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ABSTRACT

A STUDY OF THE EFFECTIVENESS OF
A LEARNING ASSISTANCE PROGRAM
IN A LIBERAL ARTS COLLEGE

By

Beverly Hogberg Morrison

The Academic Support Program at Calvin College was originated to provide supportive services to academically "high risk" students. The purpose of this study was to assess the effectiveness with which the Academic Support Program provided these students with skills needed to be successful in subsequent academic work and with support in both the cognitive and affective domains.

The Academic Support Program was evaluated by hypotheses generated from the following research questions:

1. Do academically "high risk" students who accept the invitation to participate in the Academic Support Program have significantly higher grades in related college courses than do similarly "high risk" students who were invited to participate in the program but chose not to do so?

2. Do the academically "high risk" students who participate in the Academic Support Program have a positive correlation to retention in Calvin College?

3. Do former participants of the Academic Support Program who are still enrolled in the college after five

semesters exhibit internal motivation and goal directed behavior and express a positive relationship to the program?

The population studied included the 1980-81 freshmen who had been invited to participate in the Academic Support Program and were categorized based on participation/lack of participation in the program. Hypotheses tested were related to the dependent variables: English grammar exam scores, mathematics course grades, first semester grade point averages, and numbers of semesters enrolled at Calvin. The *t*-test was applied to the hypotheses related to academic success and differences were tested for significance; the chi-square value and coefficient of contingency were calculated to test correlation of participation in the program and retention. Descriptive data, obtained through a questionnaire, provided a profile of program participants who had remained at Calvin at least five semesters and indicated participant perceptions of program effectiveness.

Participation in the program yielded significant differences in English scores and grades but none for first semester or mathematics grades, nor did participation correlate with retention. The descriptive data, however, revealed participants had perceived the components as helpful and recommended them to others. The program also was consistent with characteristics literature had equated with program success.

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CHAPTER I

THE STUDY

Introduction

Learning assistance as a field of study is still an evolving chapter in higher education. Many of the learning assistance programs which had their inception in the late 1960's have transcended beyond their original remedial purpose of attracting and retaining those formerly denied admission to higher education; a few have emerged as developmental programs with multiple, related support services. The actuality, however, of what colleges are doing to help students remedy academic deficiencies is part of a developing process.

Even though many such programs have existed in essentially their same forms long enough for valid research to have been conducted, many institutions, in attempting to maximize their students' educational development, still ignore many critical issues relating to evaluation or attend to them with an unsophisticated level of practice or in an ineffectual manner (Astin, 1982; Grant and Hoeber, 1978). Operating as innovative programs in settings in which the "traditional" is often valued regardless of its productivity, learning assistance program administrators must respond aggressively to improve current levels of practice and become increasingly aware of the value of evaluation in managing

programs and of the importance of feedback in an action oriented view of quality assessment. The importance of evaluation to learning assistance programs is reinforced by Boylan who attributed the relevance of any learning assistance program to the degree to which the value of the program is determined, measured, and reported (1981, p. 14).

In acknowledging the paucity of data to substantiate the success or lack of success of individual programs, literature relating to learning assistance is calling not only for individual program accountability as to what constitutes program effectiveness but also for the sharing of information among the community of learning assistance professionals (Grant and Hoeber, 1978; Obler, 1983; and Roueche, S., 1983). According to Majer and Myers (1981), such sharing would have two major purposes: the helping of learning assistance directors to make decisions about the kinds of programs or particular components of programs they may wish to implement and the forming of a concensus among such educators about appropriate evaluation models for learning assistance programs. This study reflects a professional response to such challenges; provides information about the relative success of the Academic Support Program at Calvin College; and reports a framework for the routine, systematic collection of data, the conducting of a program evaluation, and the publishing of the results.

Purpose of the Study

The purpose of this evaluative study was to assess the Academic Support Program at Calvin College in terms of the effectiveness with which it provided academic support and skills to those who were admitted to the institution as academically "high risk" students. The study recognized the research of Mulka and Sheerin (1974, p. 145) who posed that a lack of basic skills for successfully achieving the benefits of higher education is a far more critical barrier to educational opportunity than any other single factor and that reading, writing, and mathematics are the most common components of the basic skills curriculum. The study addressed the ability of the program's components to meet these needs for underprepared students in both the cognitive and affective domains and provided data concerning the persistence of such students in subsequent academic work.

The study had additional purposes of providing data which could:

(1) be utilized as part of a management tool to implement informed decisions about the continuation or modification of the Academic Support Program.

(2) clarify the relationship of the Academic Support Program to the broader mission of the college and act as a tool for articulating the Academic Support Program as a support for faculty in their particular courses. Bringing this relationship to the foreground expanded concern for a "quality" program

to an enlarged understanding of "quality" in a community of learning.

(3) supplement the data base being developed to help provide answers to broad concerns that are professionally shared by those associated with learning assistance.

Context of the Study

Located in Grand Rapids, Michigan, Calvin College, which serves 4000 students, is a four-year liberal arts college of the Christian Reformed Church, a century-old denomination with roots in the Protestant Reformation. The Academic Support Program of the college was initiated in 1977 and based its operational rationale in the policy of the college that admits all students for whom there is some reasonable prospect that they will be able to complete the college program. The program operated from the premise that since students were admitted with condition and were retained on probation, the college had an obligation to provide supportive services to these students who were judged to need them because of past academic performance or because of current difficulties with their academic programs.

The Academic Support Program included four courses designed to review pre-college work. These did not carry credit for graduation but were recognized by the registrar and the Office of Financial Aid as registered units. A student normally participated in the Academic Support Program as one-fourth of the academic load with the rest of the course work

being in the traditional core curriculum. The mathematics classes met four times a week for an hour each and were preliminary to college math courses. The English grammar lab was held three separate hours a week as a structured class and was taken simultaneously with English 100, the college freshman writing class. The study skills class met two hours a week and utilized the textbooks of either history, psychology, sociology, or religion for application of skills.

Having developed since 1977 in a rather serendipitous manner, the Academic Support Program had reached a fairly stable stage, perceived by the institution to be serving more of a remedial function than developmental. Those professionally involved in the program, however, exhibited a holistic concern for their students and realized their responsibilities for frequent monitoring of student progress. They recorded the services that students had received and the results that had occurred, provided academic advising, and enhanced the academic self-concept as a means of achievment motivation and a means of becoming ones own "locus of control".

Rationale for the Study

This study evolved out of a professional responsibility on the part of this researcher, who recognized evaluation to be an essential component of any program's development, and out of an attendant concern for the value of the program in terms of data to make its worth credible. The judgment of such a need is professionally shared. Roueche and Snow conducted a study which concluded that "the most

successful developmental educational programs are generally those that evaluate themselves and use a number of indices on which to evaluate those efforts" (1977, p. 107). Based on similar counsel from Akst and Hecht (1980) who suggested, in addition, that long-range methods should be used to assess students' performance after they had left the learning assistance program, this study has a three part methodology. Each of the three segments was aimed at collecting data that would relate dependent variables to intervention goals and result in the practical benefits of informed decisions related to the program.

