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ABSTRACT

The purpose of this successful experimental program at the College of San Mateo was to determine whether active participation in an individualized instructional program such as the Learning Center would be related to a lower level of attrition of first-time freshmen who are identified as high probability dropouts. Forty-nine potential dropout students who were actively involved in the Learning Center were compared with forty-nine potential dropouts who received no special treatment. The experimental program was proven effective by both measurable and subjective evaluation. Tutoring by other students was considered the heart of the program, with flexibility the key experimental feature. It is felt that the most important aspect of the Learning Center approach is the integration of individualized academic services with supportive psychological atmostphere and personal counseling. (CA)

KEEPING DROPOUTS IN

Retention of Students Identified as High Probability Dropouts

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A Report
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Preface

This experimental study was made possible by the Small Grant Research program of the Office of Education in the Department of Health, Education and Welfare. We are indebted to Dr. Walter Hirsch of the HEW Regional Office in San Francisco for his flexibility and responsiveness in handling our application.

The experiment was a success. We applied the criteria we proposed to apply and the results were positive. Our findings and our methodology are described in the following report, but a word needs to be said here for our staff. If we can isolate any one factor in the success of our experiment, it was the relationship of the staff to the students. This was crucial. We and the students in the program owe a debt of gratitude to the following people: Robert Howe and Susan Shih, Guidance and Counseling; Austen Meek, Mathematics Division; Lawrence Stringari, Psychological Services; Jean Fredricks, Learning Center Teaching Assistant; and of course, our student tutors. Without them we would not have had any program at all. We are also indebted to several research assistants for their invaluable help: Marie Maddox, Jackie Kelley and Carol Haskin; and to William Dewey for his creative artwork on the cover.

Whatever the methodological limitations of the study, and there are many, we hope this research will contribute to the understanding of how we can reduce entering student attrition. Many contributed to the success of the program; we alone should be judged for the errors of the study.

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Introduction

The California community colleges have historically admitted just about anyone who applied, a practice frequently referred to as the "open-door" policy. With no real restrictions on admission, the community colleges have watched a staggeringly high percentage of students drop out, resulting in a change of the metaphor from "open door" to "revolving door." Trent and Medsker (1967) noted that 49 percent of entering students left college before their second year; 17 percent withdrew during the first year and an additional 32 percent failed to return after that first year.[1] Everyone deplored this phenomenon but no one knew what to do about it. Some argued that in insisting on no entrance requirement we were going to have to accept the fact that many unqualified students would register, and promptly get to work to prove that they were indeed unqualified. Others argued that in order to maintain the community colleges as the Last Chance stations we were going to have to live with the fact that our entering students were often poor risks academically. Only by accepting those poor risks were we going to be able to offer an opportunity to the occasional student capable of taking advantage of that Last Chance. And others of us argued that if we were going to admit students with weak records we had an obligation to provide support for those students; it was wrong as well as wasteful to present them with the traditional 'pass on or flunk out" program. It was this last kind of thinking that led to the development of

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1. James W. Trent and Leland L. Medsker, Beyond High School. Berkeley: Center for Research and Development in Higher Education, 1967. p. 94.

our Learning Center; the Learning Center would be a kind of auxiliary resource for the Last Chance.

A major problem was that of identification of the dropout. Not that he was difficult to recognize· he proclaimed himself clearly; he dropped out. He withdrew from his classes, failed to register for the succeeding term, or just disappeared. He became a statistic and was no longer around as a person to be helped. How to treat a patient who was not even diagnosed until he was terminal? The problem was tackled in 1968 by researchers representing 22 community colleges in Northern California (the NORCAL group); they undertook a three-phased project: (1) Identify and describe characteristics associated with attrition of first-time, full-time community college students; (2) Develop and validate an instrument to identify students likely to drop out; (3) Develop and evaluate programs designed to reduce attrition.

The College of San Mateo, a member of NORCAL, administered a questionnaire developed by NORCAL to 1,884 first-time, full-time students in the Fall of 1969. By weighting responses and combining key questions, the NORCAL group developed discriminant scores for each student, indicating whether or not he had a high probability of attrition. This predictive score was then empirically evaluated; did the student actually drop out? The validity of the questionnaire for the College of San Mateo students was nearly .68 (sixty-eight percent of the students were classified correctly). The predictive validity increases significantly if one takes only those students with extremely high liability scores, as we did in the experiment described below.

Research Design

Armed with a predictive device, we secured a Small Grant Research contract through the San Francisco office of the Department of Health, Education, and Welfare to finance an experimental study. The purpose of the study was to determine whether involvement in an individualized instructional program, the Learning Center, would reduce attrition of first-time freshmen who are identified as high probability dropouts. This action research design was the natural third phase of the NORCAL continuing research.

