollment and by reason for withdrawal to items 1(d), 4(d), and (e), and 5(e), respectively.

Hypothesis four was subjectively evaluated considering the distribution of responses to questions 1(d), 4(d) and (e), and 5(e), 6, 9, 10, and 11.

Summary

The purpose of this study was to determine whether the dropout, in his own estimation, had been affected by his brief exposure to post-secondary education at a technical institute.

Data were obtained from the Registrar's file relating to the length of enrollment and to the reasons for withdrawal. In addition the entire dropout population (237) from the 1965 and 1966 freshman classes was mailed a questionnaire designed to elicit a number of responses.

These responses related to the status, plans, and attitudes of these dropouts as reported by the dropouts, themselves, via the questionnaire.

The resulting information from the Registrar's file and from the returned questionnaires was placed on coded 80-column data processing cards. The numbers of responses to various status, plans, and attitude questions were sorted on a computer against the student's length of enrollment and reason for withdrawal.

Three hypotheses relating job or educational status, plans, and attitudes, as reported on the questionnaires, with length of enrollment or reason for withdrawal were tested using Pearson's chi-square test. The fourth hypothesis was examined subjectively by evaluating responses related to the dropout's status in, plans for, and attitudes toward further college education.

CHAPTER IV

FINDINGS

Returns

The questionnaire was mailed to 237 former students who had entered the New Hampshire Technical Institute as freshmen in 1965 or 1966. The figure of 236 was used as the basis of possible responses, however, since one reply indicated a former student was deceased.

Usable responses were received from 176 dropouts, or 75 percent of the population at the time the responses were analyzed. Five additional responses were received after the data were analyzed. Two responses were not usable, and six of the former students could not be located.

A number of comparisons were made to determine whether any one or more of a number of categories of student backgrounds was over- or under-represented in the response group. These comparisons, shown in Table B-1 of the appendix, included the following:

A. Length of enrollment at N.H.T.I. prior to withdrawal.

B. Reason for withdrawal.

C. N.H.T.I. curriculum major.

D. High school class standing.

E. Those with military service prior to N.H.T.I. enrollment.

F. Those with one term or more of college prior to N.H.T.I. enrollment.

G. Women.

A total of 35 separate questionnaire return rates were involved in the above comparisons. Of these, 29 were within 10 percent of the overall rate, and in only one instance did the rate differ by over 15 percent from the overall rate. The one exception was that group of withdrawals who had military experience prior to enrollment, and there were only a total of five in this group from which two responded.

Based on these results, it was reasoned that no major group was seriously over- or under-represented.

Adjustments

Seventy-two, or 41 percent, of those responding reported themselves as being in one of the armed services at the time of response. This indicated a drastic change in the status of a large percentage of the group in this study. It was thought this effect might conceivably affect the patterns of response to questions of status, plans, and attitudes involved in this study. Therefore, a comparison of "civilian" versus "service" response patterns was made for each question, and chi-square values

were computed for questions 2, 3, 7, 8, 9, 10, 11, 12, and 14 (see tables in Appendix C). Chi-squares were not computed for questions 1, 4, 5, 6, and 15, since each of these involved responses obviously directly related to the difference being tested and, therefore, would not meet the characteristics of independence.

A significant chi-square value at .05 was obtained for this data only in questions 7 and 8. The responses to question 7 indicated that servicemen returning to continue their education would select the same field 54 percent of the time (see Table C-7 in the appendix) versus a rate of 37 percent for those not in the service. Conversely, 37 percent of those not in the service reported they would select a "quite different" program, compared with only 17 percent of the servicemen.

The significant difference reported in question 8 could have been the result of a misinterpretation of the question by a very few of those dropouts in the armed services. The question as stated was, "As a result of your N.H.T.I. education, has your earning capacity: (a) Remained the same, (b) Increased, (c) Decreased." Only six responded to the item "Decreased," and all six were in the service at the time of response. Whether they read the question with its intended meaning or read it as relating to their actual earning capacity at the time of response is uncertain.

However, this item with six responses was the major contributor to the large chi-square value, and the possibility of misinterpretation cannot be ignored.

Since in six of the eight comparisons the results were not found to be significant, there was no further major analysis of the response rates by "civilians" or "service" categories.

In arriving at the response rates, those responses listed as "Other" were individually evaluated by the researcher. On the basis of the statement written in support of the response, "Other," the response, if feasible, was recorded in one of the more specific categories. In many instances, a reassignment of the response was clearly possible and, therefore, few "Other" responses remained unassigned.

Length of Enrollment and Employment Effects

Hypothesis one in null form was: The dropout's length of enrollment prior to withdrawal had no relationship to his reported job-related status (i.e., job satisfaction, persistence of employment, salary, and the relationship between his N.H.T.I. education and his employment) and attitudes at a time of from one to three years after withdrawal.

The alternate hypothesis, which proposed a relationship between length of enrollment and job-related status and attitudes, was based on the assumption that, since the Institute programs were occupationally oriented, the longer a student was enrolled the better prepared he should be for a job in the field for which he was studying.

The criteria data for evaluation were derived from the withdrawal's responses to questions concerning his first full-time job status upon leaving the Institute, his job status at the time of responding, the level of his satisfaction with his first job, his frequency of unemployment, his perception of the assistance of his N.H.T.I. education in obtaining a job or other assignment for him, his perceived effect of his education on his earning capacity, his perceived general value of his educational experience at N.H.T.I., and his reported annual, regular-time salary at the time of response.

Specifically, responses to questionnaire items 1, 2, 3, 4, 5, 8, 14, and 15 were considered in the evaluation of this hypothesis and the above mentioned factors. The response patterns to these questions were tabulated by the student's length of enrollment prior to withdrawal. Length of enrollment categories of one term or less, two terms, and three or more terms were used.

Chi-square tests were applied, as appropriate, to the response patterns of each question. None of the eight

tests indicated statistically significant differences at or beyond a significance of .05. Hypothesis one in null form could not, therefore, be rejected.

Tables 4.01 through 4.08 show the response rates for the items involved in the analysis of this hypothesis. Table 4.09 was prepared to allow a comparison of reported salaries for two groups having enrollment rates in the shortest (one term or less) and the longest (three or more terms) categories and also having about equal length periods of employment. Table 4.10 provides a comparison of the entry level salaries as reported at graduation by the graduating classmates of those withdrawals with the salaries as reported by those withdrawals whose period of employment would be up to almost two years longer.

Table 4.01 does indicate that those enrolled for the longest period did report (1) entering jobs similar to their major more often than did those enrolled for shorter periods, (2) that they tended to enter jobs related to their major more often than did they enter jobs in other fields, and (3) they were more apt to continue their education. However, none of these differences was sufficient to indicate statistical significance at .05 in a chi-square test.

A relatively uniform rate of entering the service was reported for each group.

TABLE 4.C1.--The First Full-Time Activity After N.H.T.I. of All Students Who Withdrew. (By Length of Prior Enrollment at N.H.T.I.).

Response Categories First Assignment (Full-Time)	Length of N.H.T.I. Enrollment							
	One or Less Terms		Two Terms		Three or More Terms		Total	
	N	%	N	%	N	%	N	%
A Job Related to N.H.T.I. Major	13	21	5	14	24	32	42	23
A Job Unrelated to N.H.T.I. Major	25	40	19	51	20	27	64	37
Entered the Armed Services	18	29	10	27	20	27	48	27
Continued Education	7	11	3	8	11	15	21	12
Total	63	101*	37	100	75	101*	175**	99*

Chi-Square: 9.38227 not significant at .05 and 6 d.f.
*Due to rounding.
**One did not respond.

The response rates of the withdrawal's reported status at the time of completing the questionnaire were somewhat different from those reported for their first full-time experience. Table 4.02 shows that, of those responding to the question, 44 percent were in one of the armed services. Again, the rate of service connection was relatively uniform. Further, there was no clear pattern of response rates associated with the length of enrollment versus either job status or continuing education status.

The withdrawal students enrolled for the longest periods did report a somewhat higher rate of satisfaction with their first job. However, the rates were not sufficiently different to provide statistical significance. In each category, and overall, about one-half of those responding reported they were satisfied with their first full-time experience, and about one-half reported they were not satisfied (see Table 4.03).

As is shown in Table 4.04, the former students with the intermediate length of N.H.T.I. enrollment reported the lowest rate of one or more periods of unemployment, with only 1 of 36 respondents reporting such periods of unemployment. However, statistical tests on the response patterns did not indicate differences of statistical significance at .05.

TABLE 4.02.--The Current[+] Full-Time Activity of All Students Who Withdrew. (By Length of Prior Enrollment at N.H.T.I.).

Response Categories Current[+] Assignment (Full-Time)	Length of N.H.T.I. Enrollment							
	One or Less Terms		Two Terms		Three or More Terms		Total	
	N	%	N	%	N	%	N	%
A Job Related to N.H.T.I. Major	12	21	4	11	11	15	27	16
A Job Unrelated to N.H.T.I. Major	11	19	12	33	15	21	38	23
Entered the Armed Services	25	43	16	44	31	44	72	44
Continuing Education	10	17	4	11	14	20	28	17
Total	58	100	36	99*	71	100	165**	100

Chi-Square: 4.54624 not significant at .05 and 6 d.f.
[+]At the time the questionnaire was completed.
*Due to rounding.
**Those responses under "Other" included two unemployed, three housewives, and miscellaneous other categories.

TABLE 4.03.--The Withdrawals' Reported Satisfaction with Their First Full-Time Activity After N.H.T.I. (All Students by Length of Prior Enrollment at N.H.T.I.).

Response Categories Relative to First Full-Time Activity	Length of N.H.T.I. Enrollment							
	One or Less Terms		Two Terms		Three or More Terms		Total	
	N	%	N	%	N	%	N	%
Satisfied	27	43	16	44	39	57	82	49
Not Satisfied	35	57	20	56	29	43	84	51
Total	62	100	36	100	68	100	166**	100

Chi-Square: 2.92362 not significant at .05 and 2 d.f.
**Ten did not respond to this item.

TABLE 4.04.--Reported Number of Two-Week or More Periods of Unemployment Since Withdrawal - All Respondents. (By Length of Prior Enrollment at N.H.T.I.).

Response Categories Two-Week or More Periods of Unemployment	Length of N.H.T.I. Enrollment							
	One or Less Terms		Two Terms		Three or More Terms		Total	
	N	%	N	%	N	%	N	%
None	52	82	35	97	63	91	150	89
One	5	8	0	0	5	7	10	6
Two or More	6	10	1	3	1	1	8	5
Total	63	100	36	100	69	99*	168**	100

Chi-Square: 8.24787 not significant at .05 and 4 d.f.
*Due to rounding.
**Eight did not respond to this item.

The employment situation in New Hampshire, where many of these former students reside, had been very favorable to the employee during the entire period with which this study was concerned. Therefore, the fact that there had been very little unemployment among any of the length of enrollment groups is understandable.

As shown in Table C-3 in the appendix, the effect of armed service personnel on the unemployment rate, while noticeable in the rate of returns, was not of statistical significance.

The dropouts responded to two separate questions relative to their perception of the value of their less than "complete" educational experience at N.H.T.I. In neither instance did the response distributions result in statistical significance at .05 when tabulated on the basis of length of enrollment and perceived values.

On an overall basis (see Table 4.05), 24 percent reported they felt their educational experience assisted them in obtaining a job related to their major field of study at N.H.T.I., six percent felt they were aided in obtaining a job in other than their field of study area, and about 1/3 (32 percent) of the total group reported assistance in obtaining a service or apprentice school assignment (Table C-5 in the appendix shows that, for servicemen, the response rate to this latter item was 57 percent). Seventeen percent felt there was no benefit from

TABLE 4.05.--The Withdrawals' Self-Perceived Assistance of Their Technical Education - All Respondents. (By Length of Enrollment).