While all of the components focused on evaluation, they combined quasi-experimental and contextual methodologies. Post-facto studies were used to assess the effectiveness of program components as it was assumed that these components represented the implementation of well-defined program goals; the inductive methodology of contextual research was implemented through a questionnaire revealing descriptions of program participants and their interactions with the program. These provided an analysis of the program context which was iterative, with the descriptions becoming the basis for future questions and concerns.

The rationale for this study was not limited to providing an assessment of one particular program, for in developing the design for this evaluation of a learning assistance program in a liberal arts college, the study could be utilized as a response to an eminent concern expressed in developmental

educational journals and at conferences. Capsulated by Boylan (1981), is this need for the reporting of evaluation models and learning assistance program outcomes through the professional communication network so that learning assistance educators, most of whom are practitioners and not researchers, can understand better what is being done, how what is being done can be improved, and how value for what is being done can be established. It is especially appropriate, according to Boylan (1981, p. 13), for evaluation models to be shared among developmental educators as these models can assist in the formation of a consensus on major theoretical issues and help to develop appropriate evaluation models which can, through modification, be generalized for use in assessing other programs.

Fitz-Gibbon and Morris also acknowledged that a project may be limited to a unique audience but that it is not beyond the scope of an evaluator's job to educate others in the community about what constitutes good and poor evidence of program success and to set forth the particular study as an additional criteria against which another study may evaluate its results (1981, p. 14). The challenge has come also to educators in the basic English and writing skills from Mina Shaunnessy (1973) to commit themselves to extending their accountability by adopting the techniques of evaluation and close, systematic observation of the social sciences and by pooling of research. In addition, an accumulation of studies indicating the worth of learning assistance programs in

various liberal arts colleges could be used to combat attacks not unfamiliar to the learning assistance program evaluator that developmental education is a threat to the real purpose of a college. Such criticism (Wagner, 1976) is an extension of a longstanding debate that has focused on the presumably inherent and irreconcilable differences between a liberal arts education and professional or vocational training.

Reality, however, must be faced. Underpreparedness is a relative matter; every institution has students whose credentials put them in the lowest percentiles of the total class in terms of academic readiness, and institutions of higher education are serving greater percentages of the total institutional enrollment (Noel, 1983; Roueche, J., 1983). Investigation into the isolated studies which are forthcoming in the learning assistance network could eventually lead learning assistance programs in higher education to focus their overall goals not on changing students to fit the institutions better but on changing programs to fit the more diverse student body, thereby becoming more humanistic than institutionalistic (Alschuler, 1981).

Scope of the Study

The focus of this study was the evaluation of a learning assistance program in a liberal arts college, specifically of the Academic Support Program at Calvin College. The effectiveness of the Academic Support Program was assessed by hypotheses generated from the following research questions:

1. Do academically "high risk" students who accept the invitation to participate in the Academic Support Program have significantly higher grades in related college courses than do similarly "high risk" students who were invited to participate in the program but chose not to do so?
2. Do the academically "high risk" students who participate in the Academic Support Program have a positive correlation to retention in Calvin College?
3. Do former participants of the Academic Support Program who are still enrolled in the college after five semesters exhibit internal motivation and goal directed behavior and express a positive relationship to the program?

The components of the study were designed to address:

(1) the short term goals of the program--the equipping of "high risk" students with conceptual skills needed for academic studies and managing and ordering of life experiences.

(2) the long-range institutional and program goal--retention of students until they reached anticipated or reasonable academic goals.

In addition, the components of the study focused directly upon the elements which professionals in the field of learning assistance concur are those that contribute to program effectiveness and to further planning for or refinement of such programs.

One section of this study addressed the relative success of Academic Support students in successfully completing the related courses in the core curriculum. An informal survey conducted by this researcher, of six private liberal arts colleges, confirmed that the most frequently expressed purpose of learning assistance programs is the provision of basic skills needed for academic studies. A comprehensive study commissioned by the Council for Advancement of Experiential Learning of skills programs across the country collected data which determined the features of learning assistance programs considered by learning center staff and administrators to be critical to program effectiveness. Results of that study indicated that there is agreement as to the focus of such programs on skills needed for the academic demands of college courses: reading/study skills, writing/grammar, and mathematics (Gruenberg, 1983, p. 2).

Another segment of the study addressed program effectiveness through the outcome measure of persistence rates of participants. Astin (1982) recorded retention as a traditional mode of assessment, and literature verifies that retention studies continue to be encouraged, motivated by possible institutional benefits which might impede enrollment declines (Dallam and Dawes, 1981). Retention is perceived as a particularly valid measure of learning assistance programs since a primary goal of such programs is to help students gain the skills, motivation, and perseverance necessary to continue their education (Hoban, 1983). It is apparent that

the more students learn, the more likely they are to persist toward graduation; therefore, if programs are productive in delivering student learning, they might also have higher persistence rates. Learning assistance professionals realize that to increase retention of "high risk" students an individualized feedback system about classroom tasks and performance is vital. Therefore, such programs emphasize the role of the advisor as one who not only helps in selecting courses but also provides the reinforcement necessary to develop self-directed individuals. White and Bigham (1982) stressed such a need for an individualized feedback system about the classroom tasks and perceived performance as the key to success in college retention. In this study, then, attention directed toward retention was a means of investigating the possible effects of instructors' roles as advisors as well as the provision of an outcome measure valued by administrators.

The final section of the study utilized a questionnaire as the means of investigating the effectiveness with which the Academic Support Program, through the teaching of study skills, helped its participants to assimilate the strategies of successful learners. Efforts of the Academic Support Program which integrated affective with cognitive efforts and attempted to enhance the academic self-esteem and internal locus of control of its participants could be categorized as "intrusive advising". Such counseling fits partially under the holistic definition of Boylan (1981, p. 5) in that it seeks to direct the skills effort at the whole person and is gaining

acceptance as a service which may well be that most urgently needed to complement the skills courses.

The questionnaire also provided descriptive data about its participants which indicated the ways the participants perceived the effects of the program and its process and provided insights into unintended results of the program. Descriptive data, such as preferred learning style and study patterns, provided a basis for informed decision making related to modification of the Academic Support Program and its system of delivery.

Isaac and Michaels (1981, p. 128) cited surveys as the most widely used technique in education for the collection of data and verified surveys as an appropriate means of gathering descriptive data and obtaining frequencies of attitudes and opinions. Attitudes, viewed as meanings or beliefs not merely expressions of approval or disapproval, are prominent among the outcomes program developers are concerned with; therefore, the questionnaire can be used as a valuable tool for measuring attitudes if not trusted blindly (Cronbach, 1963). Although the questionnaire is of a retrospective nature which introduces memory errors and contamination because of intervening events and biasing factors, Cronbach (1963) assures that questionnaires are appropriate for evaluation because a student has little motive to distort and the evaluation report compares average frequencies rather than individual scores. A mailed questionnaire was selected over the interview in

this study because it allowed for uniformity of response, anonymity of respondents, and relative ease in distribution.

Generalizability

Although this study was designed around components essential to most learning assistance programs, with respect to external validity, it is applicable in its exact form only to learning assistance programs similar to the Academic Support Program at Calvin College. Such programs

(1) exist in a four year liberal arts setting,

(2) exist as a separate department within a traditional framework,

(3) teach skills primarily through classes rather than tutorials,

(4) incorporate the role of advisor into faculty job descriptions.