During the Spring and Summer of 1970, the College of San Mateo administered the NORCAL revised questionnaire (see Appendix A) to over 3,200 first-time students who intended to enroll full-time in the Fall semester, at the same time they took the SCAT for admission and placement. Discriminant scores were developed for all these students, even though it was apparent that not all would actually enroll at the College of San Mateo. As it turned out, 2,488 did actually enroll for the Fall semester, although not all for a full-time load.

Using the list of discriminant scores developed for all 3,200 applicants who filled out the NORCAL questionnaire, 38 percent had positive discriminant scores, indicating a higher likelihood of attrition. Five hundred admissions applicants had discriminant or liability scores of 10 or higher, which put them in the top one-sixth of high attrition liability. These people were identified early so that they could be assigned to a select group of academic counselors, if they actually decided to enroll. The counselors were given a brief description of the Learning Center and the research study. They were then asked to try to convince the specially identified students to enroll for one or two credit hours in the Learning

Center program. Enrollment was absolutely voluntary. The study design had programmed enrollment of 50 of these identified students in the Learning Center along with all other regular students who elected to matriculate there, and 49 actually registered for credit. These 49 students then comprised the experimental group for the study.

From the remainder of the 500 student applicants with discriminant scores of 10 or higher who actually registered each of the experimental sample group was pair-matched with 49 students who did not enroll in the Learning Center. These students comprised the control group in the experimental design. The control and experimental group members were matched in terms of sex, actual discriminant score, number of credit hours enrolled, and type of academic program.

Within controllable limits, it was intended that the major difference between the two groups would be the hopefully positive involvement of the experimental group in the Learning Center. This active association with the Learning Center was the independent variable. This in turn led to the recognition of a key experimental feature: flexibility. Programs would have to meet individual needs; very possibly no two programs would be alike.

The dependent variables included: completion of the first semester; registration for the second semester; completion of a full-time credit load (12 units); attainment of a 2.0 gradepoint average; and maintenance or improvement of the gradepoint average achieved in high school.

The basic hypothesis of the research design was that active participation in the Learning Center would be related to a lower level of attrition. Specifically, it was hypothesized that the experimental group (active in the Learning Center),

as compared to the control group, would have (1) a lower rate of withdrawal prior to completion of the first semester; (2) a higher proportion of students who actually completed a full-time academic load of 12 units or more; (3) a higher rate of continuing registration in the second semester; (4) a higher percent of students who achieved a 2.0 ("C") gradepoint average at the college; (5) a higher proportion of students whose grades were as good as or better than those they received in high school.

No one of the above five specific measures is a singularly adequate index of attrition. Some entering students may withdraw completely the first semester and then register the second semester. Others may be counseled to reduce their academic load significantly by withdrawing from selected courses. Some students may complete the semester with a gradepoint deficiency (less than a C average) which is severe enough to warrant their academic disqualification. Others may complete the first term with a GPA of 2.0 or better, but for other reasons decide not to continue in the second semester. Thus, the question of attrition involves several measurements which will be examined in the results.

The characteristics of the 98 students who formed the research sample can be compared to the characteristics of the 2,488 first-time, full-time students who completed the NORCAL questionnaire.

While the student body of the College of San Mateo is comprised of about 60 percent males and 40 percent females, the male-female ratio was higher in the higher probability dropout sample. Of the 98 students in the experimental and control groups, 78 (about 80%) were male. This corresponds to general findings on attrition that males have a higher dropout probability than females.

Race is another factor associated with attrition. The NORCAL data indicated that blacks, those with Spanish-surnames or other non-whites were more likely to drop out, while orientals were actually less likely. The following table describes the racial composition of the experimental and control groups, and of all entering students (in percent).

Table I - Racial Composition

	Experimental Group	Control Group	Percent of All Entering Students Completing Norcal Questionnaire (N=2,488)
Black	3	5	3.5
Spanish Surname	3	1	4.6
Oriental	-	2	3.9
Other Non-white	2	-	1.4
White	41	41	86.6
Total	49	49	100.0%

In comparison to the total entering group, the experimental and control groups had slightly higher percentages of all racial minorities, except orientals. While this fits the expected pattern, the number of minority students was not as disproportionately high as might have been expected.

The high probability dropout student is young. The median age for students in the experimental and control groups was 18 years. No comparable data is available for all students who completed the NORCAL questionnaire, but Table II shows the age breakdown of the sample groups.

Table II - Ages of High Probability Dropouts

Age	Experimental Group	Control Group	Total
17	1	-	1
18	27	34	61
19	11	11	22
20	4	-	4
21	-	-	-
22	2	-	2
23	1	2	3
24	1	1	2
25 and over	2	1	3
	49	49	98

Two other descriptive characteristics seem to be relevant to the attrition problem. Of all the entering students, 18.7 percent said they would need financial aid to stay in college, and this was viewed as a negative factor associated with attrition. In the experimental group, one student actually received financial aid from the College of San Mateo, while two students in the control group received this assistance. However, most of the students in the experimental group had part-time jobs off campus.