Response Categories Perceived Value of N.H.T.I. Education	Length of N.H.T.I. Enrollment							
	One or Less Terms		Two Terms		Three or More Terms		Total	
	N	%	N	%	N	%	N *	% *
Aided in Obtaining a Job in Major Field Area	16	25	4	11	22	29	42	24
Aided in Obtaining a Job in Other Than a Major Field Area	4	6	2	5	4	5	10	6
Aided in Obtaining Service or Apprentice School Assignment	21	33	11	30	24	32	56	32
Basis for Transfer Credit	2	4	3	8	9	15	14	8
Broadened Interest	25	39	15	40	28	37	68	39
No Help	12	19	7	19	11	15	30	17
Total	64*	*	37*	*	75*	*	176*	*

Chi-Square: 7.22027 not significant at .05 and 10 d.f.
*A multiple response item with percentages being computed on the basis of Total Respondents by "Length of N.H.T.I. Enrollment" category. Therefore, total percentages would be over 100, and total N's over total responses.

their educational experience at N.H.T.I. as far as the items shown in Table 4.05 were concerned.

The second opportunity to respond concerning the perceived value of the dropout's educational experience considered the relative value of his N.H.T.I. education as viewed in retrospect. In this instance, 34 percent reported the experience as very beneficial, 58 percent reported a worthwhile experience, and 8 percent reported no value or a negative value (see Table 4.06).

Both the dropout's perceived effect of the N.H.T.I. education on his earning capacity and his actual regular-time earnings at the time of completing the questionnaire were assessed. Again, in neither instance did statistical significance occur when the response patterns were compared by length of enrollment categories.

Just over one-half of the group reported they felt this education had no effect on their earning capacity, while 44 percent did feel their earning capacity had increased as a result of this educational experience. Four percent, all of whom were in the armed services, reported that they felt their earning capacity had decreased (see Table 4.07).

The reported annual earnings of the dropouts were compared in three tables, using separate criteria for length of enrollment, and were also compared with the entry level salaries reported at the time of graduation by the classmates of these dropouts who completed their two-year program and entered full-time employment.

TABLE 4.06.--The Withdrawal Students' Self-Perceived Value of Their Technical Education - All Respondents. (By Length of Enrollment).

Response Categories Perceived Value of N.H.T.I. Education	Length of N.H.T.I. Enrollment							
	One or Less Terms		Two Terms		Three or More Terms		Total	
	N	%	N	%	N	%	N	%
Very Beneficial	20	31	11	30	29	39	60	34
Worthwhile	37	58	22	60	42	57	101	58
Of Little or Negative Value	7	11	4	10	3	4	14	8
Total	64	100	37	100	74	100	175**	100

Chi-Square: 3.44235 not significant at .05 and 4 d.f.
**One did not respond to this item.

TABLE 4.07.--Withdrawal Students' Self-Perceived Effect of Their Technical Education on Their Earning Capacity - All Respondents. (By Length of Enrollment).

Response Categories Perceived Effect of Education on Earning Capacity	Length of N.H.T.I. Enrollment							
	One or Less Terms		Two Terms		Three or More Terms		Total	
	N	%	N	%	N	%	N	%
No Change	34	57	19	54	33	48	86	52
Increased	25	42	15	43	32	46	72	44
Decreased	1*	2	1*	3	4*	6	6*	4
Total	60	101*	35	100	69	100	164**	100

Chi-Square: 2.25518 not significant at .05 and 4 d.f.
*All were in the armed services.
*Due to rounding.
**Twelve did not respond to this item.

Neither of the two comparisons of the response rates by rate of earnings and length of enrollment category indicated statistically significant differences at .05 with a chi-square test.

The first comparison shown in Table 4.08A related the response rates of all respondents to the item on their regular full-time annual earnings by the length of enrollment categories. Approximately 50 percent in each length of enrollment category reported earnings of under $4,000 a year, as compared with an approximate 15 percent in each category reporting earnings of $6,000 or more a year. Length of enrollment then appeared to have no relationship to annual regular-time earnings.

Since so many were in the armed services with a known low rate of pay, a tabulation was completed for this earnings item by "civilians" only. This tabulation, as expected, revised the reported annual full-time earnings distribution upward, but the similarity in rates of returns by length of enrollment categories changed only slightly. In this instance, about 17 percent of each length of enrollment group stated they were earning under $4,000, and about 25 percent reported annual full-time earnings of $6,000 or more (see Table 4.08B).

An attempt was also made to account for the possible effect of those who had been enrolled for the shortest periods having had more opportunities for salary increases

TABLE 4.08A.--Reported Current Annual Earnings of All Respondents. (By Length of Enrollment).

Response Categories Reported Current Annual Full-Time Earnings	Length of N.H.T.I. Enrollment							
	One or Less Terms		Two Terms		Three or More Terms		Total	
	N	%	N	%	N	%	N	%
Under $4,000	24	48	17	53	27	51	68	50
$4,000 - $4,999	7	14	7	22	10	19	24	18
$5,000 - $5,999	11	22	3	9	9	17	23	17
$6,000 and over	8	16	5	16	7	13	20	15
Total	50	100	32	100	53	100	135	100

Chi-Square: 2.82606 not significant at .05 and 6 d.f.

TABLE 4.09B.--Reported Current Annual Earnings of Current Civilian Respondents. (By Length of Enrollment).

Response Categories Reported Current Annual Full-Time Earnings	Length of M.H.T.I. Enrollment							
	One or Less Terms		Two Terms		Three or More Terms		Total	
	N	%	N	%	N	%	N	%
Under $4,000	5	19	2	12	5	18	12	17
$4,000 - $4,999	5	19	6	37	8	29	19	27
$5,000 - $5,999	11	41	3	19	8	29	22	31
$6,000 and Over	6	22	5	31	7	25	18	25
Total	27	101*	16	99*	28	101*	71	100

Chi-Square: 3.62975 not significant at .05 and 6 d.f.
*Due to rounding.

due to length of employment than did those enrolled for the longest period. This was done by comparing the reported salaries of those who enrolled as freshmen in 1965 and who had been at the Institute three or more terms with the salaries of those who enrolled as freshmen in 1966 but who left after one term or less. Each of these groups should have represented dropouts who had been employed for about one year and four to eight months at the time they responded to the questionnaire. Further, only "civilians" at the time of response were included.

A chi-square test could not be used due to the few responses unless the data were reduced to a 2 x 2 table, which would have changed the format. Therefore, no statistical test was used with this study. However, as seen in Table 4.09, the distribution of responses, particularly when considering the small number involved, did not appear to support rejection of the hypothesis that there was no difference due to the length of enrollment.

Using data available from annual placement studies of graduates, a comparison was made of the entry level salaries reported by the classes of 1967 (entered in 1965) and 1968 (entered in 1966) with the salaries reported by the "civilian" dropouts at the time of response to the questionnaire. Since the questionnaire was mailed to the dropouts at from one to three or more years after their having left the Institute, their salaries could have included raises due either to merit or cost of living adjustments.

TABLE 4.09.--A Comparison of the Reported Annual Incomes of Those Dropouts Entering Programs in 1965 and Remaining Four or More Terms with Those Entering in 1966 and Remaining One Term or Less - Current Civilians.

Annual Income Categories	Number Reporting Income					
	Enter 1966 and One Term or Less		Enter 1965 and Four Terms or More		Total	
	N	%	N	%	N	%
Under $4,000	4	31	2	22	6	27
$4,000 - $4,999	0	0	1	11	1	5
$5,000 - $5,999	5	38	2	22	7	32
$6,000 and Over	4	31	4	44	8	36
Total	13	100	9	99*	22	100

Chi-Square not computed due to the inadequate numbers involved.
*Due to rounding.

The chi-square test applied to these data comparing graduate's entry level salaries with dropout's salaries indicated a difference significant beyond .01. Where only two percent of the graduates reported entry salaries of under $4,000, 17 percent of the dropouts reported incomes in this level at from one to three years after withdrawal. Conversely, while 75 percent of the graduates reported entry level salaries of $6,000 or more, only 25 percent of the dropouts report such salaries (see Table 4.10).

Reviewing all of the data presented relative to hypothesis one, it was not possible to reject the null hypothesis as there were no statistically significant differences contradicting the statement that the dropout's length

of enrollment prior to withdrawal had no relationship to his reported job-related status and attitudes at from one to three years after withdrawal. The one comparison of the earnings of graduates and their dropout classmates did indicate that a length of enrollment through and including graduation resulted in a statistically significant higher entry salary for graduates than the regular salary of dropouts after one to three years of employment.

TABLE 4.10.--Graduates' Entry Level Salaries Compared with the Salaries of Withdrawal Students After One to Three Years on the Job. (Annual Full-Time Salaries for Current Civilians).

Annual Income Categories	Number Reporting Income					
	Graduates		Withdrawals		Total	
	N	%	N	%	N	%
Under $4,000	2	2	12	17	14	8
$4,000 - $4,999	7	7	19	27	26	15
$5,000 - $5,999	16	16	22	31	38	22
$6,000 and Over	77	75	18	25	95	55
Total	102	100	71	100	173	100

Chi-Square: 46.1993 significant on 3 d.f. at beyond 0.01.

Length of Enrollment and Plans for Continuing Education

The second hypothesis in null form was: The dropout's length of enrollment was not related to his status in, plans for, and attitudes toward continuing his education as reported at a time of from one to three years after withdrawal.

The alternate hypothesis, which proposed a direct relationship between length of enrollment and the dropout's status in, plans for, and attitudes toward continuing his education, was based on the assumptions that a short educational experience, ending in dropping out, was psychologically demoralizing and, the converse, that the longer the enrollment prior to dropping out, the greater the desire for further education and the greater the probability of later return.

The dropout student's present status in, future plans for, and attitudes toward higher education, as reported in his responses to selected questionnaire items, were the basis for this analysis. The response patterns to these selected questions were tabulated by the same three length of enrollment categories as were used in hypothesis one; namely, one term or less, two terms, and three or more terms.

Questionnaire items number 6, 9, 10, and 11 along with the particular distribution to items 1(d), 4 (d and e), and 5(e) were considered in this analysis.

Questions number 6 and 11 were the most directly involved in obtaining indications of future plans, present status, or attitudes relative to continuing education.

The response rates to question number 6 (see Table 4.11A) concerning the present status or future plans of these withdrawals did indicate that the group enrolled the

longest prior to withdrawal had both the lowest rate (12 percent), indicating they had no plans for further education, and the highest rate (21 percent), reporting that they were now attending college. However, the chi-square test indicated the reported differences were not significant at .05. Table 4.11B indicates the same situation when only "civilians" were considered but did indicate a much higher rate of present full-time attendance, just as one would expect.

A number of the "Other" responses (15 of them) to question 6 were difficult to place in any one of the specific categories. Generally, the "Other" reponse was supported by a statement such as "would like to return but am a housewife and mother and present plans are uncertain" or "am now attending a service school." All of these "Other" responses did indicate a desire to continue their education, however.

The second question of this type, number 11 (see Table 4.12), asked for an indication of the student's choice of action if the period of his life in which he was enrolled at N.H.T.I. could be relived. In this question, the withdrawal was asked to assume there were no financial obstacles involved in his choice. The chi-square test in this instance was significant at .05. The rates of response reporting they would elect to go directly to work or to enter the armed services were quite similar for each length of

TABLE 4.11A.--The Stated Plans of the Withdrawal Students Relative to Continuing Their Education - All. (By Length of Enrollment).

Response Categories Plans for Further College Education	Length of N.H.T.I. Enrollment							
	One or Less Terms		Two Terms		Three or More Terms		Total	
	N	%	N	%	N	%	N	%
None Planned	12	29	6	16	9	12	27	15
To Return Full-Time Within Three Years	18	28	10	27	20	27	48	27
To Return Part-Time Within Three Years	14	22	6	16	19	25	39	22
Now Attending Part-Time	5	8	8	22	3	4	16	9
Now Attending Full-Time	9	14	4	11	16	21	29	16
Other	6	9	3	8	8	11	17	10
Total	64	100	37	100	75	100	176	99*

Chi-Square: 12.5694 not significant at .05 and 8 d.f. ("Other" not used for chi-square).
*Due to rounding.

