DOCUMENT RESUME

ED 039 879 JC 700 159

AUTHOR MacMillan, Thomas F.
TITLE Norcal Project: Phase II, Final Report.
PUB DATE 1 Jun 70
NOTE 51p.

EDRS PRICE EDRS Price MF-$0.25 HC-$2.65
DESCRIPTORS *Dropout Characteristics, Followup Studies, *Junior Colleges, Low Ability Students, Mexican Americans, Negro Students, Performance Factors, *Prediction, Questionnaires, *Statistical Studies, *Student Characteristics, Student Problems, Withdrawal
IDENTIFIERS *California

ABSTRACT

This is the second report of the Northern California Cooperative Research Project (NORCAL) on student attrition. Part I summarizes the findings of the initial NORCAL report on attrition characteristics (see ED 031 240) and compares them with other community college samples. It also discusses the validation of a predictive model for identifying potential dropouts, and subsequent determination of empirical validity as .65. It concludes with an outline of programs used to meet the special needs of disadvantaged or low-achieving students in California community colleges, including: "block" or "core" course programming, recruitment, and assistance (tutorial, financial, and travel). Part II describes a follow-up study of students in the original NORCAL sample (those who did not drop out during the initial enrollment period) who failed to return for the second enrollment period. Seven hundred fifty students of this non-persisting group responded to a questionnaire in which reasons for not re-enrolling, current activities and plans, and financial needs were assessed. Specific suggestions for follow-up research conclude the study. Cross-tabulation by race and sex is provided throughout most of Parts I and II. A bibliography is included. (JO)

NORCAL PROJECT

PHASE II FINAL REPORT
June 1, 1970

DR. THOMAS F. MacMILLAN
Project Director

SANTA BARBARA CITY COLLEGE

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Dr. Thomas F. MacMillan
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THE NORCAL PROJECT PHASE II REPORT

Chapter 1

Background and Summary of Phase I

The Northern California Cooperative Research Project on Student Attrition (NORCAL), was the result of a summer research institute sponsored by the California Junior College Association in 1966. At that institute, a number of community college researchers received intensive training in the problems of research design, and in the applications of computer technology to the analysis of data.

Following the workshop, groups of community colleges began to share research ideas through informal regional organizations in the two major regions of the state. As the Northern California Research Group continued to develop, it became obvious that a number of the schools would be willing to cooperate the development of a common research proposal. More specifically, Mr. Lee Stevens of the Foothill District proposed that a major project on student attrition be undertaken, with funding from each participating college to be used as matching money for federal grants. Thus, in October, 1967 at Cabrillo College, twenty-two colleges reviewed Stevens' proposal, and the NORCAL Project was essentially on its way.

Defining the Research Approach

A committee of the NORCAL group began to define more specifically the aims of the cooperative project. It was agreed that there should be three general phases: (1) Description - the identification of characteristics associated with attrition during the initial enrollment period; (2) Prediction - the development and validation of a predictive model and; (3) Experimentation - the development and testing of experimental programs to have an impact on attrition. Each phase

of the project was expected to take one year, and each of the cooperating colleges agreed to share part of the cost of the project annually.

Having decided on the topic for research and developed a general design, the next task of the NORCAL committee was to review the literature and decide on a model that might be useful in the prediction of attrition. The two models in the literature which appeared to be most consistent with the assumptions of the NORCAL researchers were those presented by Brown (1962) and Knoell (1964).

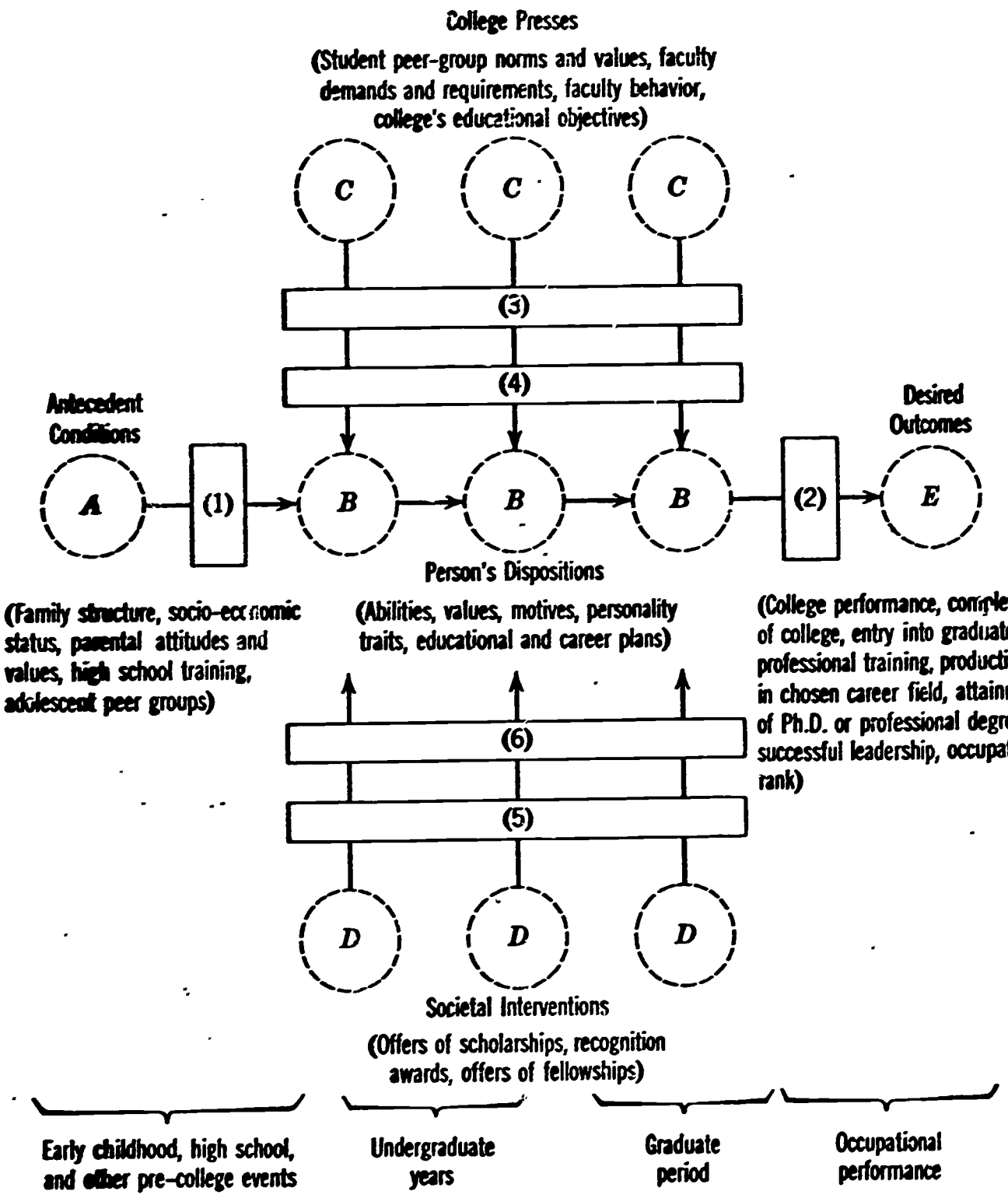
Brown's model, represented graphically below, was developed as part of a project on the intellectually talented student, but it was clear from the multivariate dimensions of the model that an assessment of the "antecedent conditions" and "person's dispositions" would be just meaningful and appropriate if the dependent variable were attrition. The NORCAL researchers recognized that "societal interactions" could not be controlled, and acknowledged that the differing environmental presses in 22 institutions might be reflected in greater or lesser institutional attrition, but the major thrust of the research effort was to be the identification of those antecedent and personal characteristics associated with individual attrition.

Knoell's model was presented as a series of six assumptions about the nature of attrition. The six points were:

1. Individual and institutional attrition are both a function of the interaction of student input ability, interest, age, sex, motivation), the curriculum, methods of instruction, grading and retention standards, intellectual and other "climates", student personnel services, activities, and, finally, outside impinging forces (family, national crises, accidents.)

Table 2

A Model for Studying the Determinants of Intellectually Talented Performance



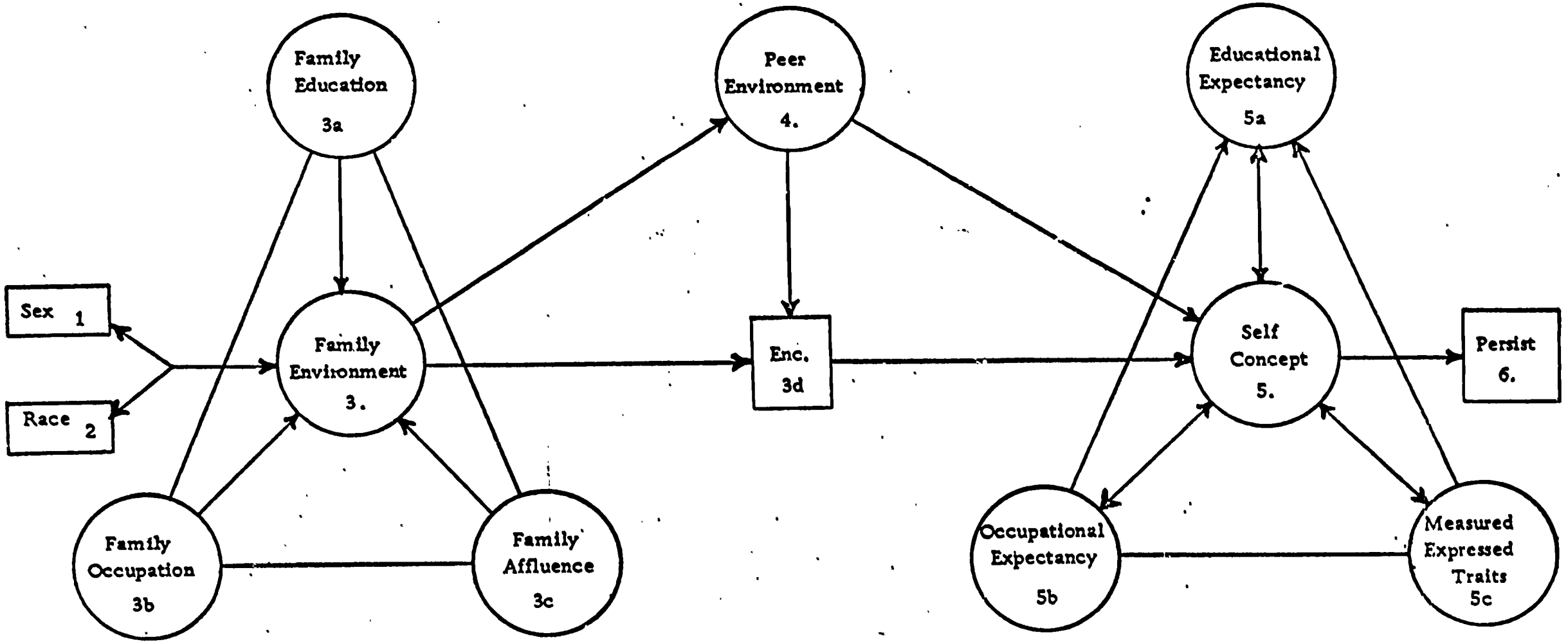
(Reproduced from Technical Report No. 3, December 1959, Research and Studies, National Merit Scholarship Corporation.)