The Experimental Treatment

As mentioned before, the independent variable differentiating the experimental from the control group students was active participation in the Learning Center. The students in the control group received the same treatment as any other entering students at the College. The students in the Learning Center group were offered special assistance, specifically one or more of the following: (1) Special academic counseling; (2) Enrollment in a special guidance

course focusing on study skills; (3) Access to individualized programmed instruction materials; (4) Participation in a reading improvement laboratory; (5) Individual tutoring by student peers; (6) Weekly meetings in groups of ten with the Learning Center Chairman, with instructors from subject areas invited to participate; (7) A physical place to go where they were fully accepted and where learning was the accepted activity. We hoped to get these students to recognize that the skills they already possessed could be put to work in college, recognize what new skills they needed to acquire, and make use of the facilities offered in the supportive atmosphere of the Learning Center, with its recognition that students' problems are not confined to strictly academic areas.

Two criticisms can be made about the experimental treatment; (1) For various reasons which are the fault of no one, the application for the grant was submitted at the last moment, with the result that final approval was also at the last moment, thus precluding much advance planning that would have been advantageous. Faculty and administration of the College devoted vacation time on a "when and if" basis, not conducive to the best kind of long-range planning; (2) The Learning Center itself, the heart of the resources for the experiment, was barely past the planning stage, little more than space and ideas in the minds of a few faculty. As a result we often found ourselves making a program as we were using it.

Each student was personally interviewed and allowed to place himself. No mention was made of any test scores or placement tests. The student was told what the Learning Center had to offer and that he could pick and choose

on the basis of what he thought he needed. The rationale was that the student had to want the assistance, not be assigned to it. The only restriction was that if he wanted one unit of credit he had to commit himself to five hours a week in the Learning Center for a period of eight weeks; if he wanted two units, he had to commit himself to five hours a week for the second eight weeks. If the student did not wish credit he could spend any number of hours in the Learning Center he wished to spend. No significant pattern emerged--some chose credit because they needed the units to be eligible for financial aid, others because they were veterans who had to carry a minimum number of units to receive veteran's benefits, and so on. All were told they could receive help on basic skills such as reading, writing, and mathematics. They could learn more about basic study skills. They could join a weekly discussion group where they might air gripes about teachers, fellow students, the college system, whatever. The groups were completely free. They could discuss matters pertaining to the college or they might discuss matters having nothing to do with the school. They were not encounter groups but rather opportunities to define problems relating to success in school and to find ways the staff and fellow students could be of help.

No two students had the same programs. One had reading improvement two hours a week, discussion group one hour a week, and study skills two hours. Another chose tutoring two hours a week, reading two hours, and discussion one hour. Some chose tutoring exclusively for the first eight weeks, then mixed in other activities for the second eight weeks. Some spent as much as three hours a week on individualized programmed instruction. And a few felt so

insecure about their reading skills that they chose to spend the entire five hours a week in the reading laboratory.

The flexible scheduling was possible through the cooperation of the reading teachers and the study skills instructor. Both reading and study skills are regularly scheduled sections but both employ the laboratory method so that students can choose the full program or parts of it. Flexibility also meant that when a student began to lose interest or felt he was not progressing at a satisfactory rate, we could revamp his schedule on the spot, a process that had unforseen results occasionally; just offering to make up a new program for a student sometimes led him to suggest that he might give his current program another week or two before changing.

We could not attempt to give an accurate picture of the number of students enrolled in any one program at any one time. The only constant here was that the students earning unit credit put in the required minimum of five hours a week. The non-credit students varied from a low of one hour per week to one student who spent an average of three hours per day in the Learning Center.

Forty of the 49 students chose the discussion groups as part of the program. These groups served as means for students to get to know other students, faculty and staff in an informal, unstructured situation, a valuable service for students fresh out of high school, thrust into a large, impersonal institution. Much counseling took place in these groups. Students counseled other students, faculty counseled students, and students counseled faculty.

Tutoring

Tutoring was the very heart of the program. We hired ten student tutors

to work fifteen hours per week each. ring the first weeks the tutors found few students to tutor. Many students were reluctant to admit they needed help; many did not know they needed help until they received the results of their first tests. This early free time was put to good use as professional staff trained tutors and examined problems that came up. This activity paid off later when tutors became swamped and the staff had other demands on time.

Throughout the semester there were weekly tutor meetings at which tutors could present gripes, problems, and suggestions. One outcome of these meetings was the assignment of a member of our Psychological Services staff to the meetings. We had expected to encounter many psychological problems and had assumed that, once trust had been established between a member of the staff and a student, the student could easily be referred to Psychological Services if he needed help in that area. We quickly learned that the logical sequence did not necessarily work. We all had to learn how to make referrals without losing the student; we had to do a little psychological work ourselves; we had to get a psychologist physically present in the Learning Center for those students who flatly refused to go see a "shrink."