TABLE 4.11B.--The Stated Plans of the Withdrawal Students Relative to Continuing Their Education - Current Civilians. (By Length of Enrollment).

Response Categories Plans for Further College Education	Length of N.H.T.I. Enrollment							
	One or Less Terms		Two Terms		Three or More Terms		Total	
	N	%	N	%	N	%	N	%
None Planned	12	31	4	19	4	9	20	19
To Return Full-Time Within Three Years	4	10	2	10	5	11	11	11
To Return Part-Time Within Three Years	8	21	5	24	11	25	24	23
Now Attending Part-Time	3	8	5	24	2	5	10	10
Now Attending Full-Time	9	23	4	19	16	36	29	28
Other	3	8	1	5	6	14	10	10
Total	39	101*	21	101*	44	100	104	101*

Chi-Square: 5.9081 not significant at .05 and 4 d.f. (a, b and c, d and e were tested).
*Due to rounding.

TABLE 4.12.--The Withdrawals' Current First Choice of Action if the Period at N.H.T.I. Could Be Lived Again - All. (By Length of Enrollment).

Response Categories First Choice if Period at N.H.T.I. Could Be Lived Again	Length of N.H.T.I. Enrollment							
	One Or Less Terms		Two Terms		Three or More Terms		Total	
	N	%	N	%	N	%	N	%
Return to N.H.T.I.	15	25	12	33	31	44	58	35
Attend Another Technical Institute	1	2	2	6	6	8	9	5
Attend a Vocational Institute	10	16	2	6	0	0	12	7
Attend a Four-Year College	27	44	16	44	23	32	66	39
Attend an Apprentice Program	5	8	3	8	4	6	12	7
Seek Full-Time Employment	1	2	1	3	1	1	3	2
Enter the Armed Services	2	3	0	0	6	8	8	5
Total	61	100	36	100	71	99*	168	100

Chi-Square: 24.9935 significant beyond .05 and 12 d.f.
*Due to rounding.

enrollment group. The major differences appeared related to the tendency of those enrolled the longest prior to withdrawal to either return to N.H.T.I. or to attend another technical institute, whereas those enrolled for the shorter periods would have been more likely to choose to attend a four-year college or a vocational program.

The tendency for the group enrolled for the longest period to be more likely to return to N.H.T.I. or another technical institute was consistent with the response patterns to two questions concerning the selection of a major program for those continuing their education. These related directly to questions 6 and 11 and were, therefore, reported here by length of enrollment although they applied, only obliquely, to this hypothesis.

In responding to question 7, the dropout who stated in question 6 that he was continuing or was planning to continue his education reported whether he would select the same, a somewhat different, or a quite different program major. The chi-square test was significant at .05. Those enrolled for the longest periods were more likely to again select the "same" major (55 percent for the longest to 28 percent for the shortest enrolled groups). Similarly, the group enrolled for the shortest period reported they were more likely (40 percent to 21 percent) to select a program that was "quite different" from their N.H.T.I. program (see Table 4.13).

TABLE 4.13.--Present or Future Major Field Choice of the Returning Withdrawal Students as Compared with Their Original N.H.T.I. Major - All. (By Length of Enrollment).

Response Categories Present or Future Major Versus Original N.H.T.I. Major	Length of N.H.T.I. Enrollment							
	One or Less Terms		Two Terms		Three or More Terms		Total	
	N	%	N	%	N	%	N	%
The Same	15	28	14	50	37	55	66	45
Somewhat Different	17	32	7	25	16	24	40	27
Quite Different	21	40	7	25	14	21	42	28
Total	53	100	28	100	67	100	148	100

Chi-Square: 9.61945 significant at .05 and 4 d.f.

The chi-square test applied to the second of these program choice items did not indicate statistically significant differences at .05. The pattern was, nevertheless, similar to that of question 7 when only the longest and shortest enrolled groups were considered. This item involved the responses of only those who would elect to return to N.H.T.I. Those enrolled for three or more terms would select the same major 87 percent of the time and a different major only 13 percent of the time versus rates of 72 percent and 28 percent, respectively, for the group enrolled for one or less terms (see Table 4.14).

Since only those choosing to return to N.H.T.I. responded to question number 12, a possible rationale for the significant findings in question number 7 versus less than significant findings in number 12 could relate to the fact that there were only three possible curricular programs at N.H.T.I. Two of the programs are very similar, thus making it necessary for those desiring certain "quite different programs" to plan to attend other institutions. Many or most of those desiring a quite different program, then, would not have responded to question number 12.

Two questions concerning the dropout's perceived attitude changes as a result of his period at N.H.T.I. related in a way to further higher education.

The first of these related to whether the dropout felt his occupational goals as measured by the amount of

TABLE 4.14.--A Comparison of the Original and the Present Choice of Major Field of the Withdrawals Who Would Choose to Return to N.H.T.I. - All. (By Length of Enrollment).

Response Categories Present Choice Versus Original Choice	Length of N.H.T.I. Enrollment							
	One or Less Terms		Two Terms		Three or More Terms		Total	
	N	%	N	%	N	%	N	%
The Same	26	72	15	68	34	87	75	77
Different	10	28	7	32	5	13	22	23
Total	36	100	22	100	39	100	97*	100

Chi-Square: 2.74299 not significant at .05 and 2 d.f.
*Some who reported returning to N.H.T.I. as their second choice also responded to this item, and their responses are also included.

education needed to reach his goal had been raised, remained the same, or had been lowered. A chi-square test on the response patterns to these items by length of enrollment categories indicated the differences were not statistically significant at .05.

Those enrolled for three or more terms reported raised goals 68 percent of the time to 64 percent for the group enrolled for two terms and 54 percent for those enrolled for one term or less. Overall, only 12 percent reported their goals as being lowered (see Table 4.15), and 37 percent reported their goals as unchanged.

The second of these two "self-perceived attitude toward education" questions concerned the withdrawal student's change in attitude toward technical education itself. The change in attitude was to be evaluated on the basis of their experience at N.H.T.I.

Again, when the data were categorized by length of enrollment and as to whether there was no attitude change, a more critical attitude, or a more favorable attitude, the chi-square test indicated the differences were not statistically significant at .05.

The distribution among the possible responses was much more complete in this item than in previous items relative to changes in occupational goals. Again, those enrolled for the longest period most frequently responded with a "more favorable" listing, with 55 percent indicating this

TABLE 4.15.--Withdrawal Students' Stated Changes in Occupational Goals as a Result of Their N.H.T.I. Experience - All. (By Length of Enrollment).

Response Categories Changes In Goals	Length of N.H.T.I. Enrollment							
	One or Less Terms		Two Terms		Three or More Terms		Total	
	N	%	N	%	N	%	N	%
Raised in Terms of Education Required	34	54	23	64	50	68	107	62
Lowered in Terms of Education Required	2	3	0	0	0	0	2	1
Unchanged	27	43	13	36	24	32	64	37
Total	63	100	36	100	74	100	173	100

Chi-Square: 5.54939 not significant at .05 and 4 d.f.

change to 47 percent of those enrolled for two terms and 43 percent of those enrolled for one or less terms.

Questions 1, 4, and 5 included response items 1(d), 4(d and e), and 5(e) associated with student's status in or perceived benefits from his education. A review of the response patterns to these items in Tables 4.10, 4.11, and 4.15 indicates (1) that in none of the questions were the differences of statistical significance when considered by length of enrollment and (2) that in the specific items (see Table 4.17) the group enrolled for three or more terms (the longest) most frequently reported the highest percentage of their group as enrolled in or receiving transfer credit toward continued education. However, the one-or-less term group (the shortest enrollment) reported a higher percentage actually continuing their education than did the two-term group (intermediate length).

The analysis of data relative to hypothesis two showed only one response area with statistically significant differences at .05 when response items and length of enrollment categories were considered. Therefore, it was not feasible to reject the null hypothesis that the dropout's length of enrollment was not related to his status in, plans for, and attitudes toward continuing his education as reported at a period of from one to three years after withdrawal.

TABLE 4.16.--Withdrawal Students' Stated Changes in Attitude Toward Technical Education as a Result of Their Experience at N.H.T.I. - All. (By Length of Enrollment).

Response Categories Attitude Changes	Length of N.H.T.I. Enrollment							
	One or Less Terms		Two Terms		Three or More Terms		Total	
	N	%	N	%	N	%	N	%
No Change	21	33	9	25	22	30	52	30
More Critical	15	24	10	28	11	15	36	21
More Favorable	27	43	17	47	41	55	85	49
Total	63	100	36	100	74	100	173*	100

Chi-Square: 4.02744 not significant at .05 and 4 d.f.
*Three did not respond to this item.

TABLE 4.17.--A Summary of the Response Rate Patterns to Items 1(d), 4(d and e), and 5(e). (In Percentage By Length of Enrollment).

Item	Response Category	Length of Enrollment Group: One or Less Terms	Two Terms	Three or More Terms	Total Group
1(d)	Continued Education as First Full-Time Activity	11%	8%	15%	12%
4(d) and (e)	Continuing Education at the Time of Response	17%	11%	20%	17%
5(e)	Received Transfer Credit	4%	8%	15%	8%

Reasons for Withdrawal and Plans for Continuing Education

In addition to considering the effects of the length of enrollment on the dropout's plans for future education, it was felt that the reason for withdrawal might also affect the dropout's plans for continuing his education. In this instance, the anticipated result was that those who withdrew for academic reasons would be less likely to continue their education, due to the general academic demands of college, than would those who withdrew for other than academic reasons.

The null hypothesis in this instance was: The reason for withdrawal was unrelated to the dropout's status

in, plans for, and attitudes toward continuing his education as reported at a time of from one to three years after withdrawal.

The same items were used in this analysis as in the analysis of hypothesis two. These were questionnaire questions 6, 9, 10, and 11 along with the particular distribution to 1(d), 4(d and e), and 5(e). However, in this analysis the items were considered by the response categories of reason for withdrawal. The reasons for withdrawal used were "Academic" and "Other," with the latter covering all reasons other than academic.

In no instance were the reported differences statistically significant at .05 based on chi-square tests for the responses to questions 1, 4, 5, 6, 9, 10, or 11 when listed by reason for withdrawal.

The rates of response did indicate that, among the groups responding, those who withdrew for academic reasons were less likely to report no plans for continued education (13 percent to 23 percent), while those who withdrew for other reasons reported a higher rate of full-time attendance at the time of response to the questionnaire (see Table 4.18).

Those withdrawing for reasons other than academic more frequently reported a first choice to return to N.H.T.I. if they could relive the period at which they were originally enrolled at N.H.T.I. The rate was nearly

50 percent greater in this instance, being 46 percent for "Other" to 31 percent for "Academic." However, the reverse was true in the response rate for the choice to attend a four-year college. In the latter instance, the rates were 43 percent for those withdrawing for academic reasons, which was more than a 50 percent higher rate than the 27 percent reported by those withdrawing for other reasons (see Table 4.19).

TABLE 4.18.--The Stated Plans of the Withdrawal Students Relating to Continuing Their Education. (By Reason for Withdrawal).

Response Categories Plans for Further College Education	Reason for Withdrawal					
	Academic		Other		Total	
	N	%	N	%	N	%
None Planned	17	13	10	23	27	15
To Return to Full-Time Within Three Years	34	26	14	32	48	27
To Return Part-Time Within Three Years	32	24	7	16	39	22
Now Attending Part-Time	14	11	2	5	16	9
Now Attending Full-Time	20	15	9	20	29	16
Other**	15	11	2	5	17	10
Total	132	100	44	101*	176	99*

Chi-Square: 5.10462 not significant at .05 and 4 d.f. ("Other" not included in chi-square calculations).
*Due to rounding.
**Nine listed undecided, six were involved in service schools, apprentice programs, etc., two were no response.