SOURCE: From Donald R. Brown, "Personality, College Environment, and Academic Productivity," in Nevitt Sanford (ed.) The American College (New York: Wiley, 1962), p. 557.

2. While some characteristics of entering students are fixed (or static), others can and should change as a consequence of education and/or maturation.
3. High School graduates enter college with a vast range of goals, aspirations, motivations, and values. Attrition is to be expected among students with each type of motivation (or without any), but for different reasons.
4. Both the causes and the results of attrition on the part of students are usually multiple, although a single incident may serve as a trigger for the drop-out action.
5. The decision to withdraw or persist is not always in the province of the students who are drop-outs. Perhaps no more than half of the drop-outs have freedom of choice.
6. Distinctions must be made among students who interrupt their education, those who terminate it, and those who transfer to other institutions. (1964, pp. 8 - 12)

A more recent model for the prediction of attrition had been developed by MacMillan (1969b), in his doctoral research. MacMillan was selected by the committee to become full-time project director, applying his recent finding on a data base of 22 colleges. The assumptions underlying MacMillan's model were very much like those presented by Knoell; The emphasis in both was upon the interaction of antecedent variables or conditions upon the subsequent persistence of students. Common to both models was the assumption that certain characteristics might be regarded as "fixed" or "static", others might be expected to change as a result of education or maturation. A graphic representation of MacMillan's model is given below.

Table 3: A Tentative Persistence Model



The participating colleges agreed to administer an extensive biographical questionnaire to all full-time entering freshman day students. There were 112 items on the questionnaire, arranged to allow for individual scoring, or, in some cases, as Likert-type scales measuring such factors as "Worry" "Self-Concept" and "Encouragement for College", among others. The complete questionnaire from Phase I is included in this report as Appendix I.

Procedures for Phase I

Three specific steps were taken to implement the purposes of Phase I. They were:

1. Analysis of the NORCAL questionnaire items to identify those individual responses which were non-randomly distributed among community college withdrawals and persisters.
2. Multiple regression analysis of the most potent predictors to derive individual weights for the categorical responses to each item in the instrument that seemed to be associated with persistence status.
3. Development of discriminant scores, using the weights derived in Step 2, and analysis of the distributions of discriminant scores among students who withdrew and a randomly drawn sample of persisters in each participating college.

For the initial step, Pearson's Chi-square test of independence was used, with the acceptable level of significance set at .05. In all, 1,436 students who withdrew during their initial attendance period were compared with 1,436 randomly selected persisters from each institution to create a sample of equal size, and to provide the basis for comparison among persisters and withdrawals.

The second step of the analysis required the use of a categorical regression program to weight the responses to each question. Such a categorical

regression program was developed by Alan B. Wilson at the Survey Research Center, University of California, Berkeley. Wilson summarized his procedure as follows:

> Regression analysis may be readily extended to include nominal categorization by assigning the 'dummy' value of one if an individual belongs to a particular category, and zero if he does not....A regression coefficient is estimated for each category of the nominal variable, with the constraint that their weighted sum shall be zero. (Wilson, 1966, p. 115)

Output from the WLSQ program included the multiple correlation coefficient R, the multiple correlation coefficient squared (a measure of the amount of variance in the dependent variable accounted for by the set of independent variables), partial correlations of each variable with the dependent variable, and both dependent variable unit weights and "normalized" beta weights, calculated on the assumption of a mean of zero and a standard deviation of one in the dependent variable.

The third step was to develop discriminant scores for each individual in the drop-out sample for comparison with the discriminant scores among the randomly selected persisters. The most direct approach to the discriminant analysis was suggested by McNemar (1962), who noted that "we may compute the weighted scores for all N cases and then make distributions for the two groups separately in order to scrutinize the amount of differentiation (or overlap) present" (1962, p. 206).

The three steps in the execution of the Phase I objectives were selected in order to provide maximum information at each step, while at the same time allowing that information to be most easily interpreted by the participating institutions for implementation in Phase II. It was felt that the Chi-square tests of independence would present the data in tabular form to accomplish the greatest ease of interpretation while at the same time, because of the additive

properties of the Chi-square tests or independence would present the data in tabular form to accomplish the greatest ease of interpretation while at the same time, because of the additive properties of the Chi-square statistic, would allow for the combining of a series of individual questions in a Likert-type scale. Thus both individual and accumulated impact of the NORCAL questions could be analyzed most completely. It was also felt that the use of regression weights could be sufficiently clarified and interpreted to make the prediction of individual attrition possible at the counseling office level in each of the participating colleges.

Inter-institutional comparisons were made to evaluate the impact of "environmental press" among the colleges on the rate of attrition in each of the participating institutions. The attrition rate ranged from less than five per cent to more than thirty per cent, providing an adequate basis for comparison and ranking. The statistic used in this adjunctive phase of the study was the Spearman Rank-Difference correlation coefficient. Each institution was ranked on attrition rate and a number of other variables, and Rho was calculated between attrition rate and each of the other variables. While perhaps obvious, the results of the inter-institutional comparison also had the value of providing some significant clues to the most productive approaches in counseling, administration, and curriculum that could be tested experimentally in Phases II and III of the NORCAL project.

Findings of the First Phase: Individual Characteristics Associated with Attrition

The detailed analysis of responses to the 112-item questionnaire has been made elsewhere (MacMillan, 1969b), and it is not appropriate to repeat each finding in their brief summary. Generally, it became apparent that the findings would support those reported in such major reviews of the literature as that offered by Summerskill (1962). It was also obvious that the contribution of

longitudinal studies using extensive biographical questionnaires was indeed valuable, with the Beyond High School study by Trent and Medsker providing a singularly rich source of information.

To illustrate the key variables in the NORCAL predictive model, each one is listed below, with the partial correlation of the variable shown along with each response. The set of variables is derived in part from MacMillan's (1969) doctoral research, and in part from NORCAL data, with the combined set providing the most promising prediction of attrition. In each case, positive weight is associated with attrition; negative with persistence.

Item	Responses	Weights
Sex/Ability (.28)	hi male	.039
	hi female	-.022
	mid male	.022
	mid female	-.107
	low male	.211
	low female	-.082
Importance of College to Me (.29)	N.R.	-.206
	High	-.043
	low	.165
Race (.08)	Cau	.003
	Black	.040
	Oriental	-.091
Major (.17)	undecided	.051
	courses only	.024
	terminal	.040
	transfer	-.054
	other	.022
Parental Support (.22)	N.R.	.013
	low	.037
	mid	.011
	high	-.035

The model developed and applied in the 22 college "NORCAL" research project yielded an acceptable level of prediction: Typically, seven out of ten students could be correctly identified as persisters or drop-outs by assessing the patterns

of their weighted responses to a brief biographical questionnaire, and grouping students by ability and sex. The major findings on the characteristics of potential drop-outs may be generalized as follows:

1. The potential drop-out is likeliest to be Negro; least likely to be oriental.
2. The potential drop-out is likely to come from a family that is less affluent, and is likelier to express greater concern over matters of finance and employment.
3. The potential drop-out is likely to have less perceived parental encouragement for college.
4. The potential drop-out shows a lower sense of importance of college.
5. The potential drop-out is likely to have lower educational aspirations than the persister.
6. Ability is a key factor in the prediction of attrition, when grouped by sex; low ability males are three times likelier to withdraw than low ability females.

The composite pattern clearly contains no surprizes. As the research has continuously suggested, race, ability, affluence and motivation remain the critical factors. It is also clear that the most valnerable to attrition are the low ability, economically disadvantaged, minority students.

The critical difference between the NORCAL study in community colleges and earlier research on attrition was that out of the description findings a model was developed and validated which made it possible to identify, individually, students with high potential to withdraw.

Findings of The First Phase: Institutional Patterns of Attrition

A number of valuable insights were developed in the process of comparing rates of attrition during the initial semester or quarter of attendance among the cooperating colleges. The range of attrition for the twenty-two colleges was

between 3.90% and 21.24%, with the mean falling at 7.47% (S.D. = 4.08).

As institutional patterns of attrition were examined the key variables were again confirmed. The measured ability of withdrawing students was compared with randomly selected persisters. Most commonly used was the ACT test, for which figures were available in seven colleges. The result of the comparison of mean composite ACT scores is presented below.

ACT Composit Scores:
Means for Seven NORCAL Colleges

Group	Mean	S.D.
Persisters	17.42	1.093
Drop-outs	14.83	.993

The "persisters" mean fell at approximately the 41st percentile for Level I institutions (two year colleges), according to ACT Research Reports (1968), while the withdrawing students' mean fell at approximately the 15th percentile.

To assess whether any association existed between institutional rank on attrition and other factors in the twenty-two colleges, Spearman Rank Correlations were computed (McNemar, 1962 . Except where otherwise noted, the ranks were made for nineteen colleges providing the requested additional information. Student/faculty ratios were available for only fourteen colleges; "Proportion of adults in the community with four years or more of college" was reported by twelve of the colleges, as was "racial mix".

Spearman-Rank Correlations (Rho
Of Selected Variables With Attrition
(19 NORCAL Colleges)

1. Ranked Mean Score - all respondents - "Importance of College to Me"

   Rho: .19 (n.s.)

2. Ranked Mean Score - all respondents - "Parental Encouragement for College"

   Rho: .24 (p. .10)

3. Ranked Scores - all respondents - "Proportion of Students Declaring a Transfer Goal"

Rho: 42 (p. .001)

4. Ranked Scores - all respondents - Assessed Valuation Per Unit Of Average Daily Attendance

Rho: .06 (n.s.)

5. Ranked Scores - all respondents - Ratio of Sophomores To Freshment

Rho: 32 (p. .10)

6. Ranked Scores - all respondents - Student Counselor Ratio (as reported in Girdner, 1969)

Rho: .08 (n.s.)

7. Ranked Scores - 14 colleges - Faculty Student Ratio

Rho: .54 (p. 105)

8. Ranked Scores - 12 colleges - Proportion of Adults With 4 Years Of College in the County Served by the College

Rho: .34 (p. .05)

9. Ranked Scores - 12 colleges - Proportion of Caucasians Enrolled (Racial Mix)

Rho: .33 (p. .05)

The figures illustrating an association of ranked attrition with institutional rank on these other variables tended to confirm the importance of the college environment itself as a source of reinforcement for decisions to persist or withdraw. Most striking was the finding that the institution having the highest attrition in the NORCAL study also had the following characteristics: (1) greatest racial mix, (2) smallest proportion of students declaring a "transfer" goal, (3) lowest mean scores for "Parental Encouragement" and "Importance of College to Me", and (4) lowest proportion of sophomores enrolled. That the community college environment provides its own patterns of support or rejection for the potential drop-out is the undeniable evidence of the NORCAL study. For institutions in which the mean percentage of enrolled sophomores

in 1967 - 1968 was 34.29% (AAJC Directory, 1969), these institutional patterns of support or rejection are becoming the object of great scrutiny as planning for the experimental phase of the NORCAL project continues.

FINDINGS OF PHASE II: DESCRIPTION OF THE SAMPLE

One of the values of the Project was the development of a data base built on the responses of entering freshmen to the NORCAL questionnaire. The summary data for 1968 and 1969 are given below, and may provide the basis for comment and comparison with other community college samples. A number of the descriptive findings are discussed below.