Assumptions

The study was based on the following assumptions:

1. Evaluation involved measurement of the results, effects, or performance using a formalized instrument for collection of data and providing results which can be replicated.
2. Evaluation contained judgments of worth regarding the program and process based on interpreted comparisons between performance data and objectives.
3. Evaluation was also performed in the service of decision making.

4. The design and structure of the learning assistance program were secondary in importance to the manner in which services were delivered to academically underprepared students.
5. The professionals in the program communicated a belief that academically underprepared students could become persisters and effective learners without sacrificing academic standards.
6. The professionals in the program provided both affective and cognitive support as a common denominator for all components.
7. There were no extreme differences in the abilities or personalities of the two groups of invitational students studied.
8. The program components were delivered as intended, and the instruction for specific components was uniform.
9. A semester of course contact was sufficient to be a critical parameter.
10. Findings which suggested a positive relationship between participation in the Academic Support Program and academic achievement and persistence for academically underprepared students who were invited to participate in the program would intimate a positive relationship as well for the conditionally admitted students who were required to participate.

Limitations

The major limitations of this study were:

1. The impact of the Academic Support Program on students who were admitted to Calvin on probation with participation in the program a requirement could not be studied through experimental design as there was no sample available to be utilized as a control group.
2. Internal validity was contaminated by effects which confounded the experimental variable, such as maturation and the John Henry effect.
3. A significant relationship between the criterion and participation in the program did not necessarily establish that participation was a causal determinant of the criterion. Also, there was a tendency to assume that relationships were linear when they might instead have been curvilinear or interdependent.
4. It was practically impossible to isolate all factors that might have affected grades independently of whatever services were provided; other variables external to the program itself also had to be taken into account, such as the strengths and varying styles of professors in the college classes.
5. The impact of variables, such as motivation and persistence, upon retention and academic performance needed to be considered. Also attrition might have been unrelated to the success of the program to provide

academic support but attributed instead to such variables as financial or personal circumstances or original goals which precluded attaining a degree.

6. There was no control for the variability in student usage of the program.
7. The questionnaire was subject to bias on the part of the respondent, and responses were apt to reflect quality of the experience, not quality of learning.
8. The questionnaire was reactive in nature and by eliciting a reaction might have produced answers that arose from "response sets" or that were vulnerable to over-or-under rater bias.

Definitions of Terms

Terms Related to the Program

Conditionally admitted students are those who are accepted at Calvin on the condition that they must participate in the Academic Support Program. These students have a high school grade point average below 2.3 or a composite ACT below 10, based on Calvin norms.

High risk students are those who score low on standardized achievement tests, generally cope poorly in traditional educational structures, and have poor records of past academic performance (Chickering, 1969; Cross, 1976).

Invitational students are those who are accepted at Calvin with regular admission status but are invited to participate in the Academic Support Program. These students

have ACT quantitative test scores below 13 or verbal ACT scores below 15, based on Calvin norms.

Learning assistance programs are those that through a blend of instructional resources remediate the academic deficiencies of learners so they can participate in the core curriculum and address the psychological and affective needs of learners in ways that provide the reinforcement necessary for them to develop into self-directed individuals.

Terms Related to Research

Assessment is the process of gathering data and fashioning them into an interpretable form; judgments can then be made on the basis of this assessment (Anderson, et al., 1975, p. 27).

Concern is a matter of interest about which the program professionals feel threatened or are anxious to substantiate.

Evaluation is both a judgment on the worth or impact of a program, procedure, or individual and the process whereby that judgment is made (Dressel, 1976, p. 1).

Organization of Subsequent Chapters

The content of Chapter I has included the background and context of the study and its purpose: namely, to assess the Academic Support Program at Calvin College in terms of the effectiveness with which it provided academic support and skills to those who were admitted to the institution as academically "high risk" students. Rationale for the need for evaluation of learning assistance programs was included and

substantiated with pertinent research. The scope of the study was specified, the research questions were listed, and the generalizability of the study, its assumptions, limitations, and definition of terms were presented.

Chapter II reviewed research and literature relevant to the content and methodology of this study.

Chapter III describes the sample, the treatment, and the design of the study. It includes the research questions, explains the procedures of the evaluation process, and describes the data gathering instruments and process of data analysis.

Chapter IV contains the presentation and analysis of the data.

Chapter V provides an interpretation of the data. It also includes a summary of findings, implications, and recommendations for further research.

CHAPTER II

REVIEW OF RELATED LITERATURE

The review of the literature is divided into four major areas which are pertinent to this study: (1) research pertaining to learning assistance programs, (2) research investigating retention of college students, (3) literature examining program evaluation, and (4) studies related to the evaluation of learning assistance programs.

Research Pertaining to Learning Assistance Programs

Development of Learning Assistance Programs

The 1960's plea for relevance in American higher education and the shift in the American belief espousing elitism in higher education to a belief promoting egalitarianism have turned the attention of higher education administrators to programs which are designed to meet the needs of the increasingly diverse student population. Although Wellesley College in 1894 developed what was perhaps the first remedial course for college students and programs for high risk students of the 1930s and 1940s attempted to help through reading and learning skills courses, it was primarily the 1960s that caused the majority of colleges to modify admissions policies, thus necessitating a concern for curriculum changes and basic skills (Kulik, et al., 1983).

Open admissions has created pressures, problems, and opportunities for large, public institutions and private colleges alike. Calvin College, being a denominational school, has a responsibility to its constituency which has resulted in the policy of admitting all students for whom there is some reasonable prospect they will be able to complete the college program. Calvin, then, like an open admissions institution is concerned with the basic skill levels of entering students and is committed to assisting students of high academic risk toward a successful college experience, doing so through the Academic Support Program.

Theoretical Foundations for Learning Assistance Programs

Developmental education is a holistic term that refers to a field of study and practice. Subsumed under this general class of activities is the learning assistance program designed primarily as K. Patricia Cross suggested "to overcome academic deficiencies. . .in the standard dictionary sense in which remediation is concerned with correcting weaknesses" (1976, p. 31). Many programs no longer conform to this traditional remedial focus of correcting deficiencies of a special population only but profess to promote the academic development of the total college population. In reality, however, few programs change their educational and instructional philosophies to conform with such theories of human development (Brown, 1982).

The confrontation between the philosophical differences of programs regarded as remedial and those categorized as developmental must be understood if the position of a particular learning assistance program, such as that at Calvin College, is to be understood. These distinctions are defined and discussed in Brown (1982), Clowes (1980), and White and Bigham (1982).

> Remedial programs imply that a student has skill deficiencies which must be made up or brought to an equivalency with other peers in the college.
>
> Developmental studies programs are undertaken to develop the diverse talents of students, the strengths as well as the weaknesses, to reinforce the self-concept of the student as well as the academic performance, and to stimulate the making of basic decisions about life directions and purposes.

Cross (1976) suggested that a program should not focus on pedagogical implications, but instead on the program goals. This shifted the focus of the model from one centering on deficits to one emphasizing the building of strengths.