The weekly meetings were compulsory for tutors and staff. Every other week we invited those being tutored to join us. Students being tutored were surprisingly eager to evaluate the tutors in a very constructive manner. The meetings were excellent learning experiences for the tutors and they went a long way toward building confidence in those being tutored. The tutors learned they had to be people-oriented first and subject-oriented second, yet they were being paid to help a student succeed in math or history, not being paid

to sit and rap with him for an hour. Trying to communicate to the student that the tutor was interested in him as a human being, that part of that interest lay in helping him succeed academically, that, while the tutor was a good listener, he was not a trained therapist, that he was taskmaster as well as friend--all this was a tall order for the inexperienced tutor. But with only one or two exceptions our tutors did well. They were self-starting, highly motivated, goal-oriented students with excellent GPA's. The students they were tutoring were usually the opposite, a fact which we anticipated but one which the tutors sometimes had difficulty accepting. In a community college the fact that there are no students higher than the sophomore level presents a problem in finding tutors who are, in addition to being good students, mature enough, patient enough, to handle students who appear to be apathetic, disinterested, even hostile. It is difficult for the tutors to understand why such students are even in college. But they learned quickly that often such attitudes are the last defense of the low achiever and that such attitudes can be cracked. The rewards to the tutors were immense as they saw their wards change in attitude and demonstrate ability to achieve. It must be emphasized that the success of a program like that of the Learning Center depends heavily upon the success of the tutors, and their success depends heavily upon the support given by the professional staff.

Results of the Learning Center Treatment

Some of the effects of the Learning Center can be measured; others are more subjective. The measurable results are related to our basic hypothesis

that active participation in the Learning Center would be related to reduced attrition. The more subjective effects have to do with attitudinal changes in the students who persisted.

The first criterion for defining attrition is whether the student actually completes one or more courses, or withdraws completely during the semester. In validating the NORCAL questionnaire in 1969-70, it was found that at the College of San Mateo seven percent of all first-time, full-time students failed to complete even one course during the first semester. Since we were working with high probability dropouts, it was expected that this percentage would be much higher in our sample group. In the experimental group 3 of 49 students failed to complete the first semester. In the control group 7 of 49 students failed to complete the semester.

Table III - Attrition During First Semester*

	Experimental Group	Control Group	Total
Completed Semester	46	42	88
Dropped Out	3	7	10
Total	49	49	98

*Using chi-square, the difference between the experimental and control groups is not statistically significant.

Some students withdraw from most of their classes but manage to complete one or two courses. In some cases, this load reduction may be exactly what is needed to prevent attrition, and the student may be counseled to withdraw from specific courses. The following table indicates the credit hours completed by the sample groups.

Table IV - Credit Hours Completed First Semester*

Credit Hours	Experimental Group	Control Group	Total
12 or more (full-time)	25	18	43
6 to 11.5	16	17	33
Less than 6 (including withdrawals)	8	14	22
Totals	49	49	98

*Not statistically significant

Over half the students in the experimental group actually completed a full-time (12 hours or more) course load, while less than 40 percent of the control group did.

Many students may fail to register for a second term, having completed a certificate vocational program or a more limited academic goal. However, the sample groups were all first-time students and most were enrolled in general education programs. Thus, failure to re-register for the Spring, 1971 term can be construed as attrition.

Table V - Continuing Registration of High Probability Dropouts*

	Experimental Group	Control Group	Total
Registered Fall and Spring	46	35	81
Not Registered in Spring	3	14	17
Total	49	49	98

*Chi Square is statistically significant at the .01 level.

Approximately one-sixth of the total 98 students failed to continue their enrollment at the College of San Mateo for the second semester. Almost five times as many control group versus experimental group students did not come back in the Spring.

Grades are not necessarily an adequate reflection of either knowledge or performance, but they are used universally in higher education as comparative measures of achievement. They at least provide an additional indication of academic success. The high school gradepoint averages of the experimental and control groups were relatively similar, as can be seen in Table VI.

Table VI - High School GPA of High Probability Dropouts

GPA	Experimental	Control	Total
Less than 1.00	--	1	1
1.00 - 1.49	4	4	8
1.50 - 1.99	17	10	27
2.00 - 2.49	12	16	28
2.50 - 2.99	9	11	20
3.00 - 3.49	2	2	4
3.50 - up	--	--	--
No data available	5	5	10
	49	49	98

For their first semester in college, the students identified as having a high probability of attrition received the grades summarized in Table VII.