Some Statistics on Race, Ability, and Needs

In light of the kinds of claims for serving the entire community that are made for California's public two year colleges, the presence of less than 6% Black and 6% Chicano students in the NORCAL sample may raise some questions about the extension of services to the disadvantaged minority student.

In this context, the recent data in Knoell's (1970) study, indicating that, for Forth Worth, 51% of Black students in any college were in a community college, and for San Francisco, 46% of the Black college students were in the community college, seem to give weight to the assumption of the "open-door" to the minority disadvantaged. The picture of the 22 community colleges in the NORCAL sample is difficult to interpret - each community college may need to investigate the drawing power it holds for minority and disadvantaged students in the local community. It is a rare California community in which the minority population is less than 6 per cent Black or 6 per cent Chicano.

NORCAL SAMPLE DISTRIBUTION
ACT COMPOSITE SCORE BY
RACE (N=8063)

ACT Composite Score	Caucasian		Span.surname		Black		Oriental		Others		No Response	
	n	%	n	%	n	%	n	%	n	%	n	%
0 to 9	297	4.52	43	9.9	24	32.43	10	5.46	21	12.35	59	9.26
10 to 14	1221	18.59	165	38.02	30	40.54	33	18.03	71	41.76	135	21.19
15 to 19	2291	34.89	138	31.79	15	20.27	70	38.21	43	25.29	207	32.49
20 to 24	2012	30.64	72	16.49	5	6.76	52	28.41	28	16.47	182	28.57
25 to 29	704	10.72	15	3.68	0		18	9.01	7	4.13	50	7.84
30 to 34	40	.64	1	.12	0		0		0		4	

Since it is the minority disadvantaged student who is the most likely to be identified as a potential withdrawal, a number of cross tabulations were made to assess the characteristics of these students in community colleges. The most commonly used test among the NORCAL sample was the ACT test of academic aptitude. To illustrate the impact of race on other characteristics, the responses of 8063 students from the ACT colleges were analyzed by race on the variables; ACT score, Importance of College to the self, Need for financial aid, and socio-economic status (father's employment). The tables are given below.

On the ACT, 47.92% of the Chicano, and 72.97% of the Black students in the NORCAL sample scored below a composite score of 15, or roughly below the 33rd percentile. The finding confirms and is amplified by Knoell's data, most dramatic for Dallas, that showed 45% of the Black students with CTMM scores below 90. The criticism of standardized tests as not appropriate for minority students is apparently reflected in the performance of NORCAL college students.

CROSS TABULATION OF IMPORTANCE OF COLLEGE TO SELF BY RACE

Importance		Caucasian	Spanish Sur	Black	Oriental	Other	Row Total
	0.	190	124	13	5	10	8	350
Not Important	1.	3	68	5	2	0	3	81
Some Impt.	2.	48	609	50	4	17	14	742
Very Impt.	3.	163	2363	143	21	64	61	2815
Extreme Impt.	4.	233	3401	223	42	92	84	4075
Column Total		637	6565	434	74	183	170	8063

CROSS TABULATION OF NEED FOR FINANCIAL AID BY RACE

Aid		Caucasian	Spanish Sur	Black	Oriental	Other	Row Total
	0.	227	360	27	7	17	10	648
Yes	1.	87	992	140	35	39	33	1326
No	2.	323	5213	267	32	127	127	6089
Column Total		637	6565	434	74	183	170	8063

CROSS TABULATION OF SOCIOECONOMIC STATUS BY RACE

Socioecon. Status		Caucasian		Spanish Sur	Black	Oriental	Other	Row Total
	0.	195	206	16	2	8	10	437
Unemployed	1.	11	68	13	5	1	6	104
Unskilled	2.	44	420	132	21	27	16	660
Semiskilled	3.	71	899	101	16	46	27	1160
Skilled	4.	130	1869	97	17	43	44	2200
Mgr. Level	5.	150	1772	42	5	38	37	1999
Professional	6.	81	1331	33	8	20	30	1503
Column Total		637	6565	434	74	183	170	8063

On other variables, minority students were not significantly different from others on the variable measuring "importance of College to the self": only 12.67% of the Chicano, and 8.11% of the Black students showed low importance of college. "Need for financial aide" was reported by 32.58% of the Chicano, and 47.29% of the Black students, and low S.E.S., reflected by "unemployed" or "unskilled" head of the household was characteristic of 33.41% of the Chicano and 35.13% of the Black students.

Knoell's conclusion that "new programs and services must be established for the less talented youth, many of whom are the unwitting products of poor public schools in the big cities" is given emphasis by the NORCAL findings (Knoell, 1970; 73) The recent impact of such legislation as the Alquist Bill (SB 164) in California has been to bring into focus the options for "new programs and services" in the community colleges. Along with the legislation, there has been, in the past two years, an increasing awareness and commitment to programs for the disadvantaged. A report to the Coordinating Council for Higher Education on the Educational Opportunity programs in California (Kitano and Miller, 1970) showed that 54% of the responding community colleges felt that those institutions can best serve educationally unprepared students. The responding institutions also felt that support programs (tutorials, counseling, readiness programs, etc.) were essential while student grants (42%) and recruiting (21%) were also emphasized. Strong programs at several of the NORCAL colleges have been in operation during Phase II, and it is likely that the existence of these programs has in itself had an impact on the validation of the model.

Some Other Descriptive Statistics

Since the pattern of responses by entering freshmen appeared to remain relatively constant from 1968 to 1969, some comment can be made about the

students' plans for employment, goals for college, and need for aid may be made. In addition, the responses from questions asked in 1969 only may be noted, since new data were collected on the basis of questions raised in Phase I.

Over 40% of the freshmen, day students in the 22 colleges reported they would continue working, while approximately 45% each year said that the job was unrelated to their college major. Whether or not colleges can become more self-conscious about aiding students to gain employment related to their major is perhaps an unapproachable question. What must be recognized, though, is that the pattern of continuing employment for a substantial proprotion of students makes completing a pattern of 60 units in four semesters unlikely for many community college students; the "stretch out" phenomenon which has long been observed appears to be reflected by the intent of new freshmen.

The goals of community college students appear to be somewhat consistent, with over half of the students declaring transfer intent. Approximately 30% declare intent to take some pattern of two years or less, and the remaining 20% are either unsure or uncommitted to a long-term goal.

Interestingly enough, and probably related to the figures on employment patterns, there were over 70% of the students in the two samples who reported no need for financial aid. The small decrease in this response, and the increase in the number of minority respondents may be related in part to improved recruiting or support programs for the disadvantaged. While not yet significant, it may be interesting to observe the trend in these responses over a longer period of time.

Among the new questions in 1969 were included "Mothers employment status" and "significant source of advice". Perhaps reflecting the times, 46.57% of the students reported that their mothers were employed with 32.12% employed full-time. This variable had been of some use in prediction of attrition among metropolitan

community college students (MacMillan, 1969), but a model containing the weighted responses to this question proved unworkable in Phase II, since mother's employment was as likely to be reported in the affluent suburbs as in the inner city.

Of interest to Deans of Student Personnel was the response on the question "which of the following people would you rely on most for advice about school or job plans?" Almost forty per cent (39.73%) of the respondents would turn to a counselor, with father (22.37%) and mother (9.23%) being second and third in preference. The importance of this finding for experimental counseling programs should be emphasized if it is to counselors that students turn, then under what conditions are counselor likeliest to be seen as most available, helpful, and responsive?

The Validation of the Model

Discriminant Scores

The Phase II discriminant scores were developed by combining responses and weights from the Phase I questionnaire with responses and weights derived from the same computer analysis program, but developed independently as part of MacMillan's doctoral research (1969). The empirical validity of MacMillan's model was tested on a sample of Laney and Merritt college students in 1968. An empirical validity of .79 was obtained for the Laney-Merritt sample. MacMillan had used the Omnibus Personality Inventory, and had used several questions which were not shown to be effective under the differing sampling conditions of the NORCAL Project. It was decided on strictly empirical grounds that the best predictors from MacMillan's study would be combined with the best predictors from the NORCAL study, and that several discriminant scores would be derived for each student, in search of the most effective eclectic model.

NORCAL VALIDATION

College	Test Used	WD Yes	Persist Yes	WD No	Persist No	Valid
American River College	ACT	27	1469	30	722	.665
Butte College	None	17	145	29	104	.549
Cabrillo College	ACT	0	226	1	62	.782
Chabot College	ACT	16	208	31	45	.746
City College of San Francisco	SCAT	78	566	80	282	.640
College of San Mateo	SCAT	40	1070	38	492	.677
College of the Sequoias	ACT	33	638	40	286	.312
Contra Costa College	COOP	13	111	2	103	.541
DeAnza College	ACT	26	629	36	314	.652
Diablo Valley College	None	27	640	67	243	.683
Foothill College	ACT	18	549	20	199	.721
Laney College	SCAT	34	234	37	165	.570
Merced College	None	15	78	13	44	.620
Merritt College	SCAT	13	191	21	80	.668
Monterey Peninsula	COOP	36	359	28	204	.629
Napa College	ACT	19	272	21	130	.658
Ohlone College	ACT	4	90	3	34	.717
Porterville College	ACT	14	214	10	139	.604
San Joaquin Delta	None	79	1135	95	478	.679
San Jose City College	COOP	55	546	74	385	.567
Sierra College	ACT	11	589	13	287	.666
Yuba College	ACT	38	216	22	191	.544
		613	9816	711	5348	

TOTAL = .65
ACT = .67
SCAT = .65

COOP = .59
none = .67

WD Only = .46
Persist Only .67

The total number of variables used in the three discriminant scores was 9: ability-sex, race, need for aid, mother's employment status, goal for college, obstacle to college, significant source of advice, parental encouragement for colleges, and importance of college to the self.

The most effective combination of weighted responses was found in the set including the following:

Item	Responses	Weights
Sex/Ability (.28)	hi male	.039
	hi female	-.022
	mid male	.022
	mid female	-.107
	low male	.211
	low female	-.082
Importance of College to Me (.29)	N.R.	.008
	High	.037
	low	.165
Race (.08)	Cau	.003
	Black	.040
	Oriental	-.091
Major (.17)	undecided	.051
	courses only	.034
	terminal	.040
	transfer	-.054
	other	.022
Parental Support (.22)	low	.031
	high	-.037

To illustrate the way the model would identify individual students, a maximum possible plus score (high drop-out potential) would be achieved by a low ability Black male student who is undecided about his major, feels that college is of low importance, and has low parental encouragement for college (Score = 49.8). In contrast, the highest possible minus score (persistence) would be achieved by a mid-ability oriental female with a transfer goal and high personal and parental value for college (Score = -33.2)

The overall empirical validity of the model was .65 (sixty-five percent of the students were classified correctly.) For all colleges where the ACT test was used, the empirical validity was .67, and it might have been higher except for the apparent deviation in the distribution of scores by racial and ethnic minority students. College of the Sequoias, for example, attracted more Chicano students to the campus, but the distribution of ACT scores for this group of students may have caused more Chicano students to appear to be low ability, and thus more vulnerable to attrition. It is, perhaps, worth noting that none of the ACT colleges were in metropolitan, minority impact areas.