Learning assistance programs are, however, becoming recognized as legitimate departments within an instituion. Such acceptance is partially due to the fact that a theoretical foundation for learning assistance programs is being constructed which is consistent with theories of human development. Within this foundation are the following assumptions about students that guide the practices of developmental educators (Boylan, 1981):

> Practically all adults are capable of mastering basic academic skills and of developing their existing skills in other areas.

> Academic excellence is a worthwhile goal.
>
> Given proper instruction and support, practically all students have capacity for meeting fairly high academic standards.
>
> The best way to promote skill development is to accept each student's individual level of development and to build on it.
>
> All adults have a right to the benefits of higher education.

Theorists and practitioners alike are accepting a holistic approach that education is a lifelong process related to overall development. They also perceive the acquisition of new skills and the improvement of existing ones as appropriate at all academic levels (Spann, 1977; Cabral, 1981).

Although there is no general agreement as to where, when, and how developmental efforts should be designed, Grant and Hoeber (1978) depicted the most common approaches to be: precollege summer programs, programs concurrent with regular courses during the first semester or two, and vestibule academies or holding colleges where deficiencies must be corrected prior to regular admission. They further summarized that recent studies have begun to demonstrate that those programs that are integrated into the total college rather than isolated (with the concomitant punitive overtones) tend to be more successful.

There is greater consensus among developmental educators as to the characteristics of successful programs. College and university basic skills development programs that report the most complete and encouraging retention data seem to have eleven elements in common: strong administrative

support, mandatory counseling and placement, structured courses, award of credit, flexible completion strategies, multiple learning systems, volunteer instructors, use of peer tutors, monitoring of behaviors, interfacing with subsequent courses, and program evaluation (Roueche, S., 1983).

Participants in Learning Assistance Programs

Students who participate in learning assistance programs are similar to those categorized by K. Patricia Cross as "new students". Cross (1976) depicted the student placed in such programs as one who exhibits low academic achievement due to one or more of the following reasons: poor study habits, inadequate mastery of basic skills, low I.Q., psychological or motivational blocks to learning, or socio-cultural factors. These attributes were reaffirmed in the findings of Astin (1975), Mulka and Sheerin (1978), and Sullivan and Wilson (1980).

While there is a shared feeling among faculty and administrators that a distinguishable difference exists between developmental and regularly admitted students, this difference does not distinguish itself in the resolving of the developmental tasks--developing a competence, autonomy, and purpose--determined relevant to college students by Chickering (1969). A study comparing students in a developmental program and freshman English students concluded that either (a) developmental task resolution does not play a large part in the academic readiness of college-aged students or

(b) differences between remedial and regular students are definable through achievement potential and college level readiness and not through other seemingly distinguishable characteristics (Pollard, et al., 1983).

It is important that the workabel description of the student in a learning assistance program distinguish between causes and effects and that methods used to identify such potential students should neither punish the student for lack of pre-college preparation nor abolish college standards, developing a program secondary to the college and its mission (Grant and Hoeber, 1978).

Professionals in the Learning Assistance Program

Given the characteristics of students in learning assistance programs, one can understand the emphasis put upon the counseling component in such programs. The literature suggests that learning assistance programs should involve not only teachers but also counselors who can provide academic assistance and a supportive nurturing attitude toward the students, thus enhancing self-esteem in the students who realize their strengths are valued. Support should focus on helping the students to accept responsibility for their academic status, to assess accurately their academic abilities, and to take charge of their own lives (Grant and Hoeber, 1978; Gruenberg, 1983; Sadler, 1983; Spann, 1977; Roueche and Snow, 1977.

Roueche and Snow (1977) suggested further that the teacher is the key to the design and implementation of an effective program for high risk students. It is the instructor who chooses the course content, decides how the subject matter is to be taught, and determines the learning environment. Roueche and Snow continued that instruction may be less important than the students' interpretation of the teacher's willingness to assist in the process. In considering characteristics of successful developmental educators, Gruenberg (1983) asserted that teachers who are also learners and experimenters have the most success with developmental students because they greet students with enthusiasm and understanding.

A review of the literature does not present learning assistance programs as a static venture attempting only to present themselves accountable to their sponsoring institutions. Journal articles and conferences for developmental educators direct the developmental educator to an awareness of accommodating students through both the diagnosis of strengths and weaknesses of individual students and attending to individual learning styles. Akst and Hecht (1980), Maxwell (1979), McCarthy (1980), and Roueche and Snow (1977) offered directives for program improvement that present a challenge for developmental educators in terms of adjusting programs and teaching methodologies to be congruent with the constructs of learning styles research.

Cotroneo (1983) encouraged the focus of learning assistance programs on "transferable" skills not limited to a

particular content or context. Relying on processes involved in learning, such as critical thinking skills, learning assistance programs could become the power for adaptation within the individual, not in authoritative forces. Flager, et al. (1983) further summarized the rationale presented frequently for expanding the services of the learning assistance program to faculty wishing to improve the quality of their instruction. The logic for using learning centers as a base of services to faculty is efficiency and neutrality. This, of course, assumes that the instructors are knowledgeable in adult learning processes and that the center is not associated with a department, thus allowing for a separation of improvement services and evaluation activities.

Research Investigating Retention of College Students

One of the primary goals of every learning assistance program is the retention of students until they reach reasonable goals. Retention has escalated to an area of prime concern for all educational administrators as well. National surveys reconfirm that approximately 40 percent of the entering freshmen nationwide never achieve a baccalaureate degree (Cope and Hannah, 1975, p. 1). The Carnegie Council of 1980 drew additional attention to retention of students in its forecast that by 1997 a 23.37 percent national decline would occur among the eighteen to twenty-four year old age cohort upon which undergraduate admissions officers typically focus their recruiting efforts (Lonabocker, 1982, p. 76).

A universal dropout profile has not emerged; studies must be undertaken by individual institutions to obtain a profile for the unique body of students attracted to that specific college or university. The classic work of Astin, Preventing Students from Dropping Out (1975), does present empirical data useful in estimating a given student's chances of dropping out. The greatest predictive factor, according to Astin, is the student's past academic record and ability; next in importance are the student's degree plans at the time of college entrance, religious background, concern about college finances, study habits, and the educational attainment of the parents (1975, p. 45). In a related work, Cope and Hannah (1975) concur that dimensions of ability are the strongest indicators of persistence in college. These are followed by dimensions of social class and expectation of educational goals at the time of entering the institution. More specifically, while the "holding power of large, visible, public universities and small invisible private colleges is about the same", students in liberal arts programs drop out at twice the rate of those in professional fields (Cope and Hannah, 1975, p. 20).

The model designed by Tinto (1982) for specifying relationships between individuals and institutions provided evidence that students' decisions to withdraw are significantly affected by the degree of their intellectual and social integration into the life of the institution with informal interaction with other students and with faculty outside the

classroom seeming to be forms of integration of particular importance. Pascarella and Terenzini (1980) recorded the freshman year cumulative grade point average and the extent of involvement in extra curricular activities as two behaviors that also are potentially significant aspects of academic and social integration. Viewed from the perspective of learning assistance programs, such findings suggest that the likelihood of student persistence in college may be dependent upon both the formal and informal roles of the faculty and give credance to the emphasis of both roles imposed upon learning assistance instructors. This importance is extended into the relationship between attrition and advisement noted by Pantages and Creedon (1978).