TABLE 4.19.--The Withdrawals' First Choice of Action if the Period at N.H.T.I. Could Be Lived Again. (By Reason For Withdrawal).

Response Categories First Choice if Period at N.H.T.I. Could Be Lived Again	Reason for Withdrawal					
	Academic		Other		Total	
	N	%	N	%	N	%
Return to N.H.T.I.	39	31	19	46	58	35
Attend Another Technical Institute	7	6	2	5	9	5
Attend a Vocational Institute	6	5	6	15	12	7
Attend a Four-Year College	55	43	11	27	66	39
Attend an Apprentice Program	10	8	2	5	12	7
Seek Full-Time Employment	3	2	0	0	3	2
Enter the Armed Services	7	6	1	2	8	5
Total	127	101*	41	100	168**	100

Chi-Square: 10.5931 not significant at .05 and 6 d.f.
*Due to rounding.
**All six responding to "Other" would have been involved in some form of education.

Both groups reported nearly identical perceived effects on their occupational goals resulting from their N.H.T.I. experience. Sixty-two percent of those who withdrew for academic reasons reported raised goals as compared with a 63 percent rate for those withdrawing for other reasons. Nearly all of the remaining respondents in each instance

(38 percent of the "Academic" withdrawal group and 35 percent of the "Other" group) reported no change in occupational goals as a result of their educational experience (see Table 4.20).

TABLE 4.20.--Withdrawal Students' Stated Changes in Occupational Goals as a Result of Their N.H.T.I. Experience - All. (By Reason for Withdrawal).

Response Categories Changes In Goals	Reason for Withdrawal					
	Academic		Other		Total	
	N	%	N	%	N	%
Raised	80	62	27	63	107	62
Lowered	1	1	1	2	2	1
Unchanged	49	38	15	35	64	37
Total	130	101*	43	100	173**	100

Chi-Square: 0.754103 not significant at .05 and 2 d.f.
*Due to rounding.
**Three did not respond to this item.

Approximately one-half of each of these two groups indicated they had a more favorable attitude toward technical education as a result of their N.H.T.I. educational experience than they held before entering the Institute. Similarly, about 20 percent of each group reported a more critical attitude toward technical education following their N.H.T.I. enrollment (see Table 4.21).

Whether considering all withdrawal students or "civilians" only, the first full-time activity, the full-time activity at the time of completing the questionnaire, or the

TABLE 4.21.--Withdrawal Students' Stated Changes in Attitude Toward Technical Education as a Result of Their Experience at N.H.T.I. (By Reason for Withdrawal).

Response Categories Attitude Changes	Reason for Withdrawal					
	Academic		Other		Total	
	N	%	N	%	N	%
No Change	41	32	11	26	52	30
More Critical	28	22	8	19	36	21
More Favorable	61	47	24	56	85	49
Total	130	101*	43	101*	173**	100

Chi-Square: 1.03499 not significant at .05 and 2 d.f.
*Due to rounding.
**Three did not respond to this item.

transfer credit received, those withdrawing for "Other" reasons reported a higher rate of return to continued education than did those who withdrew for "Academic" reasons. However, since only 28 former students were involved in these comparisons (9 "Other" and 19 "Academic"), the differences in rates were not large (see Table 4.22). (See Tables F-1, D-2, E-1, D-3, and E-2 in the appendix for the entire data in each instance).

Based on the data considered, there was no reason to reject the null hypothesis that the reason for withdrawal was unrelated to the actual or perceived value of the educational experience. For this group of dropout students, the available evidence, in fact, supports the null hypothesis.

TABLE 4.22.--A Summary of the Response Rate Patterns to Items 1(d), 4(d and e), and 5(e). (In Percentage By Reason for Withdrawal).

Item	Response Category	Reason for Withdrawal		
		Academic	Other	Total
1(d)	Continued Education as the First Full-Time Activity	11%	14%	12%
4(d & e) (All)	Continuing Education at the Time of Response	15%	22%	17%
4(d & e) (Civilians)	Continuing Education at the Time of Response	25%	31%	27%
5(e)	Received Transfer Credit	7%	12%	8%
5(e) (Civilians)	Received Transfer Credit	12%	17%	13%

Present Status in and Future Plans for Continuing Education

The final hypothesis was subjectively evaluated. The hypothesis itself was: Failure to complete these two-year programs did not generally mean an end of the road relative to further education for those dropouts. The rationale for this position was based on reports from many colleges that frequently dropouts were returning later to continue their education, with a fair percentage ultimately receiving their degrees.

The analysis for this part of the study was based on the total response patterns to selected questionnaire items which have, earlier in this study, been reported in

the tables but not considered in the discussions. Selected total response items in questions 1 and 4 and the responses to questions 5, 6, 9, 10, and 11 were evaluated in this analysis. These response patterns are shown in the total columns of Tables 4.01, 4.02, 4.05, 4.11A, 4.11B, 4.15, 4.16, and 4.12. Appendix Tables C-1, C-4, C-5, and C-6 will also be referred to as the response rates of "Civilians Only" and should be considered when analyzing present status responses and certain perceived responses.

The first aspect considered was the initial full-time activity of the withdrawal student after dropping out of the Institute. Twelve percent of the total group immediately continued their education, and seventeen percent of those who were not in the service at the time of response reported this same action (see Tables 4.01 and C-1). These figures certainly did not indicate a tendency of the drop-out to immediately continue his education after withdrawal.

At the time of response to the questionnaire, a period of from one to three years after withdrawal, these percentages of both the "Total" and the "Civilian Only" groups were reported to be 16 percent and 27 percent, respectively (see Tables 4.02 and C-4). These rates were substantiated in question 6 to which the response rates to the item "am now attending college full-time" were also 16 percent for the "Total" group and 28 percent for the "Civilian Only" group (see Tables 4.11A and 4.11B or C-6).

Those dropouts indicating they had received transfer credit represented 8 percent of the "Total" group and 13 percent of the "Civilian" group (see Table 4.05).

These response rates, while indicating that some dropouts were actually continuing their education, indicated that many more had not yet returned even when allowing for those in the armed services.

A somewhat different pattern occurred when the dropout's perceptions and attitudes toward his education were considered. In question 9, the dropout indicated his perception of the effect of his N.H.T.I. experience on his occupational goals as measured in terms of the amount of education required. As shown in Table 4.15, over 60 percent of those responding indicated these goals had been raised, and 37 percent stated their goals remained the same. Similarly, in question 10 (see Table 4.16), in which the dropout indicated his attitude toward technical education itself, 49 percent reported a more favorable attitude, and 30 percent reported no change in attitude.

The responses, then, relative to the dropout's perception of higher education in his life indicate that a considerable majority, indeed, in terms of occupational goals and educational requirements, almost all, felt equal or increased educational needs and expressed equal or more positive attitudes toward higher education after their N.H.T.I. experience than they did prior to this experience.

When considering the dropout's status in and plans for continued education and his first choice of action if he could relive the period during which he attended N.H.T.I., there was further verification of a positive attitude toward higher education.

The dropout stated his plans for or status in higher education in question 6 (see Tables 4.11A and 4.11B). Here, 25 percent of the "Total" group and 38 percent of the "Civilian Only" group reported they were continuing their education on either a full- or a part-time basis. Another 49 percent of the "Total" group, or 34 percent of the "Civilian" group, reported plans to return to college full- or part-time within three years. These totals, then, indicated that 74 percent, or about 3 out of 4, of the entire dropout group and 71 percent of the civilian group ultimately, within three years, would, hopefully, have continued their education.

Similarly, in question 11 (see Table 4.12), 93 percent of the dropouts stated that, if they were to relive the period during which they attended N.H.T.I., they would choose as their first choice to continue their education. The breakdown was: 40 percent would again select a technical program, 14 percent would select a vocational or apprentice program, and 39 percent would, if there were no financial obstacles, select a four-year program.

A subjective evaluation of the data relative to null hypothesis four concerning the dropout's possible alienation from further education then resulted in a somewhat equivocal situation. The actual reported present status in higher education for these dropouts was less than 30 percent, even when only civilians were considered. This was certainly not favorable to acceptance of the hypothesis that dropping out did not mean the end of the road relative to continuing his education.

However, when attitudes toward and plans for continued education were considered, the results were very much in the direction of acceptance of the hypothesis.

An Additional Observation on the Reason for Withdrawal

No clear pattern relating reason for withdrawal to specific future plans, reasons for not returning to N.H.T.I., or present or initial full-time activities appeared to develop in this study. However, whether by chance, by the format involved, or because of actual connection, one relationship seemed to stand out more than some others. This relationship concerned the fact that, consistently, a reasonably large percentage of these dropouts indicated a change of interest or at least direction factor that could explain the reason for their withdrawal. The reason for this may have been related to necessity, but the pattern did seem to deserve attention.

In response to questions 1 and 4, most dropouts indicated that after withdrawal they became occupied in fields other than that in which they were studying. While this could have been related to job availability or effected by the numbers in the service, it was difficult to assume this was universally or near universally true.

In responding to questions 7 and 12 relative to their choice of program if they were to continue their education, about one-quarter indicated they would select quite different or different programs, respectively.

The responses to question 13 (see Tables 4.23 and 4.24) indicated that, regardless of the length of enrollment or the reason for withdrawal, the most common reasons for not choosing to return to N.H.T.I. as their first choice if they could relive their original period at N.H.T.I. were related to curricular or program matters.

It would appear, therefore, that significant additional attention should be devoted to determining more effective and adequate means of (1) assessing each prospective student's interests and capabilities prior to admission or (2) informing each prospective student of the goals and content of the programs. On the other hand, until one or both of these methods can be improved, it may be necessary and important to consider the fact that frequently the dropout learned a lesson concerning his abilities and goals during his brief educational experience.

TABLE 4.23.--Reason Given for Not Selecting N.H.T.I. as the First Choice if the Period at N.H.T.I. Could Be Lived Again - All. (By Length of Enrollment).

Response Categories Reasons for Not Again Selecting N.H.T.I. As A First Choice	Length of N.H.T.I. Enrollment							
	One or Less Terms		Two Terms		Three or More Terms		Total	
	N	%	N	%	N	%	N	%
N.H.T.I. Not the Original First Choice	2	4	3	12	8	17	13	11
Specific Curriculum Desired Not Offered	7	16	3	12	10	22	20	17
No Additional Education Desired	1	2	0	0	0	0	1	1
Program Was Too Easy	1	2	0	0	0	0	1	1
Program Was Too Difficult	7	16	0	0	1	2	8	7
The Institute Faculty Was Unreasonable	0	0	2	8	6	13	8	7
The General Atmosphere	0	0	0	0	0	0	0	0
An Unfriendly Student Body	2	4	2	8	3	7	7	6
Program Wasn't As Expected	12	27	9	36	9	20	30	26
Other**	13**	29	6**	24	9**	20	28**	24
Total	45	100	25	100	46	101*	116	100

Chi-Square: Not computed.
*Due to rounding.
**Most "Other" responses explained they would elect four-year programs.

TABLE 4.24.--Reasons Given for Not Selecting N.H.T.I. as a First Choice if the Period at N.H.T.I. Could Be Lived Again. (By Reason for Withdrawal).

Response Categories Reason for Not Again Selecting N.H.T.I. As A First Choice	Reason for Withdrawal					
	Academic		Other		Total	
	N	%	N	%	N	%
N.H.T.I. Not the Original First Choice	10	11	3	12	13	11
Specific Curriculum Desired Not Available	12	13	8	32	20	17
No Additional Education Desired	1	1	0	0	1	1
Program Was Too Easy	1	1	0	0	1	1
Program Was Too Difficult	6	7	2	8	8	7
The Institute Faculty Was Unreasonable	8	9	0	0	8	7
The General Atmosphere	0	0	0	0	0	0
An Unfriendly Student Body	5	5	2	8	7	6
Program Was Not As Expected	25	27	5	20	30	26
Other**	23	25	5	20	28	24
Total	91	99*	25	100	116	100

Chi-Square: Not computed.
*Due to rounding.
**The responses to "Other" varied with eight specifically mentioning a desire to attend four-year institutions.