Table VII - First Term College Gradepoint Averages of High Probability Dropouts

GPA	Experimental	Control	Total
Less than 1.00	---	2	2
1.00 - 1.49	8	6	14
1.50 - 1.99	9	9	18
2.00 - 2.49	20	15	35
2.50 - 2.99	6	8	14
3.00 - 3.49	3	2	5
3.50 - up	--	--	--
Withdrew	3	7	10
	49	49	98

Almost 60 percent of the experimental group in the Learning Center achieved a 2.00 gradepoint average or better. Slightly over 50 percent of the control group, not participating in the Learning Center, achieved a 2.00 GPA or better.

Finally, in comparing achievement in high school to achievement in college, as measured by comparative gradepoint averages, Table VIII indicates the number of students whose gradepoint average rose, fell and remained the same. For purposes of definition a student's GPA remained the same if his college GPA was within .20 (higher or lower) of his high school GPA.

Table VIII - Relation of College GPA to High School GPA of High Probability Dropouts*

College GPA to High School	Experimental	Control	Total
Better	11	7	18
Same	17	12	29
Worse	13	19	32
Dropped Out	3	7	10
No Data on High School	5	4	9
Total	49	49	98

*Using Chi-Square, the difference between experimental and control groups is statistically significant at the .05 level.

The Dropouts

Ten students in the experimental and control groups withdrew prior to the end of the first term. Of those, three came back to register for the second term. A total of seventeen students failed to return for the second term, including seven of the first term withdrawals. Thus, a total of 20 students either withdrew or failed to register again, or both. One question of interest is how these students differ from those in the experimental and control groups who persisted.

While the sample groups were comprised of four males for every female, half of the 20 who withdrew or failed to register again were female. In fact, nearly half of the females in the control and experimental groups were in the dropout category.

Racial minority students did not drop out as much as whites. Sixteen students of the 98 in the experimental and control groups were Black, Spanish surname, Oriental, or other non-white. None of them withdrew during the semester and only two failed to enroll the second semester.

The median age of those who persisted and those who withdrew was 18. However, of the ten students in the sample groups who were over 21, only one withdrew.

Due to lack of time and funds, no follow-up interviews were held with the students in the control group who withdrew or failed to register for the second term. Thus, we have no good data on differences in attitudes or perceptions about the collegiate experience.

Subjective Observations

Daily contact with the students in the experimental group allowed us to observe changes not measured in the attrition data but so striking that they require mention. When first interviewed, the students manifested similarity of appearance and response. They were apathetic, slow to respond, suspicious, even hostile. "Why have I been singled out?" "Why would anyone care if I succeeded?" All had a poor self-image. So often had they been told they were dumb that they believed it, even seemed bent upon proving it. Many of them had enrolled to prove once and for all that they were indeed failures academically. This appeared over and over. A student who had a test coming up would tell us he was going to flunk it. If he did fail the test we heard about it immediately; it was a prophecy fulfilled. If he passed the test nothing was said unless he was asked about it, whereupon he would explain that it was an easy test, the instructor had graded very high, or the student had guessed correctly. This attitude was very frustrating to the tutors and the staff until we realized that it was success, not failure, that threatened these students. We instructed the tutors not to emphasize test results but to praise the student for small accomplishments when the tutor felt he could do so honestly. There was to be nothing lavish--just a comment here and there on an assignment done well. And the staff began making positive comments on behavior not related to academic efforts. A para-professional in the Learning Center who had very close daily contact with

students, began to draw them into the actual operation of the Learning Center, asking them to run an errand, check a machine, monitor some programmed material, and thanking them matter-of-factly when a task was accomplished. As the semester wore on and trust had been established, we were able to begin to refer to the students' self-deprecation in a joking manner, particularly in the discussion groups. When a student admitted he had received a B on a test one of the staff might say, "Hey! Bob snookered Mr. X out of a B. Must have been an easy test." A fellow student might respond, "I thought Mr. X was a hard grader," or, "I got a C--that was no easy test." The subject student was helped to accept his grade as an honest evaluation of his work.

In the early weeks we found that most of our students were unable to distinguish between an evaluation of their work and an evaluation of themselves;an Fgrade in Economics meant to them that they were F students. By the end of the semester it was gratifying to hear some of these students talk about their expected final grades. They had begun to make distinctions. "I'll probably get a C or maybe a B- in History, but I can't do much more than a D in English--I need more help in that subject." The subject and the personality were becoming distinguished; the individual could look at himself as succeeding in this and failing in that without making his earlier judgment that he was failing as a person.

Males greatly outnumbered females in the experimental group, and they demonstrated severe dependency characteristics which were not

apparent in the females. Males complained that their parents treated them like "children," yet, when asked why they continued to live at home, even when they had well-paying jobs, they looked astonished. The idea of living independently had not occurred to them and when it was suggested it was not acted upon. Most of the males who complained about parents were particularly sensitive to their father's attitudes. If a student's father disapproved of his son's attendance at the college it was much more serious to the student than if his mother disapproved. Immaturity often appeared as students failed to keep appointments with tutors, attempted to drop classes they had tired of, made childish demands on the Learning Center staff, constantly tested us. One student came in daily for a week and a half to tell us he was dropping out, "Right now. Today!" By the end of the semester his threats came every two weeks.