The retention-attrition issue is complex, and the literature reveals studies using similar designs but with little research data included to evaluate intervention effects. This lack is partially attributed to the loss of opportunity to contrast the effects of those in the study with a no-treatment control group or of opportunity to employ other inventions with different subgroups within the population so that differential effects of a variety of programs can be assessed concurrently (Boyd, et al., 1982). Studies are, however, to be found which are using increasingly sophisticated tools for analysis and treatment of student attrition. The four equation, structural model of student satisfaction, performance, and retention conceptualized by Aitken (1982) identifies where in the institution variables have their

major impact; Nisbet, Rubel, and Schurr (1982) used unconventional predictor variables to more precisely define potentially high risk students.

Whatever the precision with which retention is addressed, most studies remind one of the limitations to which an institution should go in reducing attrition. Tinto (1982) stated that higher education of any form is not for everyone and that the proper question to be addressed is not one of whether to reduce the levels of attrition but to ask for which types of students specific retention policies should be developed. Cope and Hannah (1975) gave explicit descriptions of situations when it is beneficial to encourage stopping out or to facilitate dropping out.

Pantages and Creedon (1978) similarly have stressed the importance of identifying high probability dropouts so that intervention with counseling or other institutionally developed programs can be undertaken before withdrawal decisions are made. Learning assistance programs have responded with programs that include diagnosis, counseling, individualization, and a consistent commitment of student time. In addition, there seems to be a fairly consistent positive correlation between effective learning assistance programs and retention. As Astin (1975, p. 148) has pointed out, "Anything that can be done to enhance students' academic performance will also tend to reduce attrition rates."

Student retention has often been used as a specific outcome assessing the effectiveness of learning assistance

program services. Boylan (1981) summarized findings of studies which are used to confirm retention as a measure of effectiveness: (1) retention through the senior year was shown to be approximately 15.5 percent greater for participants in a learning assistance program than for nonparticipants, (2) the average year-to-year retention rate for participants was approximately 66 percent; retention rate for underprepared students who did not receive assistance ranged from 30 to 55 percent.

Programs rated as successful by using retention as a variable correlated positively with those that emphasized initial orientation, educational skills, advisement, and counseling through competent diagnosis and the careful monitoring of the learning process (Boyd, et al., 1982). They also placed an emphasis on motivation and attitude formation, arousing in the student a desire to acquire knowledge through his/her own effort (White and Bigham, 1982) and strived to develop in students, who previously had associated academic situations with failure, a confidence in their abilities to achieve success in college (Friedlander, 1980).

Literature Examining Program Evaluation

In its effort to provide equality in education, society must not forget John Gardner's admonition that quality must be provided in education as well (Lewis, 1983). Astin (1982, p. 13) proposed an action-oriented view of quality assessment and suggested that each institution initiate several concrete

and relatively simple measurement processes that would clearly be intended to improve the quality of education for students. "Quality" was presented as a noun rather than an adjective describing a program and represented an informed judgment about the attainment of distinctive goals in a manner that respected resources (Astin and Solomon, 1981; Scott, 1981). As applied to this study, program quality would be assessed to determine the acceptable purposes reflected in the program, the congruence of these purposes with institutional goals and resources, and the degree to which each of these goals is achieved.

Development of Program Evaluation

Historically, evaluation research began from measurement studies which focused on the student and individual differences with little relationship being made to school programs. Evaluation, having been stimulated by the testing movement of two world wars, was oriented toward standardized and objective measures that were norm referenced and fit in well with the prevailing industrial metaphor that was guiding schools (Guba and Lincoln, 1981). Program evaluation, then, developed conceptually with Tyler's formulation in the 1940s of an evaluation process which insisted that systematic and intelligent study of an educational program is based upon the formulation of objectives and the using of those as the evaluative criteria throughout the study (Worthen and Sanders, 1973). The landmark study of Cronbach, "Course Improvement

through Evaluation" (1963) also broadened the traditional measurement approach to evaluation.

Almost two decades later, Cronbach and Associates (1980) diminished the differences between evaluation and research once stipulated by Stufflebeam (1971). Support for their statement that there are more similarities than differences in the techniques employed and that the differences are more conceptual than methodological comes also from Anderson and Ball (1978) and Stake and Denny (1969). Oetting (1976) still argues that the goals of scientific inquiry and those of evaluation research have different criteria. Scientific inquiry is aimed at the advance of scientific knowledge with the exact relationship between dependent and independent variables stated as accurately as possible; evaluation research is aimed at collecting data that will help in making practical decisions about programs.

Function of Program Evaluation

It was Scriven (1973) who, in referring to two major roles of evaluation, suggested the distinction between "formative evaluation" and "summative evaluation". Referring to the same two functions, Stufflebeam (1971) suggested the distinction between proactive evaluation intended to serve decisionmaking and retroactive evaluation to serve accountability. Thus, evaluation can serve two functions, the "formative" and the "summative". In its formative function evaluation is used for the improvement and development of an ongoing activity (or program, person, product, etc.). In its summative

function evaluation is used for accountability, certification, or selection (Nevo, 1983).

Hoole (1978) modified the distinction between "formative" and "summative" evaluation, stating both focus on the impact of a program and are based upon the same methodological orientation. Cronbach and Associates (1980) concur for the same reason that such strict classification of purpose is no longer appropriate as data gathered for the purposes of a summative study could provide information useful for an ancillary formative study.

Jack C. Merwin, in his 1983 invited address to the American Educational Research Asosciation (Division D), concluded that "if this distinction is no longer adequate, it may mean a new set of adjectives related to purpose, such as program development evaluation, program improvement evaluation, policy making evaluation, etc." He continued that the utilization of evaluation results must be examined in terms of the diversity of purposes for which evaluations are conducted. The question of the degree of use of evaluation results has, in fact, been examined by several reports during the last decade (Alkin, 1975; Ciarlo, 1981; Weiss, 1972).

A third function of evaluation, the psychological or sociopolical function, should also be considered. There are times when evaluation is not serving formative or summative purposes nor being used for accountability. It might then be serving this third function and be used to increase awareness of special activities, to motivate desired behavior of

evaluees, or to promote public relations (Nevo, 1983). This study recognized the three different roles of evaluation and realized that the different functions might be served by different evaluation methods.

Merwin (1983) cautioned, however, that if studies of the contributions of evaluations address only the direct use of results, evaluation will be undersold. The potential ramifications of evaluations must attend to unintended as well as intended outcomes (Scriven, 1981) and to the impact of the process both in planning them and in assessing their worth. Weiner and his colleagues have worked accordingly and concluded that evaluations can have three types of influence, none of which is either mutually exclusive or exhaustive (Merwin, 1983, p. 5):

(1) Allocative influence, the most frequently envisioned by evaluation theorists, is in effect when there are discrete, authoritative actions concerning changes in program budgets, formation and enforcement of regulations, modifications of organizational structure, and decisions about expansion, continuation, or cancellation of specific program components.

(2) Symbolic influence occurs when the existence of an evaluation serves a ritual function, and its success is independent of the message the evaluation brings to decision makers; legitimacy of an organization is enhanced by commissioning an evaluation and the program under scrutiny is reassured that it is being taken seriously.