If this latter lesson can be effective and valuable, then the educational experience of the dropout will not be as wasteful as we have often thought.

Summary

Seventy-five percent (176) of a sample of 237 dropouts returned completed questionnaires. The responses to these 176 returned questionnaires were analyzed by (1) comparing the response patterns of those enrolled for one or less terms, two terms, or three or more terms on certain questions relating to (a) employment and (b) continued higher education; (2) comparing response patterns on certain questions relating to continued higher education versus the reason for withdrawal; and (3) evaluating the responses on questions relative to determining the student's status in, plans for, and attitudes toward continued higher education.

The chi-square test of statistical significance was applied to the findings on those sets of data tabulated by (1) length of enrollment and (2) reason for withdrawal. Of 16 sets of data, only one was found to have differences of statistical significance at .05. Therefore, the following null hypotheses could not be rejected:

1. The dropout's length of enrollment prior to withdrawal had no relationship to his reported job-related status and attitudes at from one to three years after withdrawal.

2. The dropout's length of enrollment was not related to his status in, plans for, and attitudes toward continuing his education as reported at from one to three years after withdrawal.
3. The reason for withdrawal was not related to the dropout's status in, plans for, and attitudes toward continuing his education as reported at a period of from one to three years after withdrawal.

A fourth hypothesis was subjectively evaluated on the basis of the total response patterns to selected questions relating to status in, attitudes toward, and plans for continued higher education. It was subjectively concluded that, generally, these dropout students had maintained a relatively positive attitude toward and had planned, within three years, to return to higher education.

It was also concluded that, in spite of the failure to reject hypothesis one concerning length of enrollment and employment factors, the dropout, in terms of earnings, was at a very significant economic disadvantage when compared with his classmate who graduated.

CHAPTER V

SUMMARY AND CONCLUSIONS

Summary

The dropout from higher education has been of some concern to college officials and researchers for much of the twentieth century. Studies of the dropouts have generally been efforts to determine means of predicting probable success in college prior to enrollment or to determining how many return to college after withdrawal. However, little or no effort appeared to have been directed to determining what effect, if any, the dropouts themselves later attributed to their "brief" educational experience. The purpose of this study was to determine whether the dropout, in his own estimation, had been affected by his "brief" exposure to post-secondary education at a technical institute.

A questionnaire follow-up study was completed with a group of students who had withdrawn from a two-year post-secondary technical institute. Questionnaire responses were received and analyzed from 176 (75 percent) of a population of 236 students. These students had withdrawn from their program within a period of from one to three and one-half years prior to their receipt of the questionnaire.

The response patterns to applicable questionnaire items were analyzed by various categories, including length of enrollment and reason for withdrawal. Length of enrollment categories of one term or less, two terms, and three or more terms were used for grouping (comparison) purposes. The grouping categories by reason for withdrawal were "Academic," which included both voluntary withdrawal and suspension for academic reasons, and "Other" reasons.

Since 72 (41 percent) of those responding reported being in the armed services, the response patterns of those in the armed services were compared with the patterns for the "civilians." With the exceptions of the obvious and expected differences, the patterns were generally very similar. Based on chi-square tests, only two of eight items tested involved patterns of a statistically significant difference at .05.

Analysis of the data for reliability and validity provided confidence in the data relative to both of these crucial factors.

Four specific hypotheses were considered in the study. In three of these hypotheses, the findings were tested for statistically significant differences using the chi-square test and a significance criterion of .05.

Conclusions

1. The statement that students drop out to accept good paying jobs in the field of their education could be applied to less than 30 percent of this group.
2. No statistically significant differences were found between the dropout's length of enrollment and his reported job-related status and attitudes.
3. These dropouts generally reported that, in their estimation, their educational experience was beneficial.
4. Generally, these dropouts have maintained a positive attitude toward and plan to return within three years to further education.
5. A statistically significant difference was found on only one of four response patterns comparing the dropout's length of enrollment and his reported educationally related status, plans, and attitudes.
6. No statistically significant differences were found between the dropout's reason for withdrawal and his reported educationally related status, plans, and attitudes.
7. While the length of enrollment for these dropouts did not appear to be related to their employment status, it was evident that the dropout's classmates who graduated received substantial

salary and transfer credit benefits over the dropout. Therefore, graduation from these programs appeared to have substantial economic value.

8. The demands and pressures of the selective service and armed services, while not easily measurable, were undoubtedly of some significance during the period in which these dropouts were enrolled.
9. Follow-up studies of withdrawal students can be completed with a reasonable rate of response and with reasonable reliability and validity.
10. The use of the telephone for follow-up purposes in studies such as this may be effective and worthwhile. This may be especially true when the forwarding of mailed materials is important.
11. A follow-up study such as this may provide the needed stimulus or encouragement to move some dropouts to return to educational endeavors.

Recommendations

As a result of the information obtained from this study, the following courses of action appear worthy of consideration:

1. Faculty and staff at N.H.T.I. should continue to be concerned with each student as an individual. However, the deep concern that those

who dropout will, as a result of his or her brief experience, be alienated from further education should be replaced with a constructive concern to assume that the dropout will benefit as much as possible from the experience at N.H.T.I.

2. The exit interview for dropouts should be such that the dropout be made fully aware that the Institute staff is available for continued counseling relative to his future work or educational plans.
3. Additional effort should be devoted to:
   a. Providing adequate pre-admission counseling relative to explaining the content and general makeup of the respective curricula.
   b. Providing more flexibility of choice among curricula early in each program and more electives in the latter parts of each program.
   c. Continuing to assist students with transfer to other institutions when the program in which they are enrolled does not match their interest and/or abilities.
4. Periodic, probably every four or five years, follow-up studies of withdrawal students be conducted with specific objectives of learning how the dropout values his less than two-year

education, what the dropout is doing, and ultimately determining what, if any, changes are needed to assure that every student enrolled has a beneficial educational experience.

5. An institution serving primarily a limited geographic area could frequently (every two or three years) plan an evening or, better still, a full day on-campus program for dropouts. Based on the response rates to this study and to others reported earlier, it appears that a reasonable response to such an event might be forthcoming. Seminar type meetings with faculty and staff during this period would undoubtedly be very enlightening and beneficial to all concerned.
6. Simultaneous follow-up studies of withdrawals and graduates might provide more data relative to similarities and differences between these groups. These findings could well be helpful in counseling and curriculum planning.
7. Further attention should be given to determining the reason so many withdrawal students would, if they could relive the period of their N.H.T.I. experience, elect to attend a four-year college.

8. Orientation programs and classes at N.H.T.I. should be utilized to make available pertinent data to assure that enrolled students understand the economic and transfer advantages of program completion.
9. The use of high school class standing in tenths or a similarly small fraction should replace the use of quarters when attempting to relate this factor and success at N.H.T.I.
10. Based on the readings, including the review of reports from two-year colleges and technical institutes, the following appears to warrant consideration:

    While the evidence concerning the relationship between retention or attrition and socioeconomic factors are reported as equivocal, the fact that the retention rate is so commonly reported to be higher in private institutions than in public institutions seems to warrant further study. This is based on an assumption that, generally, students attending private institutions originate less often, due to high tuition and fees, from lower socioeconomic level families.

Suggestions for Further Study

The following are proposals for possible further study:

1. A study, or studies, similar to this but with more attention devoted to determining:
   a. Whether the student withdrew because he had, in fact, achieved the goals for which he originally enrolled.
   b. Whether the student, in retrospect, felt that his decision to withdraw was, at the time of withdrawal, a correct decision and whether he would again withdraw if he were doing it over, knowing what he now knows.
   c. Why students settled for less than a complete program and if they later stated their decision to withdraw was (a) wise or (b) unwise.
2. A comparison be made of retention rates among technical institutes with many programs, technical institutes with only a few programs, and comprehensive community colleges. This is based on the many withdrawal students in this study indicating that the program in which they enrolled was either not what they really wanted or did not end up being what they had expected. A comprehensive community college should be expected

to show better retention based on the availability of more program options, thereby benefiting those whose interests change.

3. A detailed study of the actual accomplishments of dropouts to more completely determine whether their brief experiences were beneficial in measurable ways.
4. A follow-up study of this or a similar group after a total period of from five to eight years. This, ideally, would provide better information relative to what percentage actually returned to college and to longer range effects and attitudes as to how they then view their educational and dropout experiences.
5. Recent studies of dropouts and of graduates from technical institute and junior college programs be analyzed for consistencies and differences.

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APPENDICES

APPENDIX A

ENTRANCE PROFILES AND RETENTION DATA OF THE POPULATION

TABLE A-1.--Summary of the Characteristics of the Population. Figures in Parenthesis Indicate the Dropout Rate.

Characteristics	1965 Total Class	1965 Dropouts	1966 Total Class	1966 Dropouts
Sex				
Male	195	114(58%)	175	101(58%)
Female	19	10(53%)	20	12(60%)
Total	214	124(58%)	195	113(58%)
By Age				
17-20	189	118(63%)	170	106(62%)
21-25	23	6(26%)	20	7(35%)
26 and Over	2	0(0%)	5	0(0%)
Total	214	124(58%)	195	113(58%)
High School Class Standing by Quarters				
Top	39	14(36%)	43	19(44%)
Second	73	41(56%)	87	52(60%)
Third	72	48(62%)	51	35(69%)
Fourth	24	17(71%)	6	3(50%)
Unknown	6	4(67%)	8	4(50%)
Total	214	124(58%)	195	113(58%)
Veterans	15	3(20%)	15	2(13%)
Previous College	24	12(50%)	21	9(43%)

TABLE A-2.--Student Academic Profiles at Entrance (Electronic Data Processing) N.H.T.I. 1965 and 1966. Figures in Parenthesis Indicate the Dropout Rate.

Characteristics	1965		1966	
	Total Class	Dropouts	Total Class	Dropouts
High School Class Standing				
Top Quarter	12	7(58%)	24	10(42%)
Second Quarter	18	9(50%)	26	15(58%)
Third Quarter	19	11(58%)	7	6(86%)
Fourth Quarter	3	3(100%)	3	1(33%)
Unknown	1	1(100%)	0	0(0%)
Total	53	31(58%)	60	32(53%)
High School Program				
College Preparatory	32	18(56%)	42	22(52%)
Commerical	12	8(67%)	13	9(69%)
General	9	5(56%)	5	1(20%)
Vocational	0	0(0%)	0	0(0%)
Total	53	31(58%)	60	32(53%)
Years of High School Mathematics				
One	10	6(60%)	9	5(56%)
Two	5	4(80%)	9	6(67%)
Three	15	9(60%)	14	7(50%)
Four	23	12(52%)	28	14(50%)
Total	53	31(58%)	60	32(53%)
Entrance (P.A.T.*) Examination Score				
A and B	14	8(57%)	29	15(52%)
C	28	17(61%)	27	16(60%)
D	10	5(50%)	4	1(25%)
Unknown	1	1(100%)	0	0(0%)
Total	53	31(58%)	60	32(53%)

*Programmer Aptitude Test.

TABLE A-3.--Student Academic Profiles at Entrance (Electronic Engineering Technology) N.H.T.I. 1965 and 1966. Figures in Parenthesis Indicate the Dropout Rate.

Characterisitcs	1965 Total Class	1965 Dropouts	1966 Total Class	1966 Dropouts
High School Class Standing				
Top Quarter	17	5(29%)	12	6(50%)
Second Quarter	36	22(61%)	38	24(63%)
Third Quarter	30	17(57%)	26	16(61%)
Fourth Quarter	19	12(63%)	2	1(50%)
Unknown	5	4(80%)	5	3(60%)
Total	107	60(56%)	83	50(60%)
High School Program				
College Preparatory	73	40(55%)	62	37(60%)
Commercial	0	0(0%)	0	0(0%)
General	27	18(67%)	19	11(58%)
Vocational	5	1(20%)	2	2(100%)
G.E.D.	2	1(50%)	0	0(0%)
Total	107	60(56%)	83	50(60%)
Years of High School Mathematics				
Three	52	32(62%)	32	22(69%)
Four	50	27(54%)	43	22(51%)
Other	5	1(20%)	8	6(75%)
Total	107	60(56%)	83	50(60%)

TABLE A-4.--Student Academic Profiles at Entrance (Mechanical Engineering Technology) N.H.T.I. 1965 and 1966. Figures in Parenthesis Indicate the Dropout Rate.