Another historical factor which may have had an impact on the empirical validity was the development of extended opportunity programs under recent legislation. A strong program at San Jose, Monterey Peninsula, San Joaquin Delta or Contra Costa College, for example, may have resulted in the identification of the minority disadvantaged for special treatment or attention. Since the study was conducted prior to the awarding of Alquist grants, the impact of new programs at other colleges could not be assessed. The four colleges mentioned have achieved state wide recognition for programs offering tutorial and support services to students, and in each case the programs were offered during the fall, 1969. The question may legitimately be raised whether the presence of experimental treatments in some colleges may have had an adverse effect on the validation process. It may well be that the model is adequate to identify students with academic liabilities, and that there were colleges whose programs and services were encountering these liabilities effectiveness of the model was less than desirable, the patterns of effectiveness in specific institutions may make the model sufficiently useful to be pursued as the basis for further experimentation. Given the weakness of the empirical validity of the model for withdrawing students (only about half accurately identified), it would appear that random assignment to experimental treatment

would be the sine qua non of further explorations with the model. While it cannot be denied that students with high positive scores have clearly greater liabilities than others, it cannot at the same time be asserted that all students with some liabilities withdraw from college. To illustrate, the low ability Black male will always have "liability" score, even if every other characteristic is positive. The lowest possible score such a student could achieve would be +11.7, but with sufficient motivation and support, a great number of students persist in college. By the same token, a mid-ability oriental female would have to have every other response weighted positively to be identified as a potential dropout.

The central point may be this--that assignment to experimental treatment programs during Phase III seems reasonable only under two conditions: 1) random assignment to experimental or control condition, and 2) assignment for research purposes of only those students with plus (liability) scores above 10. Every piece of evidence suggests that the discriminant scores decrease in their effectiveness as they approach zero. By researching attrition among only those students with exceptional liabilities, and by rigorously standing by random selections and assignment, it would appear that a reasonable evaluation could be made of the programs designed to meet the needs of potential dropouts.

If the roots of academic disadvantage are acknowledge to be deep, the approaches to dealing with the potential drop-out must abviously be broadly conceived and multi-faceted enough to touch upon the greatest number of liabilities among the disadvantaged, and to provide answers in the form of programs developed specifically to allow the student to recognize and deal with each of these liabilities.

A number of possible approaches to working with the potential drop-out have been evaluated, and a number of conclusions reached, despite the obvious lack of self-conscious or thorough research in the field generally. In a major review, Rouche evaluated five programs for low achieving students. In his conclusion, Roueche strongly noted that "available research will not support the contention that junior colleges offer programs that in fact remedy student deficiences." (Roueche, 1968; p. 47) He further concludes, "it is obvious that two-year colleges are going to have to accept the challenge of student learning as the one criterion for success in any remedial program." (Roueche, 1968; p. 51)

It would appear that a broader analysis of the intent and potential of programs must be the basis for further developments in meeting the special needs of disadvantaged or low achieving students. A number of programs in California Community Colleges have been undertaken with clear intent, comprehensive planning for evaluation, and competent, committed leadership. The various phases of these programs seem to emphasize, without being limited to, the following activities:

1) Recruitment
2) Diagnostic or Evaluative Testing
3) Special "Block" Program emphasis
4) Tutorial assistance
5) Financial Aids
6) Counseling
7) Transportation

Each of these activities were included, in the most comprehensive programs, with appropriate evaluative criteria set in each case to measure the accomplishment of clear objectives. The features of a number of the programs in California are presented below as background to the formulation of a set of objectives for meeting the needs of the potential drop-out.

Programs with Potential: The Block Approach

In the Spring of 1964, Los Angeles City College, embarked upon an experimental project with seven specific objectives:

1. to obtain maximum social, psychological, and educational information concerning "low ability" students,
2. to identify measurable or observable characteristics of the student that will aid in predicting college success,
3. to improve communications skills of the student,
4. to aid the student in knowing himself better - his interest, apptitudes, abilities, and limitations,
5. to increase the student's knowledge of vocational opportunities,
6. to aid the student in formulating educational and vocational goals consistent with his abilities and interests,
7. to identify teaching and counseling methods that may be effective in dealing with 'low ability' students (powell, 1966; p.5)

Students enrolling in the special program were tested extensively, with the following results for an experimental group of sixty low ability students:

1. Scholastic aptitude in verbal, quantitative and non-verbal abstract reasoning when measured under timed conditions compares with that of the lowest 10 - 20% of the general college population. When time restrictions are removed, the scholastic aptitude distributions approximate that of the comparison group on a timed basis.
2. Average achievement level in basic skill areas of phonics, grammar, usage, vocabulary, reading comprehension (timed and untimed), listening and lecture comprehension is comparable to that of the lowest 5-15% of the general and college population.

3. Need patterns for the group indicate that, relative to national norms, they tend to defer to others; want things well ordered, feel inadequate, stick with things, and like variety. They tend to have little concern over interest in the opposite sex or in being regarded as a leader. Males do not tend to be strongly achievement oriented, females tend to be aggressive.
4. Value patterns indicate that both experimental group and comparison group have an above (national) average concern for humanitarian values, and below average concern for practical material values . . .
5. . . . Experimental group males tend to have above average interests in social service, clerical, literary, artistics, and musical activities, while their below average interests are in outdoor and mechanical activities. (Gold, 1964; p.3)

Of specific interest here is the final paragraph above which suggests that the concerns of the low ability students are in areas that are common to students of higher ability as well. Thus a curriculum which offered only a greater range of "Technical - Vocational" programs in such areas as Machine Technology would miss the needs of the students, contrary to what is often assumed to be the case. The real question underlying the LACC program was whether such students could persist in college long enough to develop the necessary skills to compete in a regular transfer-oriented curriculm, or whether curricula could be developed at the two-year level to make it possible for these students, if they persisted, to get training appropriate to their interests.

Another aspect of the studies at Los Angeles City College was reflected in this conclusion:

> The need pattern of this group indicates potential conflict with the college milieu. Successful performance in college depends on students already having achieved to some degree (a) a sense of independence, (b) self-discipline, (c) personal responsibility for organizing his own activities and goals, and (d) desire to do his best in order to fulfill his potential. This is in strong contrast with the group's above average need to have things well planned for them, to feel inferior and inadequate, and to fail to take on leadership roles. (Gold, 1964; p.4)

What was called for, then, was a totally involving educational experience, the major function of which was not to transmit a certain fixed body of knowledge, but to create the kinds of personal characteristics that would enable the student to formulate his own goals, select his own alternative courses of study, and determine what content was relevant for him to learn.

The efficacy of a "block" program such as that provided by Los Angeles City College was illustrated in early follow-up studies made by the student personnel office.

> Evidence of the value of special "block" or "core" programs for the "low ability" student is indicated by (a) generally favorable attitude toward the school, faculty, and program, (b) a general personal attitude that "Someone cares", (c) the 2:1 ratio of retention into the third semester in favor of the "block" approach over a limited list of courses from which to choose, (d) better GPA performance over a year's time and a 3:1 advantage of the block group in numbers of students with a cumulative 'C' or better after one year (about 20% of the original block enrollment to about 5% of original comparable group), (e) results showing that those of the block control group students completing one year . . . do better

> than the controls--even though the controls and block students perform in a similar fashion during the first semester. (Young, 1966; p. 88)

The findings at Los Angeles City College seem to present a strong case for the "block" approach to providing opportunity for low ability students. Of particular interest is the evidence of performance and persistence among the "block" students. Similar findings on persistence have been reported by Catherine Farley at Merritt College: 23% more students in an experimental "block" group persisted through more than two quarters, while 22% fewer experimental "block" students failed to return after their initial enrollment in the program (Farley, 1968; p. 14)

The College Readiness Program at College of San Mateo is another example of the "block" approach to meeting the special needs of students. Designed specifically for students of color, the qualifications for admission were: The candidate had to (1) be a person of color; (2) be poor; (3) have a high school grade average below C; (4) test badly; and (5) say in the first interview that he was not interested in going to college. (Lopate, 1969; p. 6)

It is important to recognize that the early success of the CRP was a function of a three-pronged approach to the needs of specially recruited students: (1) Financial Aids; (2) Counseling; (3) Academic Preparation. During the summer preceeding regular enrollment, students spent the days as follows: attending a regular three-unit academic course (social sciences, humanities) for one hour and a half; attending a one hour English course; one hour of counseling; an hour lunch break; three hours of work each afternoon under work study; one hour dinner break at 6:00 p.m.; three hours of tutoring from 7:00 to 10:00 p.m. (Lopate, p. 7) Clearly the commitment of both the

institution and the students in the CRP was quite totally involving and multi-faceted.

Another important aspect of the CSM experience was the recognition that the special needs of students also included the need for transportation, even to the extent that when students missed a special district bus to the campus in the morning "tutors went out in cars to pick them up" during the first critical weeks of the summer program.

The same kind of experience was reported at Diablo Valley College. The need for transportation was again acknowledged as primary, and students regarded the availability of transportation as a major factor in their persistence in a special program at DVC. (

The DVC program was very similar to the CSM program in its summer readiness phase. Again, the block was required, and there was evidence of strong commitments by students and staff. The specific design of DVC's summer program was as follows: There were 16 hours per week in class (four hours daily Monday through Thursday), or 96 hours for the six week session. The course assignments were:

Communications 115 (Reading and Writing Lab)	1 unit
Business 100 (Business Education and Typing)	1 unit
Social Science	1 unit
Humanities	1 unit
	4 units total

According to the report by Martin Olavarri, "The rationale for Business 100

was that minority students needed to become familiar with the offerings of business, and to see the relationship between business attitudes and successful living in modern society." (Olavarri, p. 9)

Each Friday, students were taken on field trips throughout the Bay area including: "A tour of the DeYoung Museum to complement the Humanities offering: a theater presentation in San Francisco in connection with the Communication class; Tilden Park provided an excellent opportunity to relate the concern of the business world to recreation; and the field trip to Marinez provided a first hand look at county government." (Olavarri, p. 10)

The value of a summer block program, particularly if it follows immediately upon an intensive recruiting effort, and is supplemented by financial aids and services (e.g., tutorial and transportation services), is clearly illustrated in the cases of CSM and DVC.

The value of continuing the block approach into the regular academic year for at least one semester, and again with the clear commitment to providing tutorial assistance, financial aid and services to students, is clearly demonstrated in reports from Los Angeles City College and Merritt College.

Programs with Potential: Tutorial Aid

The use of tutors as study partners for the students in special programs usually on a one-to-one or one-to-two ratio, was part of the program at Merritt, College of San Mateo, and Diablo Valley College. Evaluations of Tutorial programs have also been reported from Contra Costa College and San Joaquin Delta College. An intensive evaluation of the Delta program is now being conducted by Dr. James Keene. Although not yet published, some of his findings were most impressive. Keen's research reported that the students receiving

tutoring and special "college opportunity" program treatment during the summer of 1969 also performed well in their academic courses: the total group enrolled in over 400 hours of regular college credit courses and achieved better than a 2.50 average for all courses attempted (Keene, 1969). Other tutorial programs have been evaluated at Merritt College and at Contra Costa College, with generally similar findings in each case.