(3) Appreciative influence leads to the changing of political weights for different forms of evidence and often enhances the evaluator's political weight, the changing of perceptions about the desirability and/or legitimacy of program goals, or the changing of opinion concerning alternative program strategies.

The attention being paid to program evaluation has resulted in an expanding number of theories, models, and techniques for educational evaluation--each with a framework corresponding to its definition of evaluation. Merwin described the evolution of evaluation literature through changes in terminology referring to methods:

> Ten to fifteen years ago, we were looking at models. Seemingly everyone who spotted a weakness in someone elses model produced a new one to counter the perceived deficiency. Thus the objectives based model attributed to Ralph Tyler was countered by Scriven's goal-free model. And the number of "models" grew. At the height of the model building era, Worthen and Sanders (1973) chose to describe and contrast "frameworks". In a 1974 unpublished paper, Stake described the characteristics of "approaches". He followed this some years later with an argument for "persuasions" (1983, p. 6).

Understanding the process and implications of each persuasion is important to the researcher as these conceptualizations serve as a guide toward the framework and methodology of ones own study. The following texts are representative of those which have made notable attempts at classification of evaluation approaches: Anderson, et al., 1975; Guba and Lincoln, 1981; House, 1980; Popham, 1975; Stake, 1976; Stufflebeam, et al., 1971; Stufflebeam and Webster, 1980; Worthen and Sanders, 1973.

Frameworks for Evaluation

The basic assumptions and distinguishing characteristics of the major evaluation frameworks follow.

Decision-oriented evaluation. This model, set forth by the Phi Delta Kappa Commission on Evaluation (Stufflebeam, et al., 1971), divides evaluation into four distinct strategies: context evaluation, which has as its objective specification of the operational context and identification of problems underlying needs; input evaluation, which is concerned with identifying and assessing system capabilities; process evaluation which attempts to identify defects in procedural design or implementation and to document project activities; and product evaluation, which has the goal of relating outcome information to objectives and to context, input, and process information. Underlying assumptions are based on evaluation performed as a service of decision making, evaluation as a continuing process which includes the steps of delineating, obtaining, and providing, and evaluation as a collaborative effort between the evaluator and the decision maker. The model of Marvin Alkin is similar to Stufflebeam's CIPP model; focus, however, is placed on program implementation and program improvement (Worthen and Sanders, 1973, p. 153).

Value oriented definition. This definition stresses the "value judgments" made in evaluating programs and

describes the act of judging merit as central to the role of the evaluator. Michael Scriven (1973) called for "goal-free evaluation", insisting that all aspects of an educational program should come under the scrutiny of the evaluator and that nothing should be taken as a given. This definition begins with the premise that evaluators seldom know all of the criteria upon which they or others will make a judgment of program merit and has been primarily concerned with reducing the effects of bias in evaluation.

Congruency-comparison definition. Robert Stake's (1967) responsive, countenance of evaluation is an iterative process of acquiring information about an institution, program, or project; of defining issues of importance to constituencies; and of describing strengths and weaknesses relative to these issues. Stake provided an explicit data matrix emphasizing the two basic acts of evaluation--full description and judgment. He processed descriptive evaluation through congruence between intents and observations and contingencies. Descriptive data were compared to either absolute or relative standards to indicate whether what was intended did occur; these comparisons were made public as a means of remaining "responsive to any legitimate interests and pressures surrounding the program".

Art criticism definition. This approach formulated by Elliot Eisner (1979) argued for the appropriateness of evaluating instructional objectives by determining the congruence

between the objectives and student behavior. However, the objectives cannot be dealt with in terms of a common standard. Evaluation requires a reflection upon what has been produced in order to reveal its uniqueness and significance; it is the model of a critic who is attuned by experience and training to judge the important facets of educational programs.

Systems-oriented definition. This approach assumes a view of programs as systems and reflects a theoretical/philosophical stance in the sciences called general systems theory. A major antecedent for this approach was developed by Secretary McNamara in the Department of Defense and has since served as the major evaluation perspective in the Department of Health, Education, and Welfare (House, 1980, p. 4). While traditional scientific inquiry attempted to understand man within-his-environment by isolating the effects of single variables while holding everything else constant, the general systems paradigm posits that it is impossible to understand complex events by reducing them to their individual elements. Taking a view from the gestalt school of psychology that the whole is more than the sum of its parts, this perspective contains no "independent" variable because everything is ultimately related to everything else. This viewpoint differs considerably from the decision-oriented definition where the immediate context is the focus of inquiry; it is used most often when evaluating a program within the framework of a whole system.

Applied research definition. The purpose of this approach is to establish causal connections between instructional program experiences and outcomes. It usually consists of three components: inputs, the program, and outcomes. Great care is taken to control all external variables and use the traditional experimental research designs of Campbell and Stanley (1966). This design has problems of practicality for many educational program evaluations due to an emphasis on randomization, attempts to validate cause and effect, and use of designs (such as after only) that make ongoing program refinement difficult (Borich and Jemelka, 1981).

Current Definitions of Evaluation

The brief synopsis given of the major evaluation models which had an impact upon this study, depicted evaluation as an emerging field with its definition in a state of flux. Agreeing that evaluation is not a single concept, Cronbach (1980, p. 14) defined evaluation as "systematic examination of events occurring in and consequent on a contemporary program--an examination conducted to assist in improving this program and other programs having the same general purpose". Guba and Lincoln (1981, p. 36) took a more restricted view, perceiving each program to be evaluated as a unique event with special characteristics derived from the purposes of the audience that requested the evaluation, the context of the program itself, and the perceptions of the various actors within the program. In attempting to define evaluation, Clowes (1981, p. 20) cited the work of Ernest House (1978) claiming all

models derive from a philosophy of liberalism based strongly in an individualist psychology and empiricist orientation; therefore, there is no one definition of evaluation, only appropriate methods. The task of evaluation, one would conclude, is to find the appropriate form of evaluation for the task at hand.

In determining the potential effectiveness of methods for specific needs, evaluators are cautioned to focus on the purposes of planning reviews, whether they be planning, modification, or justification (Seeley, 1981) and focus on the proposed program evaluation system as interactive, capitalizing on systematic properties of the existing organization rather than creating a disturbance that will be resisted (Petrie, 1982). In addition, Stufflebeam (1981) has proposed the use of the Standards as the basis for a research agenda for the various methods. The Standards for Evaluations of Educational Programs, Projects, and Materials (1981) identifies and elucidates thirty separate standards meant to play a vital role in upgrading the practice of evaluation and to act as guiding principles which should be observed in evaluating educational programs, projects, and materials.

Evaluation of Learning Assistance Programs

A classic resource in terms of the overall evaluative process and purposes is the Handbook of Academic Evaluation by Paul Dressel (1976). Also available are guidelines in current literature for putting program evaluation into the milieu

within which learning assistance operates. Especially appropriate in this respect and in the additional respect that it motivates the learning assistance educator toward responsible evaluation and encourages the sharing of outcomes as a professional responsibility is the New Directions for College Learning Assessment of Learning Assistance Services, C. C. Walvekar (Ed.), (1981). A chapter by Clowes which is included in this work provides a series of classification schemes for learning assistance programs, for evaluation models, and for evaluation methods. On the basis of their function, form, and context, Clowes classified learning assistance programs as remedial or developmental and then related these classifications to the traditional evaluation models.