Characteristics	1965		1966	
	Total Class	Dropouts	Total Class	Dropouts
High School Class Standing				
Top Quarter	10	2(20%)	7	3(43%)
Second Quarter	19	10(53%)	23	13(57%)
Third Quarter	23	20(87%)	18	13(72%)
Fourth Quarter	1	1(100%)	1	1(100%)
Unknown	1	0(0%)	3	1(33%)
Total	54	33(61%)	52	31(60%)
High School Program				
College Preparatory	33	23(70%)	44	25(57%)
Commercial	0	0(0%)	0	0(0%)
General	17	7(41%)	7	6(86%)
Vocational	4	3(75%)	1	0(0%)
Total	54	33(61%)	52	31(60%)
Years of High School Mathematics				
Three	24	14(58%)	21	13(62%)
Four	21	13(62%)	26	15(58%)
Other	9	6(67%)	5	3(60%)
Total	54	33(61%)	52	31(60%)

TABLE A-5.--Entrance* Examination Score Profile. Figures in Parenthesis Indicate the Dropout Rate.

Range	Electronic Engineering Technology Students			
	1965		1966	
	Total Class	Dropouts	Total Class	Dropouts
37-55	20	8(40%)	11	9(81%)
30-36	30	13(43%)	25	11(44%)
25-29	19	15(79%)	25	17(68%)
19-24	27	18(67%)	9	8(89%)
0-18	8	5(62%)	6	4(67%)
No Test	3	1(33%)	7	1(14%)
Total	107	60(56%)	83	50(60%)

Range	Mechanical Engineering Technology Students			
	1965		1966	
	Total Class	Dropouts	Total Class	Dropouts
37-55	5	2(40%)	9	6(67%)
30-36	8	3(38%)	23	14(61%)
25-29	15	11(74%)	9	3(33%)
19-24	11	7(64%)	9	7(78%)
0-18	11	7(64%)	2	1(50%)
No Test	4	3(75%)	0	0(0%)
Total	54	33(61%)	52	31(60%)

*The raw score of Parts I, II, and III of the Engineering Physical Science Aptitude Test.

TABLE A-6.--Summary of the Retention and Withdrawal Rates for Those Students Twenty-One Years of Age and Older Entering N.H.T.I. as Freshmen in the Fall of 1965 or 1966. Figures in Parenthesis Indicate the Dropout Rate.

Major	Ages 21-25 Entered	Graduated	Withdrew
EDP	12	6	6(50%)
EET	23	18*	5(22%)
MET	8	6	2(25%)
Total	43	30	13(30%)
	Ages 26 and Over		
	Entered	Graduated	Withdrew
EDP	3	3	0
EET	2	2	0
MET	2	2	0
Total	7	7	0
Total 21 and Over	50	37(74%)	
	21 or Over and a Veteran		
	Entered	Graduated	Withdrew
EDP	7	6	1(14%)
EET	19*	16	3(16%)
MET	3	3	0(0%)
Total	29*	25	4(14%)

*Two of these had graduated at the time of the study but had graduated one year after their respective classes.

TABLE A-7.--A Summary of Retention and Attrition of Students Who Had One or More Terms of College Prior to Entering N.H.T.I. Figures in Parenthesis Indicate the Dropout Rate.

Major	1965 Entered	1965 Graduated	1965 Withdrew
EDP	9	3	6(67%)
EET	12	7	5(42%)
MET	3	2	1(33%)
Total	24	12	12(50%)

	1966 Entered	1966 Graduated	1966 Withdrew
EDP	6	5	1(17%)
EET	10	7*	3(30%)
MET	5	0	5(100%)
Total	21	12*	9(43%)

*Two required three years to graduate.

APPENDIX B

QUESTIONNAIRE, ACCOMPANYING LETTERS, NEWS RELEASE AND RATE OF RETURN INFORMATION

TABLE B-1.--A Tabulation of the Rate of Return of the Questionnaires by Various Categories of Dropout Characteristics. (Percentage Figures Indicate the Rates of Response of the Respective Groups).

Category	Total Returns and Rate of Returns					
	1965 Entrants		1966 Entrants		Total	
	N	%	N	%	N	%
Length of N.H.T.I. Enrollment						
No or one Term	28	62	36	75	64	69
Two Terms	19	68	18	78	37	73
Three or Four Terms	43	86**	32	76	75	82
Total	90	73	86	76	176	75
Reason for Withdrawal						
Academic or Suspension	71	74	61	75	132	74
Other Than Academic or Suspension	19	73	25	78	44	76
Total	90	73	86	76	176	75
N.H.T.I. Curriculum Major						
Electronic Data Processing	20	65	20	63	41	65
Electronic Engineering Technology	47	80	40	80	87	80
Mechanical Engineering Technology	23	70	26	84	48	75
Total	90	73	86	76	176	75
High School Class Standing						
Top Quarter					23	70
Second Quarter					73	78
Third Quarter					61	74
Fourth Quarter					12	60
Unknown					7	88
Total					176	75

TABLE B-1.--Continued

Category	Total Returns and Rate of Returns					
	1965 Entrants		1966 Entrants		Total	
	N	%	N	%	N	%
Miscellaneous Categories						
Previous Military Service					2	40*
Previous College					16	76
Women					17	77

*Lowest rate of return, 2 or 5 = 40 percent.

**Highest categorized rate of return, 43 of 50 = 86 percent.

83 percent (35) of the 42 rates of return were between 65 and 85 percent. Only one of these categories had a rate of return below 60 percent.

NEW HAMPSHIRE TECHNICAL INSTITUTE
Concord, New Hampshire

NEWS RELEASE

For Release Wednesday, March 12, Concord:

Each person who was enrolled as a full-time freshman in 1965 or 1966 at the New Hampshire Technical Institute will be mailed an evaluation questionnaire this week. The theme of this evaluation effort is "Toward Continued Improvement." This is both part of a thorough follow-up and self-evaluation study underway at the Institute and part of a doctoral study. The results will, therefore, be significant both in improving the programs at the Institute and in reflecting in technical institute education on a much broader basis.

Mr. George Strout, Director of the Institute, stated that a major focus of this study is on the student who attended the Institute for less than the full two years. The Director and others on the Institute staff are interested in hearing from every one of these former students whether they attended for only a few weeks, for a few terms, or graduated. In fact, the study will provide useful data for evaluation only if all of these students are fully represented in the responses.

Information provided by this follow-up study will be carefully evaluated and considered as a basis for continued program improvement with the student in mind.

The questionnaire has been carefully planned to use only a short period of the former student's time and yet to provide current and useful information. While each response may be made by use of a check-mark, the former student is invited to add his or her own comments on a number of topics.

Prompt response by each of these former students will be of significant assistance and will lead to an early evaluation of the findings.

-End-

GMS:prs

3/6/69

For further information call or write George M. Strout, Director, New Hampshire Technical Institute, Fan Road, Concord; phone 271-2531.

A Copy of the Letter Mailed with
the Initial Questionnaire

George M. Strout
Director
Phone 271-2531

Alfred L. Fillion
Dean of Admissions
And Instrution

NEW HAMPSHIRE TECHNICAL INSTITUTE

FAN ROAD, CONCORD, N.H. 03301

March 14, 1969

Dear Mr. Stewart:

Your college-related experience as a student at the New Hampshire Technical Institute in Concord and afterward is of interest to us. I am conducting a doctoral study with the hope of learning from you, the former student who did not complete his or her work at the Institute, as much as I can that will enable us to better meet the needs of future students. In fact, in some instances I hope that we may be able to provide programs or information that will assist you.

Your attention to and cooperation in completing the enclosed confidential questionnaire will be appreciated. It has been prepared to be completed in a short time. I should appreciate your attention to this today and your returning it tomorrow in the enclosed return-addressed, postage-paid envelope.

Please feel free to come in for a talk should you desire. I will arrange to be at the Institute at a time mutually convenient to us both should you desire to come in, and would look forward to visiting with you.

Remember, we need your frank answers now to assist us in making decisions.

Yours very truly,

George M. Strout
Director

GMS:cac

Enclosure:

P.S. The confidential questionnaire requires less time to complete than appears from its length. The length is to increase the convenience for you.

A Copy of the Second Letter - First Follow-up Letter

George M. Strout
Director
Phone 271-2531

Alfred L. Fillion
Dean of Admissions
and Instrution

NEW HAMPSHIRE TECHNICAL INSTITUTE

FAN ROAD, CONCORD, N.H. 03301

April 7, 1969

Dear Former NHTI Student:

A questionnaire identical with that enclosed was mailed to you just over two weeks ago. While we have received responses from approximately one-half of the group, we had not received your response as of this mailing.

Your frank and honest response is needed if we are to have a real cross section for evaluation. Remember the information will at no time be associated with you as an individual. Also remember that the information received is part of an evaluation aimed at continued improvement at the Institute.

Therefore, your prompt (this week if possible) completion of the enclosed questionnaire and your returning it in the enclosed postage-paid envelope will be very helpful and appreciated.

Sincerely yours,

George M. Strout
Director

GMS:cac

Enclosure:

A Copy of the Third and Final Follow-Up Letter

George M. Strout
Director
Phone 271-2531

Alfred L. Fillion
Dean of Admissions
and Instruction

NEW HAMPSHIRE TECHNICAL INSTITUTE

FAN ROAD, CONCORD, N.H. 03301

April 24, 1969

Dear Former Student:

More than two of every three former 1965 or 1966 N.H.T.I. freshman students like yourself (non-graduates) have already returned their completed questionnaires. However, yours is still needed to provide an even more complete representation.

Your time, an estimated 30 minutes, and efforts in honestly and frankly completing the enclosed questionnaire will be appreciated and will be very helpful.

This is the last call. I will not bother you again with this matter, but remind you that if we do not have your response, your contribution will be missing.

Very truly yours,

George M. Strout
Director

GMS:prs

Enclosure:

TOWARD CONTINUED IMPROVEMENT

Questionnaire

Your thoughtful and frank responses are requested. They will be significant in providing information that should aid us in improving the programs at the New Hampshire Technical Institute.

ASSURANCE: At no time will your responses be identified with you as an individual. The coded number on the questionnaire is for two purposes: 1) To enable the receptionist to determine who has and who has not answered. This will be done using a report of numbers only returned by the keypunch operator and 2) To allow the keypunch operator, who has no names available and who will open the envelope, to match these responses with already available and similarly coded information.

The data from coded cards will be analyzed by a computer in group form only. Comments will be accumulated and will at no time be identified with any one person.

INSTRUCTIONS:

Please place a check (✓) before the phrase that indicates your personal attitude or status relative to each of the following applicable questions or statements.

1. What was your first full-time assignment after leaving N.H.T.I?
   a)_____ A job in a field similar to your major at N.H.T.I.
   b)_____ A job in a field different from your N.H.T.I. major.
   c)_____ Entered the armed services.
   d)_____ Continued your education at another college.
   e)_____ Other (Please list)_____
   _____

2. Were you satisfied with this first full-time experience after leaving N.H.T.I?
   a)_____ Yes.
   b)_____ No.

3. Have you been unemployed and looking for a job for periods of two successive weeks or more since leaving N.H.T.I?
   a)_____ No.
   b)_____ Yes once.
   c)_____ Yes two or more times.