The Merritt evaluation (Thompson, 1968) was based on responses to a questionnaire administered to all students who received tutorial assistance, and in general indicated the tutees' sense of increased knowledge in the subject matter, and in the achievement of higher grade point averages in the classes in which tutoring had been given (95% of the tutees reported an increase in grades.)

At Contra Costa College, a tutorial program partially funded by a $1,000 grant from the Associated Students in the Fall of 1968, and utilizing fourteen students employed under the College Work Study Program as tutors operated as a supplement to the traditional remedial offerings in the curriculum. (Contra Costa College, 1969).

The value of the Tutorial service opportunity has not been universally acclaimed. Frank Pearce (December, 1968) had some words of caution when he reported that "a majority of the students, tutors, and tutor supervisors who were new freshmen earned less than 2.0 grade point average." (Pearce, 1968, p. 11) "One cannot help but ask," Pearce noted, "if students are unable to maintain some acceptable grade point average, should they continue to tutor other students?" It is at once evident that tutorial assistance, on as nearly

a one-to-one basis as possible, may have a positive effect on the performance of low ability students, and that the need for extensive planning and integration of the tutorial opportunity with existing curricular options on the campus is critical.

Programs with Potential: Counseling

A number of studies have recently shown that the impact of college may be minimal on the values, attitudes and personalities of students. Perhaps most incisive was the research by Plant and Telford, which reported that "many of the changes atrributed by others to the collegiate experience may be no more than developmental changes underway in young people who aspire to college, whether or not they attend." (Plant and Telford, 1966; p. 34) Coupled with the somewhat less than encouraging conclusions of Bloom on the possibility of change is his Stability and Change in Human Characteristics (1964, one must be impressed by two things as he ponders the dilemma of providing counseling services for potential drop-outs: (1) how little time there is for introducing positive change in the patterns and attitudes of the potential drop-out.

There is some evidence, and a great sense of conviction, about the potential of emerging group techniques as an instrument of change. Carl Rogers states the position philosophically thus:

> . . . change must be self-directed, self chosen . . . whether for the individual, the group, the organization, or the body politic; change must not be imposed on schools or their members. An effective instrument of the self-directed change in persons, in groups, and in organizations does exist. This instrument is the intensive group experience, often called the basic

> encountergroup, is a significant means of freeing an educational system so that it can become involved in self-directed changingness - a continuing process of alteration and revitalization of the organization and the persons who make up that organization. (Rogers, 1968; p. 120)

Empirical evidence of the impact of the group experience on community college students also exists. In a dissertation by Jerry L. Warren (1967) the effects of required group counseling on the self-perceptions of students who had been suspended from college and subsequently readmitted were studied. Warren utilized a Q-sort technique to assess the differences between "perceived self" and "ideal self" in an experimental group of students. After group counseling; changes in discrepancy between perceived and ideal self showed a pattern of greater congruence among the experimental group students. Following intensive group work and a program of study skills development for fifty-two experimental subjects, all of whom had cumulative GPA's under 1.85, significant (.01) changes in the GPA were found to emerge (Roth, et. a., 1967; p. 393-398)

An extension of group techniques to the classroom has also been shown to have an impact on student performance. In a report of a Ford Foundation Project for innovation conducted in conjunction with the Esalen Institute, George I. Brown (1968) reported most impressive changes in the attitudes of teachers who learned some of the impact of group processes for themselves. One teacher reported gains for his students in five significant areas: (1) better cognitive learning; (2) heightened motivation and responsiveness; (3) greater appreciation of self, nature, others, feelings, etc.; (4) greater responsibility in students, and; (5) decreased desire and interest in artificial stimulants or depressants (Brown, 1968; p. VI-4)

At the college level, there is also evidence of the impact of group approaches to the instructional process. Pressman and Stith (1969), two graduate students teaching a course in Public Administration at the University of California, Berkeley, utilized "T-group" techniques with the students enrolled. Although the authors noted that "being able to communicate together does not automatically encourage a group to work together," they were particularly impressed by the intensity with which the class project was regarded, and with the more "open organizational communication and more flexible structure" which resulted in the class (Pressman and Stith, 1968; p. 46)

The foregoing is not to be interpreted as an endorsement of the use of the intensive group encounter as an exclusive counseling process, nor is it a result of the confusion between "counseling in large groups" and "group counseling-encounter-techniques." Lorine Aughinbaugh (1968) reported in the findings of her study of group versus individual counseling that certain kinds of students - the lowability in particular - seemed to benefit most from individual counseling, as opposed to large group counseling. There is no quarrel with the conclusion reported by Aughinbaugh, since the question of her study was really one of quantity rather than quality (i.e., how many students at one time rather than in what ways were specific groups being "treated" in the experimental sense.)

Other student personnel approaches may also be noted. For example, the use of a computer-based system of providing information about the potential drop-out to counselors was developed experimentally at the conclusion of Phas I in the NORCAL project. An evaluation of the degree to which such additional information for each student might affect the quality of the individual counseling process would appear to be an important and appropriate student personnel project. The use of reinforcement or modeling approaches with the potential drop-out could also be investigated, following the line of research described with juvenile

delinquents by Sarason and Ganzer (in press.)

Programs with Potential: Recruitment and Initial Identification of Student Characteristics

The issue of recruitment of students who might qualify for special programs designed to meet the needs of the disadvantaged or potential drop-outs has not been given sufficient attention in the reports of research on such programs in California. There is also little evidence that sufficient attention has been given to recruitment or special transportation services in the planning of institutions to provide extended opportunities. In 76 funded programs under the Extended Opportunity Grants (Alquist Bill), only 14.47% (11 programs) allocated funds for specific services in recruitment and transportation grants.

One recruitment pattern reported by California Community Colleges was at Diablo Valley College. Under the DVC plan, a counselor and two minority students were designated two days per week for six weeks, to work in the areas of minority population concentration. The recruitment drive was documented in a twenty-minutes sound film, which has been made available to other colleges. (Olavarri, 1969; 3)

At Diablo Valley College, the students entering the program completed the NORCAL Questionnaire, which contained biographical items that were of subsequent value to counselors in the readiness program. A number of comparisons were made between Readiness Program students and the general student body. Some of the information verified the importance of providing special services to readiness students. A composite picture of some of the differences yielded:

Item	Readiness Students	Other Students
Student employed	67%	45%
Financial need	68%	33%
Father employed below managerial, professional level	86%	51.6%

Item	Readiness Students	Other Students
Use of Car	32%	85%
AA degree and Tech/Voc aspiration	22%	8%
Transfer Aspiration	43%	66%
Father's encouragement high	55%	79%
Mother's encouragement high	67%	81%

The gathering of data on student characteristics in the recruiting and selection process provided Diablo Valley College with one base against which to evaluate the persistence and performance of readiness students.

The most extensive reported use of testing and inquiry about students was in the Los Angeles City College program, some of the findings from which were given above. The value of assessment and diagnosis in that program was reflected in the persistence and performance of students who were placed in a program clearly designed to meet their special needs.

Although the nature and extent of recruiting practices were virtually ignored in the reports of programs in the colleges included here, it would be most misleading to assume that recruiting and assessment should take a lower priority in the development of opportunity programs: every piece of available evidence suggests that the students most sought for such programs are the least likely to be self-motivated to enter higher education. It is only through intensive recruiting efforts that the disadvantaged can be drawn in greater numbers to the community colleges..

Some Tentative Goals and Objectives for Programs

Several goals emerge as meaningful from the reports of programs in California Community Colleges. The specific activities of the programs reviewed here were listed earlier; Recruitment, Testing, Block Programming, Tutoring, Financial Aids, Counseling, and providing transportation. While not every program contained all of these activities, it may be noted that those programs which were evaluated most

highly gave attention to a great diversity of these activities. The following tentative set of goals for programs designed to meet the needs of the disadvantaged may be abstracted from the experiences reported, and from the literature on the disadvantaged student or potential drop-out.

1. To provide a program of recruitment designed specifically to attract the disadvantaged students to higher education.
2. To provide for gathering appropriate biographical and diagnostic information about students in the recruiting and screening process.
3. To provide for special blocks of instruction and counseling designed to prepare disadvantaged students, psychologically and academically, to enter programs of their choice in the regular college curriculum.
4. To develop and select instructional media and materials for disadvantaged students, and to evaluate the effectiveness of experimental approaches in improving learning.
5. To provide tutorial assistance for disadvantaged students.
6. To provide financial aid for disadvantaged students at a level which would supplement whatever resources they may have, and assure an adequate level of living expenses for the enrollment period.
7. To provide extensive and appropriate counseling in the area of academic adjustment, vocational choice, and personal development.
8. To assure that no student should be excluded from an opportunity to learn because of a transportation need.

While objectives would of course vary to fit the individual campus situations, the following objectives may be suggested as minimal for programs to serve special needs:

1. To recruit minority students to the campus to assure, at a minimum level, that the proportion of minority enrollment reflects the minority level of the community.
2. To develop referral services for potential students from a number of community sources, including a commitment by: a) each high school in the district to release one counselor for such time as may be necessary to identify and refer high school seniors who may benefit from enrollment in a special program; b) appropriate employment, community action and social welfare agencies to identify and refer young adults to the program who may be unemployed, under-educated, and motivated to participate in the special program.
3. To provide for one full-time counseling assignment for: a) diagnostic and evaluative testing; b) personal and group counseling in conjunction with the readiness program.
4. To develop and interpret appropriate biographical and evaluative instruments as a foundation for subsequent evaluation of the performance and persistence of readiness students, compared with the regular enrollment of the college.
5. To retain 75% of the recruited and enrolled students through their first academic year of college.
6. To maintain a tutor/student ratio of 1/3 throughout the special program.
7. To have 67% of the readiness students achieve average grades of 2.00 or above in all course work attempted during their initial academic year.

8. To provide cost of living grants for expenses and transportation for all readiness students at the following levels: a) $90 per semester for transportation expenses; b) $90.00 per semester for on-campus lunch allowance; c) $80.00 per semester for books and supplies.
9. To employ 70% of eligible students in Work-Study jobs related to their field of academic or vocational interest.
10. To have all instructional classes of readiness students achieve statistically significant gains in mean performance scores, as measured by appropriate standardized achievement tests.
11. To have all counseling groups of readiness students achieve statistically significant gains in mean rating scores on standardized measures of self-concept, autonomy, and social maturity.

Toward Experimental Designs and Evaluation

As one considers the strengths and weaknesses of the programs described above, it becomes apparent that the dilemmas of experimenting are many indeed. It is obvious that a central delemma is that of deciding which of the key variables associated with academic disadvantage can be manipulated in the college environment, and with what anticipated effect. Dorothy knoell (1964) suggested that a number of the student input variables would be "fixed" or "static" (e.g., race, sex, socio-economic status), while others could be more amenable to change. If one recognizes that three key variables in the identification of potential drop-outs are ability, motivation, and financial need, then in what ways might a college experimentally treat students with liabilities in these areas to achieve some measure of success?