Alternatives to this traditional approach have been proposed by Cronbach and Associates (1980) and Merwin and Welch (1984) and are those which have been selected for and are utilized in the design of this study. The Cronbach approach involves various combinations of multiple, smaller evaluations, proposing that more information can be gained in this manner than with one large evaluation. Merwin and Welch have formulated a three step structure keeping the focus of each step in the design on the purpose(s) established for the evaluation. Theirs is an eclectic approach based on purpose and audience with steps in its process labeled as (1) orientations, (2) strategies, and (3) tactics.

> Orientations are general classifications of purposes, such as accreditation, policy making, program improvement, etc. Strategies are general methods or approaches for conducting

> evaluations, one or more of which might be used with a given orientation. They include such things as goal-free evaluation, responsive evaluation, CIPP, judicial metaphore, experimental designs, naturalistic inquiry, etc. Tactics are viewed as the procedures by which strategies are implemented; the techniques by which data are generated. The list includes such things as case studies, logs, tests, and other means of gathering information. . .For any given need for an evaluation there is the possibility that more than one strategy may be needed and for each strategy more than one tactic might well be used (1983, p. 7).

Studies Related to the Evaluation of Learning Assistance Programs

A review of the literature indicated that learning assistance professionals are beginning to confront major evaluation issues for the purposes of improving current levels of practice and of justifying their worth in terms of productivity and cost effectiveness.

Grant and Hoeber (1978) raised questions about basic skills programs related to their success, pedagogical approaches, and future outlook. Integrated into their research were recommendations for ways to improve programs through the examination and refinement of instructional and programmatic elements. The report also emphasized the need for more empirical data. Mullin and Summers raised similar questions, focused on the analysis of the quality of the achievement data and of the evaluation techniques used, and reported a summary of conclusions drawn in several compensatory program studies (1983, p. 339).

> The programs have a positive, though small, effect on the achievment of disadvantaged students.
>
> The results of most studies are overstated because of the upward biases inherent in several standard statistical procedures.
>
> The gains appear to be greater in earlier years, and the evidence is fairly strong that early gains are not sustained.
>
> No significant association exists between dollars spent and achievment gains.
>
> No approach or program characteristic was consistently found to be effective.

Gruenberg (1983) identified variables of successful learning assistance programs so they might be consciously incorporated into similar programs. She, however, reiterated the need for more reliable research by stating that identification of features vital to success must be followed by the testing of these variables within the context of the students' academic gains.

Representative studies which have attempted to test these variables through the evaluation of specific programs are:

The study by Sullivan and Wilson (1980) followed students in the learning assistance program at the Memorial University of Newfoundland Regional College in Corner Brook for five semesters and identified program features associated with success. These coincided with those identified by Roueche and Snow (1977): (1) Teachers are the key, (2) supportive services are vital, (3) proper organizational support is essential, (4) a considerable amount of effort and time must

be involved in the planning for and presentation of the program. Results of the follow-up indicated it is possible to produce an intervention program which enhances the prospects of a successful college career.

Hoi Suen (1979) addressed the problems confronting the experimental paradigm for the evaluation of special services programs--namely randomization and time pressure--and presented an inductive approach as an alternative. She approached the evaluation problem from an exploratory, observational angle and sought relationships between program methods and desired outcomes rather than through the testing of hypotheses.

Kulik, et al. (1983) identified the best special program evaluations as those which examined program outcomes such as grade-point averages in follow-up courses or persistence rates in college. This work reported the findings of sixty studies on program effects in the areas of achievement and persistence in college and concluded with some confidence that the special programs studied had a positive effect. In addition to assessing the impact of a learning assistance program by quantifying differences in student performances and retention rates, an evaluation of the Kansas City/University of Missouri program (Martin, et al., 1982) determined that a combination of factors influence higher levels of student academic performance: proactive rather than reactive service, service attached directly to specific courses, and a program viewed as a means of enhancement, not remediation. Not to be neglected by the contemporary evaluator are the analyses available

through the use of computer generated data. O'Hear and Pherson (1982) suggested such data could provide a much clearer picture of what is being done and of the degree of effectiveness with which a program is aiding retention and helping students toward academic success.

Overview of Remaining Chapters

The review of the literature in Chapter II described the development of learning assistance programs and their theoretical foundations, explored research investigating the retention of college students, examined literature related to program evaluation, and summarized articles which focused upon evaluation of learning assistance programs.

In Chapter III the methodology of the study--its procedures, design, population, and data gathering instruments--are explained. Chapter IV includes an analysis of the statistical and descriptive data; Chapter V contains a summary and discussion of the data analysis, the conclusions of the study, and the implications of the study for the Academic Support Program.

CHAPTER III

METHODOLOGY

Introduction

The purpose, which provided the direction for this study, was to assess the effectiveness of the Academic Support Program by addressing short and long term goals of the program:

(1) the equipping of academically "high risk" students with the skills needed to complete the related college class.

(2) the equipping of "high risk" students with conceptual skills needed for academic studies and the managing and ordering of life experiences, and

(3) the retention of students until they reached reasonable or anticipated goals.

Motivation for a study comparing the effect of participation in the Academic Support Program with effects of nonparticipation arose from administrative concerns for data which could assist in summative and formative decision making related to the program. An ancillary purpose of the study was to discuss the implications of the findings for liberal arts colleges.

Description of the Sample

The population studied included the 103 students who were invited as freshmen in the fall of 1980-81 to partipate in the Academic Support Program at Calvin. These students who chose to participate experienced the program in its present format and could be followed into subsequent semesters for the study of retention. This sub-set of the total 1446 students admitted as freshmen that fall included students with ACT test scores in math below 13 or verbal ACT scores below 15. (Students admitted with a high school grade point average below 2.3 or with a composite ACT below 10, based on Calvin norms, were required to participate in the Academic Support Program.)

The entire population of fall of 1980 invitational students measured in this study yielded values used to make inferences about the parameters of a larger population of "invitational students" who might be given admission to Calvin College in the future. Such generalizations assumed that the population of prospective invitational students will be defined exactly as the invitational students of this study were and that the Academic Support Program components and methods of delivery would remain unchanged.

Table 1 describes the invitational students of this study by sex and race.

Table 1. -- Frequency distributions of invitational groups by sex and race.

	Females	Males	White	Black	Native American
English invitational students	23	30	51	1	1
Mathematics invitational students	43	7	48	2	0
Totals	66	37	99	3	1

The invitational students were described further according to mean ACT percentile scores and high school grade point averages. Table 2 depicts the mean ACT percentile verbal score and mean high school grade point average for English invitational students who took the Academic Support grammar classes and those who chose not to participate. Similarly, Table 3 presents the mean ACT percentile mathematics score and mean high school grade point average for the two categories of invitational mathematics students.

Table 2. -- Description of English invitational students.

Group	Number	ACT Percentile $\bar{X}$	ACT Percentile SD	High School GPA $\bar{X}$	High School GPA SD
Took Academic Support English	26	5.96	2.92	2.73	0.41
Did not take Academic Support English	27	5.67	2.77	2.84	0.38

Table 3. -- Description of mathematics invitational students.