It was difficult to give support as needed without at the same time playing the parent role, a trap some of the staff occasionally had to be cautioned against. The staff and the tutors discussed this at length and we achieved some facility in being supportive without allowing ourselves to be manipulated, without allowing the student to develop new dependency patterns. Here the psychologist provided by the Psychological Services section, played an important role.

The feelings the students have towards the system are interesting; they feel resigned to it. They recognize that there is a system but it has never occurred to them that one can learn how a system works and make

that system work for oneself. They see it as some kind of anonymous, faceless, inhuman monster waiting to devour them if they cannot somehow escape. Not function, note, but escape. They began with the feeling that their only salvation was somehow to get out. We tried to teach them, as much as could be done in one semester, how the system worked. For example, if a student had a problem which we of the staff could have taken care of with a phone call, we instead told him which office to go to, whom he should ask for, what he should say, and where he should apply if he did not get satisfaction. At times we actually rehearsed them in what to say, how to act. We invited faculty in to talk informally with groups. Students heard faculty gripes about parts of the system they did not like and how they attempted to handle problems. The president of the college talked informally with one group for over two hours, listened to their gripes, aired some of his own frustrations, and left the students with the feeling that it was possible to cope with the system even if it were not always possible to beat it.

The distrust of the system which many of these students feel can be seen in the difficulty we had in getting them to take attitude tests. We had hoped to administer certain attitudinal measurements at the beginning and end of the experiment in an effort to evaluate changes in attitudes. We told the students that we needed these tests to try out the Learning Center, to see if it made any difference. But they balked. They were willing to take tests in math, English, whatever,

even though they knew they would do poorly. But tests that asked how they felt about the College, teachers' methods, grading systems--no. Skill deficiencies could be blamed on poor high school teaching, faulty eyesight, poor hearing, or whatever. An attitude test was too threatening. Of 49 students, we talked 14 in taking the attitudinal tests. Yet, when we tried again at the end of the semester, we had 30 agree to take the tests, a change we interpreted to mean that the students felt less threatened by the system, more sure of themselves.

At the end of the semester we asked students to come in during final examination week for interviews. We asked them what their experience in the Learning Center had meant to them. The replies ranged far afield; the following are typical:

> The place itself meant so much. When I walked in here someone knew me by name. I felt I belonged.
>
> The tutor's help. I never would have made it without my tutor.
>
> The discussion groups. We talked about real things in there and you guys took me seriously.
>
> The atmosphere around here. I felt I could get some real help if I needed it.

Most of the students indicated that they felt surer of themselves, that the campus did not seem quite so huge and impersonal, the people so cold. Some realized that they had passively accepted programs offered by counselors even when the subjects did not interest them, simply because they were accustomed to taking whatever was offered to them. The Learning Center staff helped these students choose programs

for the spring semester that were more realistic and challenging. The staff and the tutors felt that many of the students in the experimental group had become more independent, more aggressive, more sociable. The dull, apathetic look was gone; they actually looked forward to the new term.

Summary and Conclusions

Using a sample of 98 first-time community college students identified as having a higher than average probability of attrition, this study attempted to associate reduction of attrition with involvement in an experimental instruction-tutorial-counseling program. A stereotype indicates the typical student in our sample group: He lacks academic skills, is threatened by failure, lacks specific goals, does not know how to work within the "system," is poorly motivated. In fact, frequently he does not do anything so positive as "drop out"; he just "goes away," fails to return, often without any formal action whatever.

Half of the sample students were actively involved in the individualized study programs offered through the Learning Center; the other half received no special treatment. Measurable results indicated that the experimental group, involved in the Learning Center, as opposed to the control group, had: fewer withdrawals during the semester; more students who completed a full-time course load; fewer students who failed to register for the second term*; more students who achieved a C average in college and more students

* Statistically significant at the .01 level.

who did as well or better in college as they did in high school.** Subjective evaluation leads us to assert that students involved in the Learning Center learned to accept set-backs without regarding themselves as failures, to accept success as easily as failure, to become less dependent and more confident in themselves. In sum, the experimental treatment seemed to be strongly related to reduced attrition.

However, our experimental sample was small enough as to require application and extension to many times the number of subjects we have included. Reluctant as we are to fall back to the trite recommendation of more research, this is what is needed. Not only should the present treatment be replicated on larger numbers over a longer period of time, but new experiments should be undertaken to ascertain which program aspects of the Learning Center have the strongest effect on reducing attrition. We don't really know if it was the blend of offerings, flexibly adapted to the needs of each student; or whether a specific activity was most responsible for reducing attrition. To find out, more controlled experimentation is required.