Please Continue

4. What is your present full-time education or employment status?
   a)_____ A job in a field similar to your major at N.H.T.I.
   b)_____ A job in a field different from you N.H.T.I. major.
   c)_____ Entered the armed services.
   d)_____ Continued your education at another college.
   e)_____ Returned to N.H.T.I.
   f)_____ Other (Please list)_____
   _____

5. Did your education at N.H.T.I. help you (Check each item that applies):
   a)_____ Obtain a job in a field similar to your N.H.T.I. major.
   b)_____ Obtain a job in a different field.
   c)_____ Receive assignment to an armed services school of your choice.
   d)_____ Pass tests leading to a service or apprentice school assignment.
   e)_____ Receive transfer credits to another college.
   f)_____ Broaden your interests.
   g)_____ No help.
   h)_____ Other (Please list) _____
   _____

6. What are your plans for continuing your college education?
   a)_____ No further college education planned.
   b)_____ Plan to return to college full-time within three years.
   c)_____ Plan to return to college part-time within three years.
   d)_____ Am now attending college part-time or taking a correspondence course.
   e)_____ Am now attending college full-time.
   f)_____ Other (Please list) _____
   _____

7. If you are now (or plan to) continuing your college education is it (will it be)?
   a)_____ In the same field as your N.H.T.I. major.
   b)_____ Somewhat different.
   c)_____ Quite different.

8. As a result of your N.H.T.I. education, has your earning capacity:
   a)_____ Remained the same.
   b)_____ Increased.
   c)_____ Decreased.

Please Continue

9. As a result of your experience at N.H.T.I. have your occupational goals been:
   a)_____ Raised in terms of the amount of education required to achieve the goals.
   b)_____ Lowered.
   c)_____ Unchanged.

10. Would you describe your attitude toward technical education as now being:
   a)_____ The same as that held prior to entering N.H.T.I.
   b)_____ More critical.
   c)_____ More favorable.

11. If you could relive the time spent at N.H.T.I., which of the following would you select to do (assume there were no financial obstacles to your selection). (List first and second choices, using 1 for first and 2 for second.)
   a)_____ Attend N.H.T.I. again.
   b)_____ Attend another technical institute.
   c)_____ Attend a vocational institute.
   d)_____ Attend a four-year college.
   e)_____ Attend an apprentice-type program.
   f)_____ Seek full-time employment instead of continuing your education.
   g)_____ Enter the armed services (or remain in if you were a veteran).
   h)_____ Other (Please list) _____
   _____

12. If you checked item (a) as your first choice in number 11 above, would you have selected the same program?
   a)_____ Yes.
   b)_____ No.

13. If you checked any item other than (a) as your first choice in number 11 above, please check the reason you would not choose to attend N.H.T.I. again. (If more than one applies, please list 1, 2, 3 in order of importance.)
   a)_____ It was not your first choice to start with.
   b)_____ The programs did not include a curriculum of real interest to you.
   c)_____ You were not really interested in additional education.
   d)_____ The Institute programs were too easy.
   e)_____ The Institute programs were too difficult.
   f)_____ The Institute faculty and staff were unreasonable.
   g)_____ The Institute student body was unfriendly.
   h)_____ The general atmosphere bothered you.
   i)_____ The program was not what you expected.
   j)_____ Other (Please list) _____
   _____

Please Continue

14. In your estimation was your experience at N.H.T.I.
a)_____ Very beneficial.
b)_____ Of some benefit (Worthwhile).
c)_____ Of little or no benefit.
d)_____ Of negative value.
Comments invited:_____
_____
_____

15. If you are now employed full-time, what is your base pay? (no overtime)
a)_____ Under $4,000 per year.
b)_____ Between $4,000 and $4,999 per year.
c)_____ Between $5,000 and $5,999 per year.
d)_____ Between $6,000 and $6,999 per year.
e)_____ Between $7,000 and $7,999 per year.
f)_____ $8,000 or over per year.

16. Were the general education courses (English, social science, math, physics, accounting)
a)_____ Valuable to you as a person.
b)_____ Valuable to you on your job.
c)_____ Of little or no value.

17. Why did you decide to attend college? (Check the one most applicable reason.)
a)_____ To help assure a creative and challenging job.
b)_____ To help you receive a better salary.
c)_____ To learn more about a subject of interest to you.
d)_____ Your friends were going.
e)_____ Parents or others urged you to go.
f)_____ Other (Please list) _____
_____

18. Why did you select N.H.T.I? (If more than one applies, please list 1,2,3, etc. in order of importance.)
a)_____ Near home.
b)_____ Low cost.
c)_____ Had the program you wanted.
d)_____ Had a good reputation.
e)_____ Only college that would accept you.
f)_____ A friend was to be there.
g)_____ A representative of the Institute spoke to me.
h)_____ Other (Please list) _____
_____

19. You a)_____ were, b)_____ were not satisfied with your education at N.H.T.I.

Please Continue

20. If you were not satisfied with your education at N.H.T.I. which of the following best explains why? (If more than one applies, list 1,2,3, in order of importance)
a)_____ Not enough shop or laboratory time.
b)_____ You selected the wrong program for your interests.
c)_____ The mathematics was too difficult.
d)_____ Courses were too easy.
e)_____ Requirements were too stiff.
f)_____ You just weren't interested.
g)_____ The program had too few elective courses.
h)_____ Other (Please list) _____
_____

21. When you first enrolled at N.H.T.I., would you classify yourself as having been:
a)_____ Confident of your success at N.H.T.I.
b)_____ Uncertain but hopeful.
c)_____ Worried.
d)_____ Didn't really care.

22. Would more financial aid have been of significant assistance to you? (Please note how much more aid you would have needed.)
a)_____ None.
b)_____ Up to $200 a year.
c)_____ $201 to $600 a year.
d)_____ $601 to $1,000 a year.
e)_____ Over $1,000 a year.

23. While attending N.H.T.I., would you say the time you devoted to studying was:
a)_____ Above average for N.H.T.I. students.
b)_____ Average.
c)_____ Below average.
d)_____ Almost none.

24. In your efforts as a student at N.H.T.I., did your parents (family):
a)_____ Encourage you.
b)_____ Remain neutral (show very little interest).
c)_____ Discourage you.
d)_____ Push you too much.

25. While you were at N.H.T.I., were your closest friends (Check only two):
a)_____ Also at N.H.T.I.
b)_____ At another college.
c)_____ Working.
d)_____ In the service.
e)_____ Other (Please list) _____
_____

Please Continue

26. Please check the level of formal education completed by your father or your legal guardian.
a)_____ Less than eighth grade.
b)_____ Eighth grade.
c)_____ Between nine and eleven years.
d)_____ High school graduation.
e)_____ One to three years of college.
f)_____ Four years of college or more.

27. Do you feel that you generally received fair treatment while at N.H.T.I.
a)_____ Yes.
b)_____ No.

28. If you answered no in number 27, please note the reason/s for your response.
a)_____ Grading was too difficult.
b)_____ Faculty was too demanding.
c)_____ Administration was not understanding.
d)_____ Requests for assistance were ignored.
e)_____ Other (Please list) _____
_____

29. How well did your high school background prepare you for the program at N.H.T.I?
a)_____ Very well.
b)_____ Satisfactorily.
c)_____ Poorly.
d)_____ Other (Please list) _____
_____

30. Were you provided with adequate information in high school to enable you to select the college of your choice?
a)_____ Yes, excellent information.
b)_____ Yes, but only fair.
c)_____ No.

31. Would more counseling or other assistance have helped you at N.H.T.I?
a)_____ Yes, by faculty.
b)_____ Yes, by administrators.
c)_____ No, there was adequate counseling.
d)_____ Other (Please list) _____
_____

Please Continue

32. During the majority of the time spent attending N.H.T.I., did you live (please check only one):
a)_____ At home or with relatives.
b)_____ In the dormitory.
c)_____ At the Y.M.C.A. or in a private home in or near Concord.

33. If you normally commuted daily, how far did you drive one way to N.H.T.I?
a)_____ Under 15 miles.
b)_____ 15 - 29 miles.
c)_____ 30 - 44 miles.
d)_____ 45 or more miles.

34. If you commuted, would you have lived in the dormitory had there been room available?
a)_____ Yes.
b)_____ No.

35. If you lived in the dormitory, do you feel that (check each that applies):
a)_____ The hall atmosphere (friendliness) was good.
_____ The hall atmosphere was poor.
b)_____ The hall was too noisy.
_____ The hall condition was conducive to study.
c)_____ You were allowed too much freedom.
_____ You were too restricted.

36. Please list your attitudes toward each of the following courses that you took.

For Each Course Please Check:	One of These				and	One of These		
	Very Good	Good	Poor	Worth-less		Too Diff-cult	Too Easy	Just Right	Boring
English									
Mathematics									
Physics									
Accounting									
Graphics									
Social Science									
Majors									

Other Comments Invited: _____

Please Continue

37. (For those not graduating) The few weeks prior to withdrawing were you:
a)_____ Interested in your academic work.
b)_____ Bored with your academic work.
c)_____ Interested more in matters conflicting with your academic work.

38. (For those not graduating) As you look back, what was the primary reason for your withdrawal (or academic problem)? (If more than one applies, list 1,2,3, etc. in order of importance.)
a)_____ The courses were too difficult.
b)_____ Inadequate high school background.
c)_____ The program was not what you expected.
d)_____ You were pushed into the program by your parents or by someone else.
e)_____ You just didn't study enough.
f)_____ You had to work too many hours a week at an outside job.
g)_____ Unrealistic academic requirements at the Institute.
h)_____ Illness.
i)_____ Inadequate finances.
j)_____ You were not really interested.
k)_____ You did not like the general atmosphere at the Institute.
l)_____ Other (Please list) _____
_____

39. If you withdrew or were suspended from the Institute for academic reasons, which of the following would have contributed most in assisting you to overcome the cause of your difficulty? (If more than one applies, please list them 1,2,3, etc., in order of importance.)
a)_____ A better high-school preparation.
b)_____ More faculty assistance at N.H.T.I.
c)_____ More counseling by the Dean or others in similar positions.
d)_____ A less-demanding course load (fewer courses).
e)_____ More challenging courses.
f)_____ More interest by your parents and/or your friends.
g)_____ The opportunity to transfer to a different program.
h)_____ Better advising prior to entering.
i)_____ Nothing, because I didn't want to continue.
j)_____ A room in the residence hall to save time needed to travel.
k)_____ Other (Please list) _____
_____

Please Continue

Please add any additional comments you feel would be helpful. A letter, personal visit to the Institute, or phone call will be welcomed. I will be happy to call those of you who live in New Hampshire if you would like.

a)_____ I would like to discuss this further by phone.

b)_____ Please call me, _____, at phone number _____.

THANK YOU FOR YOUR COOPERATION

APPENDIX C

RELATIVE RESPONSE RATES OF DROPOUTS WHOSE CURRENT STATUS WAS CIVILIAN OR ARMED SERVICES

TABLE C-1.--The Withdrawals' First Full-Time Activity After N.H.T.I. (By Current* Status - Civilian or Armed Service).

Response Category of First Full-Time Activity After N.H.T.I.	Current* Status					
	Civilian		Service		Total	
	N	%	N	%	N	%
A Job Related to N.H.T.I. Major	32	31	10	14	42	24
A Job Unrelated to N.H.T.I. Major	47	45	17	24	64	36
Entered the Armed Service	6	6	42	58	48	27
Continued Education	18	17	3	4	21	12
Other	1	1	—	—	1	1
Total	104	100	72	100	176	100

Chi-Square: Not computed.
*Status at the time the questionnaire was completed.

TABLE C-2.--The Withdrawals' Reported Satisfaction with Their First Full-Time Activity After N.H.T.I. (By Current* Status - Civilian or Armed Service).

Response Categories of Relative to First Full-Time Activity	Current* Status					
	Civilian		Service		Total	
	N	%	N	%	N	%
Satisfied	51	49	31	43	82	47
Not Satisfied	45	43	39	54	84	48
No Response	8	8	2	3	10	6
Total	104	100	72	100	176	101**

Chi-Square: 1.26537 not significant at .05 on 1 d.f.
*Status at the time the questionnaire was completed.
**Due to rounding.