While evaluation must again be somewhat unique according to the special characteristics of the institution, a number of questions could be formulated as basic research questions in harmony with the goals and objectives given above. The intent is to be illustrative, not exhaustive. For each general heading below, research questions are listed which bear directly on the problem of design to accomplish objectives:

Academic Achievement. Under which of the following conditions is the low ability student likelier to achieve an acceptable grade point average? a) assigned by test score to required remedial instruction, without any additional support; b) assigned as above, with tutorial aid and financial assistance; c) assigned by recruitment identification into a "block" readiness curriculum, with appropriate assistance; d) allowed immediate access to all college curricula, regardless of test scores, but given tutorial aid and financial assistance; e) assigned by interest and aptitude tests to enrollment in a vocational or technical program, with no "academic" courses required until the second year of instruction? What is the impact

In a review of The Crime of Punishment and the Insanity Defense, Herbert L. Packer presents a cogent argument that, according to behavioral assumptions, "The occurrence of a disturbing event that we call a crime as nothing more than an occasion among others calling for social intervention." The behaviorists posit the views " (1) That free will is an illusion since conduct is socially and psychologically determined by forces that one cannot control; (2) That blame cannot be ascribed for behavior that is conditioned; (3) human conduct, being causally determined, should and can be scientifically studied and controlled; (4) the only possible function for criminal law is to modify the personality of people who commit anti-social acts, or if that fails, to restrain them through confinement." (Packer, 1969; 17)

There is a notable similarity between the underlying assumptions behind the kind of social intervention mentioned by Packer and the social intervention implied in the development of programs for the "disadvantaged" or the "potential drop-out."

One of the possible consequences of social intervention by educational institutions might be the decision, failing the discovery of successful "treatment" or "personality modification" programs, to create the educational equivalent of preventive detention and simply refuse to enroll students whose liabilities make it unlikely that they will "succeed" in college.

Such an alternative must be regarded as unthinkable. In the face of such massive needs, and of such commitments as those which have come recently in the form of such legislation as the Alquist Bill providing for Extended Opportunities, a reversal in philosophy and practice would be tantamount to social suicide. Thus the process of evaluation of all programs designed to extend opportunities and provide special programs must be predicated on the

assumption that the quest is always for the more effective program; the more adequate technique; the more meaningful educational experience.

The decision to intervene in the life-space of another human being must be made with full understanding that the stakes are total and the consequences likely to be massive in our culture. In this context, a remark by Stern seems particularly relevant.

> An environment must be suited to the species; if it isn't the organisms either die or go elsewhere. But what <u>is</u> an optimal environment - one that satisfies, or one that stimulates? While it may be true that pearls come from aggravated oysters, you can only get milk from contented cows. Pearls and milk each have their uses, and people will continue to exercise their preferences for one or the other, but it would be pointless exercise in freedom to insist on milking oysters. (Stern, 1962; p. 728)

Uniquely, the community college finds itself in the position of being called upon to provide the greatest diversity of educational services in all of American higher education: the community college represents the last best hope, since there is no other institution which remains totally dedicated to equal access to higher education for all -- there is no "elsewhere" to provide for special needs. Far from responding to a cliche from American popular music, the institution best able to recognize the need for "different strokes for different folks" is still the community college. It is in this genuinely humane spirit that the extension of opportunity must proceed in the 1970's.

SUMMARY AND COMPARISON

NORCAL DATA 1968 - 1969

Race	1969 N	1969 %	1968 N	1968 %
Caucasian	15,531	73.31	21,455	78.36
Spanish Surname	1,122	5.29	1,120	5.22
Black	1,020	4.82	1,805	6.48
Oriental	1,316	6.21	1,671	6.10
Other	540	2.47	927	3.28
No Response	1,654	7.80	309	1.12

Sex	1969 N	1969 %	1968 N	1968 %
Male	10,941	51.64	15,336	56.02
Female	8,070	38.09	12,044	43.98
No Response	2,172	10.27	0	

Marital Status	1969 N	1969 %	1968 N	1968 %
Single	17,989	84.92	24,586	89.79
Married	1,320	6.23	2,327	8.49
Divorced/Separated	280	1.33	402	1.45
No Response	1,594	7.52	65	.31

If employed, will you keep your job?

	1969 N	1969 %	1968 N	1968 %
Yes	8,861	41.83	11,796	43.08
No	3,024	14.27	4,013	14.65
Not employed	8,371	39.52	10,304	37.63
No Response	927	4.38	1,237	4.64

If employed, is the job related to your college major?

	1969 N	1969 %	1968 N	1968 %
Yes	1,928	9.10	2,840	10.37
No	9,803	46.28	12,136	44.32
Not employed	8,017	37.84	10,035	36.65
No response	1,435	6.78	2,369	8.66

Will you need financial aid to remain in college?

	1969		1968	
	N	%	N	%
Yes	4,477	21.13	4,429	16.17
No	14,942	70.53	21,580	78.81
No response	1,764	8.34	619	5.02

Mother's encouragement for college:

	1969		1968	
	N	%	N	%
Not very important	1,050	4.96	2,320	8.47
Somewhat important	3,071	14.49	2,130	7.78
Quite important	7,205	34.01	5,408	19.75
Extremely important	8,196	38.69	16,362	59.75
No Response	1,661	7.85	1,160	4.25

Importance of College to self:

	1969		1968	
	N	%	N	%
Not very important	295	1.40	1,035	3.70
Somewhat important	1,901	8.97	1,032	3.77
Quite important	6,965	32.88	5,326	19.45
Extremely important	11,038	52.11	18,856	68.87
No Response	984	4.64	1,131	4.13

Goal for College:

	1969		1968	
	N	%	N	%
I haven't decided	1,961	9.25	1,996	7.29
Take courses only	888	4.19	938	3.42
Voc/Tech courses	2,725	12.89	3,095	11.30
AA Degree only	1,102	5.20	1,599	5.84
AA and Voc/Tech	2,650	12.51	3,235	11.81
Transfer	11,103	52.41	15,937	58.21
No Response	754	3.55	580	2.13

Socio-economic status ("Head of Household" employment)

	1969		1968	
	N	%	N	%
Unemployed	405	1.92	319	1.16
Unskilled	1,941	9.16	2,681	9.79
Semi-skilled	3,412	16.11	4,400	16.07
Skilled	5,730	27.05	9,611	35.10
Managerial	4,495	21.32	5,298	19.34
Professional	3,981	18.79	4,445	16.26
No Response	1,219	5.75	626	2.28

Mother's Employment Status:

	1969		1968	
	N	%	N	%
Full-time	6,804	32.12	Data not Collected	
Part-time	3,062	14.45		
Not employed	10,420	49.19		
No Response	897	4.24		

Father's encouragement for college:

	1969		1968	
	N	%	N	%
Not very important	1,627	7.68	2,760	10.08
Somewhat important	3,239	15.29	2,662	9.72
Quite important	6,661	31.44	5,127	18.72
Extremely important	7,316	34.53	15,007	54.81
No Response	2,340	11.06	1,824	6.67

Anticipated obstacle to college:

	1969		1968	
	N	%	N	%
Academic	3,152	14.87	Data not collected	
Financial	4,659	21.99		
Marriage	2,465	11.63		
Motivation	3,287	15.52		
Other	6,127	28.92		
No Response	1,493	7.07		

Distance from college:

	1969 N	1969 %	1968
1-5 miles	9,077	42.85	Data not collected
6-10 miles	5,798	27.37	
11-15 miles	4,742	22.38	
16-20 miles	1,222	5.77	
Over 20 miles	1,519	7.17	
No response	1,175	5.54	

Time to get to college:

	1969 N	1969 %	1968
10 minutes or less	6,086	28.73	Data not collected
10-30 minutes	11,314	53.41	
30-45 minutes	2,142	10.11	
45-90 minutes	775	3.66	
Over 90 minutes	137	.65	
No Response	729	3.44	

Mode of transportation:

	1969 N	1969 %	
Own car	13,545	63.94	Data not collected
Car pool	1,752	8.27	
Public transportation	2,114	9.98	
School Bus	689	3.25	
Other	2,274	10.73	
No Response	809	3.83	

Most significant source of advice:

	1969 N	1969 %	1968
N.R.	954	4.51	Data not collected
No one	959	4.52	
Father	4,739	22.37	
Mother	1,956	9.23	
Teacher	1,493	7.05	
Counselor	8,416	39.73	
Bro/Sister	952	4.50	
Friends	863	4.07	
Other	851	4.02	

NORCAL RESEARCH GROUP:

A FOLLOW-UP OF STUDENTS WHO DISCONTINUED ENROLLMENT

COORDINATING COUNCIL FOR HIGHER EDUCATION

June 1, 1970

NORCAL Research Group:
A Follow-Up of Students Who Discontinued Enrollment
Coordinating Council for Higher Education

I. The Study

Students in cooperating institutions (NORCAL Project colleges) were administered an extensive biographical questionnaire in the Fall, 1969 enrollment period. In all, over 22,000 students were participants in the project. An analysis of the findings of Phase II is presented elsewhere. In general, the model to identify potential "dropouts" (students who withdrew during their initial enrollment period) was validated with an acceptable level of empirical validity (65% of the respondents were correctly identified as persisters or withdrawals.)

The follow-up study of students from the 1969 sample who failed to return for the second enrollment period was intended to accomplish two major purposes: 1) provide some basis for analyzing patterns of enrollment, migration, employment among community college students who discontinue their enrollment after one semester in a community college; 2) provide some basis for making inferences about characteristics of withdrawing students in supplement to the biographical information obtained as these students entered.

More specifically, the study was to be addressed to the following kinds of questions:

1. What was the proportion of students who entered another college?
2. What were the actual current activities and plans of students who did not re-enroll in their original institution?
3. What were the particular personal and financial constraints on students who did not re-enroll in their original institution?
4. What were the patterns of responses of the CCHE sample on the original NORCAL questionnaire?

It was hoped that an analysis of these data might provide the basis for some reasonable inferences about enrollment patterns among community college students, and about the NORCAL predictive model for identifying potential withdrawals.

The difference between the two samples must be remembered throughout. The "NORCAL" Project addressed itself to students who withdrew within their initial enrollment period; the "CCHE" sample included only those students who did not re-enroll in the institution for the second enrollment period. It is important to recognize that a student who withdrew during the first semester but re-entered the second would have been defined as a "dropout" for one study (NORCAL) but not the other. The inferences about attrition patterns or the characteristics of "dropouts" must be made cautiously at best. In the absence of any other large-scale cooperative research from a common data base of community college students, the inferences about the characteristics of students who do not continue their enrollment may be considered as preliminary and tentative. A more explicit design for continuing the study is suggested as a supplement to the report of findings below.

II. The Sample

Cooperating colleges were asked to contact students who completed the NORCAL questionnaire in the Fall, 1969, and entered college as first-time, full-time day students during the fall enrollment period, but did not re-enroll in either the day or the extended day program the next semester or quarter. In all, 15 colleges agreed to conduct the follow-up, and to send the questionnaire to the appropriate students. Five of the colleges elected to sample the population, and the remaining 10 agreed to attempt a contact with every student defined as "non-returning" for purposes of the study.

The specific sample sizes, by college, are given below:

College	Sample Contacted	Responding Sample
American River	55	15
Chabot College	18	11
City College of San Francisco	170	68
College of San Mateo	171	74
College of the Sequoias	148	72
Diablo Valley College	83	44
Laney College	63	16
Merced College	51	19
Merritt College	41	15
Porterville College	38	27
Santa Barbara City College	210	90
Sierra College	190	115
San Joaquin Delta	162	67
San Jose City College	135	77
Yuba College	50	20
No Identification		20
Totals	1,585	750

Response rate: 47.31%

Because of the inconsistency of sampling methods, serious question could be raised about the representative value of the responding sample. To assess sampling bias, a comparison of the responding sample with the total NORCAL sample on the variables sex and race was made, with the results appearing below.