From our point of view, probably the most important aspect of the Learning Center approach is the integration of individualized academic services with a supportive psychological atmosphere and personal counseling. For most high probability dropout students, academic

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** Statistically significant at the .05 level.

difficulties cannot be separated from personal problems.

It can be asserted that the success of the Learning Center should be described in terms of a Hawthorne effect; that any special treatment and interest shown in these students will have a positive effect. This may be true. Perhaps the specific programs and activities of the Learning Center are not as important as its very existence. There, students are treated matter-of-factly as though they are expected to remain, finish the term, and register for the next term. A self-fulfilling prophecy is created; students who are expected to succeed generally do so.

APPENDIX A

NORCAL QUESTIONNAIRE

0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9

TEST USED: ACT ____ SAT ____ COOP ____ SCAT ____ OTHER ____

COLLEGE CODE:

0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9

1. WHAT IS YOUR RACE? CAUCASIAN / BLACK / CAUCASIAN (FAR EASTERN) / ORIENTAL / OTHER

2. SEX: MALE / FEMALE

3. WHAT IS YOUR MARITAL STATUS? SINGLE / MARRIED

4. IN THE HOME WHERE YOU GREW UP, WHICH OF THE FOLLOWING BEST DESCRIBES THE JOB OF THE HEAD OF THE FAMILY?

UNEMPLOYED / UNSKILLED / SEMI SKILLED (SOME FORMAL TRAINING PREFERRED) / SKILLED (SOME FORMAL TRAINING PREFERRED) / MANAGERIAL (CONSIDERABLE TRAINING REQUIRED) / PROFESSIONAL

5. IF EMPLOYED, WILL YOU KEEP YOUR JOB WHILE IN COLLEGE? YES / NO / NOT EMPLOYED

6. IS YOUR JOB RELATED TO YOUR COLLEGE MAJOR? YES / NO / NOT EMPLOYED

7. WILL YOU NEED FINANCIAL AID TO REMAIN IN COLLEGE? YES / NO

8. DOES YOUR MOTHER HAVE A JOB OUTSIDE THE HOME? YES, FULL TIME / YES, PART TIME / NO

9. HOW FAR AWAY FROM COLLEGE DO YOU LIVE? 1-5 MILES / 6-10 MILES / 11-15 MILES / 16-20 MILES / OVER 20 MILES

10. HOW DO YOU GET TO THE CAMPUS? OWN CAR / CAR POOL / PUBLIC TRANS / SCHOOL BUS / OTHER

11. HOW LONG DOES IT TAKE YOU TO GET TO CAMPUS? 10 MIN. OR LESS / 10-30 MINUTES / 31-45 MINUTES / 45-60 MINUTES / OVER 60 MINUTES

12. WHAT IS YOUR REASON FOR COMING TO COLLEGE? (MARK ONE CHOICE ONLY)

____	I HAVEN'T REALLY DECIDED YET	____	TO GET A JUNIOR COLLEGE DEGREE ONLY
____	JUST TO TAKE INTERESTING COURSES	____	TO GET A JUNIOR COLLEGE DEGREE AND COMPLETE A VOCATIONAL/TECHNICAL PROGRAM
____	TO COMPLETE ONE OF THE TECHNICAL/VOCATIONAL COURSES	____	TO PREPARE FOR TRANSFER TO ANOTHER INSTITUTION WITH OR WITHOUT AN A.A. DEGREE

13. SOMETIMES PEOPLE ARE UNABLE TO COMPLETE COLLEGE, EVEN THOUGH THEY PLAN TO. IF YOU ARE UNABLE TO FINISH WHAT DO YOU THINK WILL BE THE LIKELIEST OBSTACLE? ACADEMIC / FINANCIAL / MARRIAGE / MOTIVATION / OTHER

14. WE SOMETIMES TURN TO OTHERS FOR ADVICE WHEN WE ARE MAKING PLANS. IF YOU WERE MAKING AN IMPORTANT DECISION NOW, HOW LIKELY IS IT THAT YOU WOULD TURN TO EACH OF THE FOLLOWING:

	NOT VERY LIKELY	MAYBE	LIKELY	VERY LIKELY		NOT VERY LIKELY	MAYBE	LIKELY	VERY LIKELY
NO ONE	____	____	____	____	COUNSELOR	____	____	____	____
FATHER	____	____	____	____	BROTHER/SISTER	____	____	____	____
MOTHER	____	____	____	____	FRIENDS	____	____	____	____
TEACHER	____	____	____	____	OTHER	____	____	____	____

15. WHICH OF THE FOLLOWING PEOPLE WOULD YOU RELY ON MOST FOR ADVICE ABOUT SCHOOL OR JOB PLANS? NO ONE / FATHER / MOTHER / TEACHER / COUNSELOR / BROTHER/SISTER / FRIENDS / OTHER