TABLE C-3.--The Reported Number of Two-Week or More Periods of Unemployment Since Withdrawal. (By Current* Status - Civilian or Armed Service).

Response Categories of Two-Week or More Periods of Unemployment	Current* Status					
	Civilian		Service		Total	
	N	%	N	%	N	%
None	82	79	68	94	150	85
One	9	9	1	1	10	6
Two or More	6	6	2	3	8	5
No Response	7	7	1	1	8	5
Total	104	101**	72	99**	176	101**

Chi-Square: 5.82231 not significant at .05 and 2 d.f. "No Response" not included in test.
*Status at the time the questionnaire was completed.
**Due to rounding.

TABLE C-4.--The Current* Full-Time Activity of the Withdrawal Students. (By Current* Status - Civilian or Armed Service).

Response Categories of Current* Full-Time Activity	Current* Status					
	Civilian		Service		Total	
	N	%	N	%	N	%
A Job Related to N.H.T.I. Major	27	26	0	0	27	15
A Job Unrelated to N.H.T.I. Major	38	37	0	0	38	22
Entered the Armed Service	0	0	72	100	72	41
Continuing Education Full-Time	28	27	0	0	28	16
Other or No Response (Includes Housewife and Unemployed)	11	11	0	0	11	6
Total	104	101**	72	100	176	100

Chi-Square: Not computed.
*Status at the time the questionnaire was completed.
**Due to rounding.

TABLE C-5.--Perceived Assistance of His Technical Education. (By Current* Status - Civilian or Armed Service).

Response Categories of Perceived Value of N.H.T.I. Education	Current* Status					
	Civilian		Service		Total	
	N	%	N	%	N	%
Aided in Obtaining a Job in Major Field Area	30	29	12	17	42	24
Aided in Obtaining a Job in a Field Unrelated to N.H.T.I. Major	9	9	1	1	10	6
Aided in Obtaining a Service or Apprentice School Assignment	15	14	41	57	56	32
Basis of Transfer Credit	14	13	0	0	14	8
Broadened Interest	45	43	23	32	68	39
No Help	23	22	7	10	30	17
Total	104	-	72	-	176**	-

Chi-Square: No chi-square computed.
*Status at the time the questionnaire was completed.
**A multiple response item and percentages will not add to 100 or responses to totals.

TABLE C-6.--The Stated Plans of the Withdrawal Students Relative to Continuing Their Education. (By Current* Status - Civilian or Armed Service).

Response Categories of Plans for Further College Education	Current* Status					
	Civilian		Service		Total	
	N	%	N	%	N	%
None Planned	20	19	7	10	27	15
To Return Full-Time Within Three Years	11	11	37	51	48	27
To Return Part-Time Within Three Years	24	23	15	21	39	22
Now Attending Part-Time	10	10	6	8	16	9
Now Attending Full-Time	29	28	0	0	29	17
Other or No Response (9 were undecided, 5 appeared to be planning apprentice or armed services education).	10	10	7	10	17	10
Total	104	101**	72	100	176	100

Chi-Square: No chi-square computed.
*Status at the time the questionnaire was completed.
**Due to rounding.

TABLE C-7.--Present or Future Major Field Choice of the Returning Withdrawal Student as Compared with His N.H.T.I. Major. (By Current* Status - Civilian or Armed Service).

Response Categories of Present or Future Major Vs. Original N.H.T.I. Major	Current* Status					
	Civilian		Service		Total	
	N	%	N	%	N	%
The Same	31	37	35	54	66	45
Somewhat Different	21	25	19	29	40	27
Quite Different	31	37	11	17	42	28
Total***	83	99**	65	100	148	100

Chi-Square: 7.79231 significant at .05 and 2 d.f.
*Status at the time the questionnaire was completed.
**Due to rounding.
***All withdrawals did not indicate plans to return to college. Therefore, totals will not equal the usual 104, 72, and 176, respectively.

TABLE C-8.--The Withdrawal Students' Perceived Effect of Their Technical Education on Their Earning Capacity. (By Current* Status - Civilian or Armed Service).

Response Categories of Effect of Education on Their Earning Capacity	Current* Status					
	Civilian		Service		Total	
	N	%	N	%	N	%
No Change	48	46	38	53	86	49
Increased	50	48	22	31	72	41
Decreased	0	0	6	8	6	3
No Response	6	6	6	8	12	7
Total	104	100	72	100	176	100

Chi-Square: (With "No Response" omitted) 12.2751 significant at .01 and 2 d.f.
*Status at the time the questionnaire was completed.

TABLE C-9.--Withdrawal Students' Stated Changes in Occupational Goals as a Result of Their N.H.T.I. Experience. (By Current* Status - Civilian or Armed Service).

Response Categories of Changes In Goals	Current* Status					
	Civilian		Service		Total	
	N	%	N	%	N	%
Raised in Terms of the Amount of Education Required	62	60	45	63	107	61
Lowered in Terms of the Amount of Education Required	2	2	0	0	2	1
Unchanged	40	38	24	33	64	36
No Response	0	0	3	4	3	2
Total	104	100	72	100	176	100

Chi-Square: 1.68915 not significant at .05 and 2 d.f.
*Status at the time the questionnaire was completed.

TABLE C-10.--Withdrawal Students' Stated Changes in Attitude Toward Technical Education as a Result of Their Experience at N.H.T.I. (By Current* Status - Civilian or Armed Service).

Response Categories of Attitude Changes	Current* Status					
	Civilian		Service		Total	
	N	%	N	%	N	%
No Change	28	27	24	33	52	30
More Critical	25	24	11	15	36	20
More Favorable	50	48	35	49	85	48
No Response	1	1	2	3	3	2
Total	104	100	72	100	176	100

Chi-Square: 2.18386 not significant at .05 and 2 d.f.
*Status at the time the questionnaire was completed.

TABLE C-11.--The Withdrawals' Current* First Choice of Action if the Period at N.H.T.I. Could Be Lived Again. (By Current* Status - Civilian or Armed Service).

Response Categories of First Choice if Period at N.H.T.I. Could Be Lived Again	Current* Status					
	Civilian		Service		Total	
	N	%	N	%	N	%
Return to N.H.T.I.	31	30	27	38	58	33
Attend Another Technical Institute	4	4	5	7	9	5
Attend a Vocational Institute	7	7	5	7	12	7
Attend a Four-Year College	43	41	23	32	66	38
Attend an Apprentice Program	8	8	4	6	12	7
Seek Full-Time Employment	2	2	1	7	3	2
Enter the Armed Services	2	2	6	8	8	5
Other or No Response	7	7	1	1	8	5
Total	104	101**	72	100	176	102**

Chi-Square: 6.5814 not significant at .05 and 6 d.f.
*Status at the time the questionnaire was completed.
**Due to rounding.

TABLE C-12.--A Comparison of the Original and the Present Choice of Major Field of the Withdrawal Student Who Would Choose to Return to N.H.T.I. (By Current* Status - Civilian or Armed Service).

Response Category of Present Choice Versus Original Choice	Current* Status					
	Civilian		Service		Total	
	N	%	N	%	N	%
The Same	37	74	38	81	75	77
Different	13	26	9	19	22	23
Total	50	100	47	100	97	100

Chi-Square: 0.648943 not significant at .05 and 1 d.f.
*Status at the time the questionnaire was completed.

TABLE C-13.--The Withdrawal Student's Perceived Value of His Technical Education. (By Current* Status - Civilian or Armed Service).

Response Categories of Perceived Value of N.H.T.I. Education	Current* Status					
	Civilian		Service		Total	
	N	%	N	%	N	%
Very Beneficial	37	36	23	32	60	34
Worthwhile	56	54	45	62	101	57
Of Little or Negative Value	10	10	4	6	14	8
No Response	1	1	0	0	1	1
Total	104	101**	72	100	176	100

Chi-Square: 1.59473 not significant at .05 and 2 d.f.
*Status at the time the questionnaire was completed.
**Due to rounding.

APPENDIX D

MISCELLANEOUS TABLES BY REASON FOR WITHDRAWAL

TABLE D-1.--The First Full-Time Activity After N.H.T.I. of All Students Who Withdrew. (By Reason for Withdrawal).

Response Categories of First Full-Time Activity	Reason for Withdrawal					
	Academic		Other		Total	
	N	%	N	%	N	%
Related to N.H.T.I. Major	32	24	10	23	42	24
Unrelated to N.H.T.I. Major	49	37	15	35	64	37
Armed Services	36	27	12	28	48	27
Continued Education	15	11	6	14	21	12
Total	132	99*	43	100	175**	100

Chi-Square: 0.243602 not significant at .05 and 3 d.f.
*Due to rounding.
**One did not respond to this.

TABLE D-2.--The Current* Full-Time Activity of the Withdrawal Students. (By Reason for Withdrawal).

Response Categories of Current* Full-Time Activity	Reason for Withdrawal					
	Academic		Other		Total	
	N	%	N	%	N	%
Related to N.H.T.I. Major	17	14	10	24	27	16
Unrelated to N.H.T.I. Major	31	25	7	17	38	23
Armed Services	57	46	15	37	72	44
Continuing Education	19	15	9	22	28	17
Total	124	100	41	100	165**	100

Chi-Square: 4.40803 not significant at .05 and 3 d.f.
*At the time the questionnaire was completed.
**Those eleven responses to "Other" included two unemployed, three housewives, and other miscellaneous categories.

TABLE D-3.--The Withdrawals' Perceived Assistance of Their Technical Education. (By Reason for Withdrawal).

Response Categories of Perceived Value of N.H.T.I. Education	Reason for Withdrawal					
	Academic		Other		Total	
	N	%	N	%	N	%
Aided in Obtaining a Job in Major Field Area	26	20	16	36	42	24
Aided in Obtaining a Job in Other Than Major Field Area	8	6	2	5	10	6
Aided in Obtaining a Service or Apprentice School Assignment	46	35	10	23	56	32
Basis for Transfer Credit	9	7	5	12	14	8
Broadened Interest	50	38	18	41	68	39
No Help	23	17	7	16	30	17
Total	132	**	44	**	176	**

Chi-Square: 6.04638 not significant at .05 and 5 d.f.
**This was a multiple response item and no column should necessarily add to the total.

APPENDIX E

MISCELLANEOUS TABLES - CIVILIANS ONLY

BY REASON FOR WITHDRAWAL

TABLE E-1.--The Current* Full-Time Activity of the Withdrawal Students - Civilians Only. (By Reason for Withdrawal).

Response Categories of Current* Full-Time Activity	Reason for Withdrawal					
	Academic		Other		Total	
	N	%	N	%	N	%
Related to N.H.T.I. Major	17	23	10	34	27	26
Unrelated to N.H.T.I. Major	31	41	7	24	38	37
Armed Services	--	--	--	--	--	--
Continuing Education	19	25	9	31	28	27
Other	8	11	3	10	11	11
Total	75	100	29	99**	104	101**

Chi-Square: 3.06447 not significant at .05 and 2 d.f.
*At the time the questionnaire was completed.
**Due to rounding.

TABLE E-2.--The Withdrawal's Perceived Assistance of His Technical Education - Current Civilians Only. (By Reason for Withdrawal).

Response Categories of Perceived Value of N.H.T.I. Education	Reason for Withdrawal					
	Academic		Other		Total	
	N	%	N	%	N	%
Aided in Obtaining a Job in Major Field Area	17	23	13	45	30	29
Aided in Obtaining a Job in Other Than Major Field Area	7	9	2	7	9	9
Aided in Obtaining a Service or Apprentice School Assignment	13	17	2	7	15	14
Basis for Transfer Credit	9	12	5	17	14	13
Broadened Interest	32	43	13	45	45	43
No Help	17	23	6	21	23	22
Total	75	**	29	**	104	**

Chi-Square: Not Computed.
**This was a multiple response item, and no column should add to the total.