Table I
Comparison of Total Norcal Sample with CCHE Respondents

	Total NORCAL Sample		CCHE Follow-Up Sample	
Sex	N	%	N	%
No Response	2,172	10.27%	14	1.9%
Male	10,941	51.64%	446	59.5%
Female	8,070	38.09%	290	38.7%
Race				
No Response	1,654	7.80%	146	19.5%
Caucasian	15,531	73.31%	520	69.3%
Span.Surname	1,122	5.29%	40	5.3%
Black	1,020	4.82%	22	2.9%
Oriental	1,316	6.21%)	22	2.9%
Other	540	2.47%)		

It is apparent that some bias does exist, although the effect of the bias may be difficult to determine since it would appear that the "no response" category accounts for the greatest differences in the pattern of replies on both sex and race. Whether a two per cent difference among "Black" students, or a six per cent difference in "Oriental" and "other" students would cause a major difference in responses on other variables is open to question. Within the limitations of the sample, it would appear that tentative generalizations could be made about community college students who do not complete their enrollment beyond one enrollment period.

III. The Questionnaire Responses

Seven questions were asked of the CCHE sample. The general headings under which the questions were grouped included: 1) Reason for not re-enrolling; 2) current activities and plans; 3) financial need. Each response is listed below, and the proportion of students in each category is given.

Table 2: Responses to Question 1

I did not re-enroll in the community college for the following reason(s) (several may apply)

	Yes		No	
Decided to take a job	309	(41.2%)	441	(58.8%)
Health problem	49	(6.5%)	701	(93.5%)
Lacked Transportation	61	(8.1%)	689	(91.9%)
Could not get enrolled in courses	119	(15.9%)	631	(84.1%)
Could not get classes I wanted scheduled when I wanted them	80	(10.7%)	670	(89.3%)
Got married	70	(9.3%)	680	(90.7%)
Drafted	20	(2.7%)	730	(97.3%)
Enlisted	90	(12.0%)	660	(88.0%)
Entered another college	114	(15.2%)	636	(84.8%)
Got too far behind in my courses	88	(11.7%)	662	(88.3%)
Wasn't motivated by my courses	212	(28.3%)	538	(71.7%)

The major stated reason for failing to return was "decided to take a job," with "motivation" ranking second. To provide a more detailed analysis of responses, each of the eleven possible reasons for discontinuing enrollment

was cross-tabulated by age and by race. Age alone accounted for no major differences in distribution of responses, with the obvious exception that only 1.2% over 21 "enlisted", as compared with 15.4% of those under 21. An expected difference under 10% also occurred in the responses to "health problem", to which 12.7% of those over 21 responded affirmatively, compared to 4.8% under 21.

These were differences by race in response to the problems related to transportation, entering another college, and falling behind in courses. Transportation was a problem for 31.8% of the Black and 20% of the Spanish Surname students, in contrast to only 6.5% of the Caucasians. Over twice the per cent (31.8%) of the Oriental and "other" students entered another college than any other responding racial group. Falling behind in course work was reported by 27.5% of the Spanish Surname students reported slightly (less than 10%) more difficulty than others in getting desired courses, but slightly less problem with motivation than other Caucasian students. One of the most intriguing findings was that Black students reported problems of motivation far less frequently than Caucasians (18.2% vs 31.2%).

Students were asked whether the job was related to their course of study, if they left college to seek or accept employment. Eighty-five per cent (640) reported that their employment was unrelated to college work. Given the fact that the CCHE follow-up was conducted after only one semester, the finding is entirely in keeping with expectations, it is unlikely that marketable skills can be obtained in a single enrollment period.

A variety of answers were given in the "other reason" for withdrawal, an open-ended response option. Financial and personal problems appeared to dominate. A number of Latter Day Saints reported plans to go on a mission for their church. Most touching was the questionnaire returned by the parents of a young girl who had died of cancer suddenly and unexpectedly.

Table 3: Responses to Question 2

"What are you doing now that you have withdrawn from college?"

Reply	N	%
No response	65	8.7%
Working full-time	253	33.7%
Looking for a job	131	17.5%
Married or soon to be	92	12.3%
Enrolled in another college	114	15.2%
In Armed Forces	95	12.7%

The pattern in question 2 tends to confirm the responses in question 1. Exactly as many students who left to enter another college reported that they were currently enrolled in a new school. It was not surprising that 10% more of the respondents said they were either employed or looking for a job than had reported deciding to take a job. The other differences were generally minor, with the pattern reflecting a confirmation of prior responses emerging very clearly.

Racial differences were detected in "enrolled in another college" and "in Armed Forces" responses. Following the same pattern as in question 1, over twice the proportion of Oriental and "other" students were actually enrolled in another college. Among those "in Armed Forces," none was Black, while in contrast about 13% were caucasian, and 22.7% were Oriental or "others".

Table 4: Responses to Question 3

"What are your plans for continuing college?"

	N	%
No response	58	7.7%
Will probably enroll next semester in some college	278	37.1%
Probably won't go back to coll.	55	7.3%
Will go back to college after military service	93	12.4%
May go back in the future for courses that interest me	266	35.3%

The distribution of responses by race showed that no Black respondents reported that they planned not to return to college, but 15% of the Spanish

Surname students said they would not return. In keeping with the earlier pattern showing a disproportionate number of Spanish Surname students having "motivation" or "falling behind" problems, the picture is both consistent and disheartening for this minority group. Throughout, it is of some interest to contrast the Black responses with the other minority responses; the Black pattern reflects a much stronger commitment to return to college, once withdrawn, and a greater difficulty with the practical considerations of transportation and finance. At least as reflected in this sample, the responses of Spanish Surname students suggest far greater concern over academic and motivation problems, and a dramatically greater likelihood of withdrawing permanently from college.

Table 5: Responses to Question 4

"What is your estimate of your total family income per year?"

No Response	64	8.5%
Under 4,500	119	15.7%
4,500-7,500	125	16.8%
7,500-11,000	114	15.2%
11,100-14,000	129	17.2%
14,000 and above	199	26.6%

The responses on income suggest that financial need may not play as important a part in the decision to leave college as one might have anticipated. When 43.8% of all responding non-continuing students report family incomes of $11,000 or more, it would suggest that financial need is not as widespread as one might suspect. In perspective, however, it must be noted that 15% of the respondents were enrolled in other colleges, and were thus not "dropouts" in any genuine sense. Further, the evidence of low income ($4,500 or less) among Spanish Surname (34%) and Black (22.7%) students confirms the general expectation that, for minority economically disadvantaged students, the open door of the community college may still be a revolving door.

To assess knowledge of financial aids criteria, and the extent to which

students who discontinued their enrollment made use of financial aids opportunities, students were asked whether they were eligible for financial aid, and whether they received some assistance. The responses are given in Table 6 below.

Table 6: Responses to Question 5

"As far as you know, were you eligible for financial aid?"

	N	%
No response	59	7.9%
Yes	145	19.3%
No	165	22.0%
Do not know	381	50.8%

The analysis of these responses by race makes the pattern difficult to interpret: 18.3% of the Caucasian, 37.5% of the Spanish Surname, and 40.9% of the Black students reported that they were eligible, and these proportions correspond roughly with the numbers of students in the lowest income levels, by race. The fact that half of the respondents did not know whether they were eligible is an interesting descriptive statistic. One may only speculate whether the lack of knowledge could be ascribed to problems of communication within institution, problems of recognition of need among students, or a variety of other possible alternative explanations.

When asked whether they <u>received</u> financial aid, the students responded as follows:

Table 7: Responses to Question 6

"Did you receive financial aid?" (Scholarship, economic opportunity grant, college work program, etc.)

	N	%
No response	57	7.6%
Yes	100	13.3%
No	276	36.8%
Did not apply	317	42.3%

The distribution by race suggested that the majority of those who needed aid, received it in some form: 11.3% of the caucasian and 32.5% of the Spanish Surname students reported that they had obtained financial aid. Black students reported aid in far less proportion to anticipated need: while 40.9% reported being eligible, only 18.2% had actually obtained financial aid.

Summary of Responses

The greatest proportion of responding students reported discontinuing their enrollment to take employment unrelated to their college courses; motivation, problems of enrollment, and transfer to another institution accounted for another 59.4% of the responses. Transportation problems and falling behind in course work were reported by minority students in much greater frequency than for caucasians; Spanish Surname students appeared particularly vulnerable to motivation concerns.

Confirming the previous responses, the greatest proportion of students indicated that they were now working (33.7%) or looking for a job (17.5%). Again, 15.2% were reported actually to be enrolled in another institution.

Only 7.3% of the respondents reported that they "probably won't go back to college." There were differences in response by race, with no Black students saying they would not return, and 15% of the Spanish Surname intending to make the break permanently. The majority of students said they would return immediately (37.1%) or at least in the future (47.7%).

The distributions of income seemed high for responding students: 43.8% reported family incomes of $11,000 or higher. Minority students reported lower incomes, and there was evidence that, for all students except Blacks, eligibility for financial aid and actual financial aid seemed to be in harmony. For Black students, however, fewer than half the proportion claiming to be eligible for financial aid actually received it.

IV. Relation of CCHE Follow-Up Responses to NORCAL Responses

To assess how accurately students who discontinued their enrollment might have anticipated problem areas at the time of entry to college, a randomly selected sample of 130 students was drawn and the NORCAL questionnaire responses given in the Fall, 1969 enrollment period were analyzed.

The NORCAL questionnaire asked students to anticipate their college goals, and this variable was a key predictor of attrition. It could be anticipated that a greater proportion of non-continuing students would have claimed lower goals in their original response of Fall, 1969. Table 9 shows the actual distribution.

Table 9: Goals for College

NORCAL Non-Continuing vs NORCAL Total Sample

	Sample	(N=130)	Total	(N=23,533)
Undecided	17	13.09%	1,961	9.25%
Courses only	2	1.53%	888	4.19%
Vocational or 2 yr only	50	38.46%	6,477	30.60%
Transfer	61	46.92%	11,103	52.41%
No response	0	-	754	3.55%

As expected, the goals of non-continuing students were different from reported by the total sample: about 8% more chose two-year goals, and about 6% fewer chose transfer goals. Given that 15% of the non-continuing students were enrolled in other colleges, it is possible that the difference between the two samples would be even more pronounced if these 15% were not considered.

NORCAL students were also asked to anticipate possible obstacles to college which might cause them to withdraw. The distribution of CCHE Sample and Total NORCAL responses is shown in Table 10.