16. HOW IMPORTANT IS IT TO THE FOLLOWING PEOPLE THAT YOU GO TO COLLEGE?

	NOT VERY IMPT.	SOMEWHAT IMPT.	QUITE IMPT.	EXTREMELY IMPT.
FATHER	____	____	____	____
MOTHER	____	____	____	____
OTHER	____	____	____	____

19. HOW IMPORTANT IS COLLEGE TO YOU PERSONALLY? NOT VERY IMPT. / SOMEWHAT IMPT. / QUITE IMPT. / EXTREMELY IMPT.

20. WHAT IS YOUR MAJOR? (USE THE LIST OF MAJOR CODES ON THE REVERSE SIDE OF THIS PAGE)

0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9

NORCAL CO-OPERATIVE RESEARCH PROJECT

INSTRUCTIONS

[illegible]

[illegible]

Thank you for taking the extra few minutes of your time.

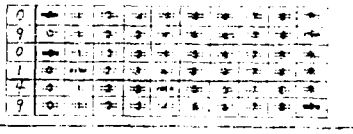
DIRECTIONS FOR ANSWERING QUESTIONS

Please make heavy black marks to indicate your responses to the questions on the [illegible]. Read each question carefully and make the appropriate response in each case. [illegible]

For marking social security number and college major code use the same [illegible] numbers down the page and then mark the spaces corresponding to the numbers. For example, if the student's birthdate, the response would be:

DATE OF BIRTH
Show month, day, year in numbers (Always precede one numbers with zero 01, 02, 09, etc.)

Example: Sept. 1, 1949 would be written as follows: 09 01 49 and marked as shown:



Please select your major from this list and enter the code number of your major in the appropriate blanks. Majors listed represent Associate in Arts or Associate in Science Degree programs (terminal or transfer). In these areas the College offers a sufficient number of courses in the specific field to permit completion of the twenty unit minimum degree requirement for the major.

If you are planning to transfer to a four-year college in any of the following-listed areas of study your degree with an emphasis in one with a major in Liberal Arts. Completion of the general education courses required by the four-year college and the courses offered in the area of study will usually meet the Liberal Arts major requirement.

500 Apprenticeship - this code number should be used for all apprenticeship majors in any field. Do not use the code number of the specific trade area.
515 LIBERAL ARTS NON-TRANSFER (undecided or unlisted major)
01 Accounting
801 Aeronautics
102 Agribusiness

302 Architectural Drafting
520 Art
905 Automotive Mechanics
807 Body and Fender
808 Building Construction Technology

205 Business Administration
208 Business Data Processing
204 Business, General
909 Carpentry
203 Clerical

207 Court Reporting
814 Diesel Mechanics
816 Electrician
817 Electronics Technician
301 Engineering

883 Fire Science (Evening only)
560 Home Economics
561 Home Economics/Child Development
899 Industrial Arts Ed
823 Industrial Drafting

461 Inhalation Therapy
209 Insurance
535 Journalism
210 Legal Secretary
829 Machinist

211 Marketing
620 Mathematics
830 Mechanical Technology
2[illegible] Assistant Secretary
2[illegible] Receptionist (1 yr. non-degree e)

462 Medical Records Technology
213 Medical Secretary
831 Mill Cabinet Maker
580 Music
452 Nursing, RN-AA Degree Program

453 Nursing, Vocational-AS Degree Program
468 preNursing, Licensed Vocational
214 Office Administration
216 Office Machines
888 Police Science

217 Public Administration
542 Radio and Television Repairman
219 Real Estate
220 Receptionist (One yr. non-degree program)
430 Recreational Leadership

833 Reprographics
221 Secretarial Science
834 Sheet Metal Worker
741 Social Science
222 Stenography (One yr. non-degree course)

591 Teacher Aide
223 Technical Secretary
886 Transportation
837 Welding
457 X-Ray Technology

510 LIBERAL ARTS TRANSFER (undecided or unlisted major)
101 Agriculture, General
710 Anthropology
681 preArchitecture
631 Astronomy

610 Biological Science
611 Botany
632 Chemistry
770 Criminology
682 preDentistry

720 Economics
530 English-Literature
683 preForestry
552 French
612 Game Management

730 Geography
640 Geology-Earth Science
553 German
459 Health Education
740 History-Political Science

827 Industrial Technology
786 preLaw
620 Mathematics
455 Medical Laboratory Technology
684 preMedicine

451 preNursing, Registered
614 Oceanography
685 preOptometry
686 prePharmacy
570 Philosophy

420 Physical Education
630 Physical Science
633 Physics
750 Psychology
554 Russian

799 Social Welfare
760 Sociology
551 Spanish
543 Speech
590 preTeaching, Elementary or Secondary

787 preTheology
689 preVeterinary
613 Zoology
010 Evening Courses - Transfer
015 Evening Courses - Non-Transfer
999 Non-Credit Courses