Table 10: Obstacle to College

NORCAL Non-Continuing Sample vs NORCAL Total Sample

	Sample (N=130)		Total (N=23,533)	
	N	%	N	%
Academic	14	10.77%	3,152	14.87%
Financial	25	19.23%	4,659	21.99%
Marriage	25	19.23%	2,465	11.63%
Motivation	16	12.31%	3,287	15.52%
Other	50	38.46%	6,127	28.92%
No Response	0		1,493	7.07%

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No Response	0		1,493	7.07%

The "obstacle" question was one of the big predictors in the one experimental

version of the NORCAL model. Particularly heavily weighted was the "other" response, which, as anticipated, was given more frequently by responding students in the non-continuing sample. The general observation may be made, however, that students who did not re-enroll did not anticipate their "obstacles" very well. To give a more clear indication of the pattern, an analysis was made of the 130 students' NORCAL responses on "anticipated obstacle" in comparison with the CCHE responses for the same students. Some of the findings were:

*80% of the sample students who anticipated a "financial" obstacle in Fall, 1969, reported "low income" ($7,500 or under) in the follow-up questionnaire.

*70% of the sample students who anticipated "other" reasons for possible withdrawal reported reasons other than financial, academic, marriage, or motivation in their follow-up responses.

*62.5% of the sample students who reported anticipated "motivations" problems reported "motivation" was a reason for not re-enrolling in the Spring.

As a final comparison of follow-up data with data from the NORCAL questionnaire, the responses of the sample group with the total NORCAL group were compared on the question "will you need financial aid to remain in college?"

Table 11: Need for Aid

NORCAL Non-Continuing Sample vs NORCAL Total Sample

	Sample (N=130)		Total (N=23,533)	
Yes	30	23.08%	4,477	21.13%
No	100	76.92%	14,942	70.53%
N.R.	0		1,764	8.34%

Reviewing earlier responses from the CCHE questionnaire, one might note that the anticipated need for aid corresponded somewhat closely with the proportion of low income ($7,500 or less - 32.5%), and with the number of students eligible for financial aid (19.3%). Generally, it appears possible that, although the non-continuing sample did not differ measurably from the total NORCAL sample on "need for aid," those who reported a need for aid in the Fall, 1969 were likely to be low income, and eligible for some financial assistance.

Although it was relatively clear from the substantial report in the follow-up responses that employed students took jobs unrelated to their college majors, a tabulation was made of the majors of the 130 sample students for whom both NORCAL and CCHE questionnaires were available. Only one pattern was clear; the highest proportion of students in the sample reported an "undeclared" major (10.0%). The next highest per cent (7.6%) was for "Liberal Arts transfer" majors, followed by Engineering and Business Administration (5.3% each). The rest of the declared majors were claimed by less than 5% of the students, and it could be inferred that the goals of non-continuing students generally had not achieved sufficient specificity at the time of their entry into college to have provided a basis for a rationale job choice by the opening of the second enrollment period.

Summary of CCHE/NORCAL Relationship

It could be inferred on the basis of the responses that non-continuing students generally were not very accurate in anticipating their reasons for failing to re-enroll in college for a second term. There was, however, enough evidence to justify the conclusion that those who anticipated financial problems subsequently reported having them, and those who anticipated motivation problems subsequently reported having them. There was no evidence to suggest that follow-up sample students had measurably different responses from the total NORCAL sample

on "obstacle" to college.

There was no evidence that follow-up sample students anticipated a need for financial aid in greater proportion than the total NORCAL sample.

There was no evidence that "major" was related to subsequent employment. There was, on the contrary, evidence to support the conclusion that non-continuing students were less certain and more general about their major than others.

"Goal for college" was significantly different among follow-up sample students, compared with the total NORCAL sample. Slightly more sample students reported being undecided, but significantly more reported a two-year goal and fewer reported a transfer goal.

V. A Proposal for Further Follow-Up

The results of the first follow-up of non-continuing students into the Spring of their first academic year have provided some meaningful insights to supplement those of the NORCAL project. The promise of continuing a longitudinal study into the second academic year can and should be met through the cooperation of NORCAL with the Coordinating Council for Higher Education. While the analysis of the first follow-up sample tended to confirm the fact that the first to leave higher education are the minority disadvantaged, it may be that further analysis may provide some basis for evaluating the pattern of migration, by major, into the job market, or into other institutions of higher education.

It is recommended that the cooperating NORCAL colleges follow all of their first-time, full-time day students from the Fall, 1969 semester or quarter into the second academic year, and that a follow-up questionnaire be administered to all students (as defined above) who enrolled consecutively throughout the 1969-70 academic year but did not enroll in the original

institution for Fall, 1970.

Some Methodological Problems

The recommended study would be a continuation of the descriptive model of which the current report is a part. The general questions would be the same. Broadly, they would include:

1) What migration occurred from the original institutions into transfer institutions?
2) What were the current activities and expectations of students who did not return for their second year of college?
3) What were the pattern of responses by non-returning students on the original (Fall, 1969) NORCAL questionnaire?
4) What relationships might be inferred between employment and college major?

A number of practical considerations come to mind immediately, given the experience of the first follow-up. In this spirit, the following procedural sequence is offered:

1. Defining the sample. All participating colleges will compare the Fall, 1969 student files with the Spring, 1970 files. The list of those who were first-time day in 1969, and remained full-time (12 units or above) day students for the entire 1969-70 academic year would then be compared with the census week enrollment data for Fall, 1970, and the non-continuing students identified as those who did not re-enroll for the second academic year, having completed the first as full-time day students.
2. Limiting the sample. Because of the size of the sample (between 40% and 60% of the first year students may not return), it is recommended that 20% random selection be made by identifying every fifth student

to be contacted with a follow-up questionnaire. Alternatively, two digits may be randomly selected between 0 and 9, and the last digit of the student I.D. number may be matched against these randomly-drawn numbers to obtain a 20% sample.

3. Contacting the sample. It is recommended that the questions be asked by telephone of all sample students still residing in the district. For those no longer residing in the district, it is recommended that a follow-up questionnaire and at least two subsequent reminders, if necessary, be sent, along with a stamped, self-addressed envelope to the institution requesting the data. This will facilitate preliminary analysis of data by each participating college, and will make it possible for each college to "prod" the non-responding students. Each college should arrange with the project director to get the data into machine readable images.

4. Preparing for analysis. NORCAL questionnaire data for responding students (from Fall, 1969) should be returned with the follow-up questionnaire, if possible, to the NORCAL project director. Again, arrangements should be made to get the original NORCAL responses into machine-readable images.

5. Analysis of Data. The Statistical Package for Social Sciences, available at Stanford University and other major installations, provides the potential for cross-tabulation by age, race, sex or any other sub-set of variables by each response to each question in the follow-up study. In general, the emphasis may remain on description, and may include correlations or other descriptive statistics available under SPSS and at the direction of the NORCAL Project Committee.

Some revision and up-dating of the questionnaire seems advisable for the continued follow-up. Greater definition of financial need may be desirable, and a confirmation of "major" may be very valuable, both in relation to subsequent employment or transfer and in relation to the original declared intent (Fall, 1969). Other questions may be suggested by the NORCAL Project Committee and the CCHE staff.

Generally, the failure to continue the follow-up would represent a major loss of knowledge about community college students. The NORCAL sample is one of the largest ever to be gathered in community colleges, and valuable insights from descriptive literature out of the Project's third (experimental) phase may be balanced against the longitudinal analysis of migration patterns among community college students.

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COLLEGE CODE

3. WHAT IS YOUR RACE?	BLACK	CAUCASIAN	OTHER	
4. SEX	MALE	FEMALE		
5. WHAT IS YOUR MARITAL STATUS?	SINGLE	MARRIED		
6. IN THE HOME WHERE YOU GREW UP, WHICH OF THE FOLLOWING BEST DESCRIBES THE JOB OF THE HEAD OF THE FAMILY?	UNEMPLOYED	COMPLETED NO FORMAL TRAINING		
	SEMI-SKILLED (SOME FORMAL TRAINING PREFERRED)	SKILLED (SOME FORMAL TRAINING REQUIRED)		
	MANAGERIAL (CONSIDERABLE TRAINING REQUIRED)	PROFESSIONAL		

10. DOES YOUR MOTHER HAVE A JOB OUTSIDE THE HOME?	YES FULL TIME	YES PART TIME	NO		
11. HOW FAR AWAY FROM COLLEGE DO YOU LIVE?	5 MILES	6 TO 10 MILES	11 TO 20 MILES	21 TO 30 MILES	OVER 30 MILES
12. HOW DO YOU GET TO THE CAMPUS?	OWN CAR	CAR POOL	PUBLIC TRANS	SCHOOL BUS	OTHER
13. HOW LONG DOES IT TAKE YOU TO GET TO CAMPUS?	10 MIN OR LESS	11 TO 20 MINUTES	21 TO 30 MINUTES	31 TO 40 MINUTES	OVER 40 MINUTES

14. 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

15. 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	

16. 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				

17. 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

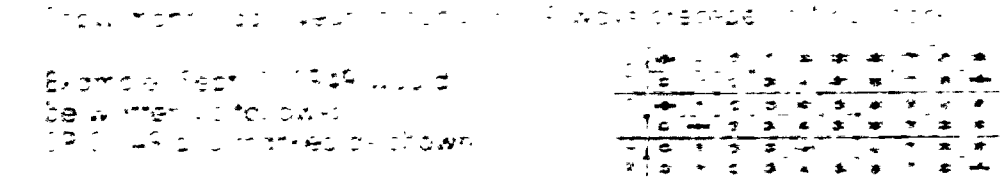
18. HOW IMPORTANT IS IT TO THE FOLLOWING PEOPLE THAT YOU GO TO COLLEGE?

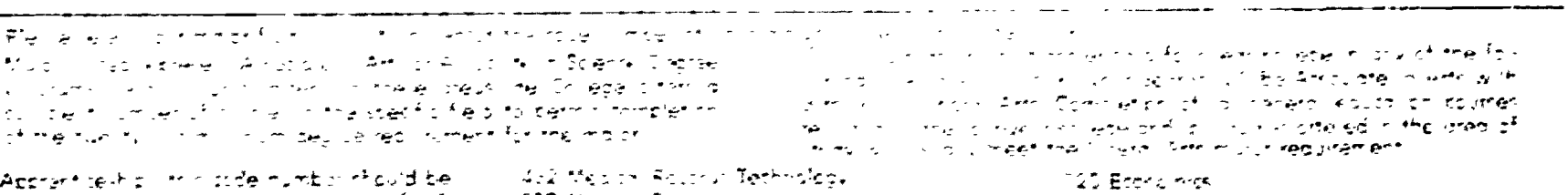
	NOT VERY IMPT	SOMEWHAT IMPT	QUITE IMPT	EXTREMELY IMPT
FATHER				
MOTHER				
OTHER				

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)





900 Accredited technical code number that could be used for all postsecondary majors in any field. Do not use the code number of the specific trade area.
515 LIBERAL ARTS NON-TRANSFER (undecided or unlisted major)
201 Accounting
801 Air Conditioning
102 Agribusiness

202 Architectural Drafting
520 Art
805 Automotive Mechanics
807 Body and Fender
808 Building Construction Technology

205 Business Administration
208 Business Data Processing
204 Business, General
809 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
212 Medical Assistant Secretary
224 Medical Receptionist (1 yr. non-degree course)

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

453 Nursing, Vocational AAS Degree Program
468 preNursing (Licensed Vocational)
214 Office Administration
216 Office Machines
888 Police Science

217 Public Administration
542 Radio and Television Repairing
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

721 Economics
500 English Literature
698 preForestry
452 French
612 Game Management

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

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

451 preNursing, Registered
614 Oceanography
35 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

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