Group	Number	ACT Percentile $\bar{X}$	ACT Percentile SD	High School GPA $\bar{X}$	High School GPA SD
Took Academic Support Mathematics	25	4.76	2.74	2.68	0.45
Did not take Academic Support Mathematics	24	5.33	2.60	2.74	0.41

Note: Data for one observation was unavailable.

The limitation of this method of selection in terms of internal validity was recognized. Although "invitational students" were depicted as from a similar population in that they were identified and classified by ACT scores and high school grade point averages, the reasons for which some chose to participate in this program and others did not was an uncontrolled variable, and differences in the results could be attributed to this variable rather than to the effects of the program. An attempt at controlling this factor was made by instructing the advisors of these students about the Academic Support Program and anticipating that random exposure to advisors with varying degrees of emphasis and persuasion toward taking Academic Support Program Labs would modify the personal motivation factor.

The questionnaire was mailed to 97 former Academic Support Program participants; this composed the total population of Academic Support Program participants who had enrolled in 1980 or 1981 and still were enrolled at Calvin.

Description of the Treatment

Students who participated in the Academic Support Program took either a semester course for four hours per week studying general mathematics or algebra, dependent upon placement test results, or a three hour a week course studying English grammar and sentence structure. Those in the English class also participated in a two hour a week methods and motivation for college study class. To control for varying strengths and styles of instructors, all grammar classes were taught by the same instructor and all mathematics labs of the same level similarly.

Design of the Study

The design of the study adhered to the eclectic approach based on strategy and audience suggested by Merwin and Welch (1983) and the use of various combinations of multiple, smaller evaluations recommended by Cronbach and Associates (1980) and Petrie (1982, p. 26). (Because of the nature of learning assistance programs, it was neither feasible nor ethical to randomly select or assign program participants to experimental and control groups in order to determine the effects of the program.) With the exception of the questionnaire, each of the components of this study was causal-comparative, with post-facto design. The groups were assigned because they differed on the independent variable, participation in the Academic Support Program; the independent variables, which varied with the hypothesis to be tested, were the English grammar exam scores, mathematics course

grades, first semester grade point averages, and numbers of semesters enrolled at Calvin. Although such experimental evaluation was suitable for advancing theory and generalizability, it was limited by the experimental assumption that a program links well-defined goals to theoretically informed treatments, by the fact it was studying a program already in process and one that existed in the real world and not in a laboratory setting, and by the purposiveness of human nature. Therefore, an attempt was made to accommodate for some of these limitations by adding a qualitative component, the use of the questionnaire.

Research Questions

The effectiveness of the Academic Support Program was assessed by hypotheses generated from the following research questions:

1. Do academically "high risk" students who accept the invitation to participate in the Academic Support Program have significantly higher grades in related college courses than do similarly "high risk" students who were invited to participate in the program but chose not to do so?
2. Do the academically "high risk" students who participate in the Academic Support Program have a positive correlation to retention in Calvin College?
3. Do former participants of the Academic Support Program who are still enrolled in the college after five semesters exhibit internal motivation and goal

directed behavior and express a positive relationship to the program?

Procedures

Permission to undertake this study and to retrieve data was granted by the Academic Dean of Calvin College and the chairman of the Academic Support Program. Criterion measures to determine the effectiveness of the program reflected the program goals which had been previously established through discussions with the total Academic Support Program staff and from administrative directives. Additional parameters, suggested by a panel of experts in the fields of learning assistance and educational research, were determined through a review of the literature.

Data on all variables were obtained from official university records housed in the Office of the Registrar and from files containing the English 100 grammar exam scores in the English Department. Contextual data to describe existing phenomena were gathered through a mailed questionnaire which was sent to 97 former participants in the Academic Support Program who had entered Calvin during 1980 and 1981 and who were still enrolled at Calvin. Included with each questionnaire was a cover letter (included as Appendix A) explaining the importance of the research and giving directions for completing the questionnaire and returning it in an enclosed envelope through the intra-campus mail by February 17, 1984. On that date a follow-up letter and a second copy of the questionnaire were sent to every other member listed in the

sub-set who had not responded. A number code on the envelope which had been provided for the return of the questionnaire revealed the identity of the respondents. Six surveys were returned as a result of the follow-up letter. Six were returned unopened because of address changes. A total of 61 questionnaires were completed for a response rate of 67 percent.

Description of the Instruments

This study employed two instruments for collection of data--the English grammar exam which had been given at the end of the English 100 course and a questionnaire which was designed for the express purpose of this study.

1. The English department grammar exam is an 100 item objective test which was created by the Calvin College English department to assess mastery of English grammar, punctuation, usage, and recognition of sentence faults. It was administered to all students enrolled in English 100 at the end of the semester. An attempt made to ascertain validity or reliability of the instrument yielded a KR20 of 0.85 ($N = 366$, $\bar{X} = 72.43$, $SD - 10.25$). The exam was also scrutinized by five members of the department and revised accordingly until the department was satisfied that face validity had been achieved. A copy of the grammar exam is included in Appendix B.

2. A questionnaire was designed to provide the instrumentation necessary for furnishing criterion measures from which inferences about the effectiveness of program components

could be formulated. The questionnaire was developed to provide, in addition, descriptive data about this subset of the Calvin population, particularly their original intended length of stay, preferred learning style, and present academic and study patterns. The responses involved a Likert-type rating scale or selection from a set of multiple responses to provide uniformity of data. Opportunities for additional comments were also provided. The questionnaire was circulated to the Academic Support Program staff for suggestions and pretested on ten students who were currently enrolled in the Academic Support Program. Minor revisions were made in the phrasing of three questions and two responses were added for questions 4 and 7. A copy of the questionnaire is included in Appendix C.

Questions 1-9 provided descriptive data related to original goals and provided data to supplement the findings of this study related to retention. Questions 9-12 assessed the effectiveness of specific components in terms of participant satisfaction. Questions 12-21 described the study habits and academic patterns of students, providing observations assessing the degree the objectives of the study skills component and advising sessions were utilized and personalized after the student was no longer a part of the Academic Support Program.

Questions 12-21 were taken, with slight revision from the Survey of Study Habits and Attitudes, (SSHA), Form C, 1965, by William Brown and Wayne Holtzman. A copy of the letter granting permission to do so by the Psychological

Corporation is included in Appendix D. The SSHA is an 100 item survey of study habits and attitudes for grades 12-14. Responses are based on student perception of one's own study habits and attitudes. The manual recommended use of the SSHA as a screening instrument, a diagnostic instrument, a teaching aid, and a research tool (1967, pp. 5-6). Four 25 item subtests were delineated: delay avoidance, work methods, teacher approval, and education acceptance. Questions for this study were taken from the delay-avoidance/work methods subtests which when combined yielded a score for study habits.

The Seventh Mental Measurements Yearbook (Buros, 1972, pp. 1208-1212) stated the purposes of the SSHA: (1) to identify students whose study habits and attitudes are different from those of students who earn high grades, (b) to aid in understanding students with academic difficulties, and (c) to provide a basis for helping such students improve their study habits and attitudes and, thus, more fully realize their potentials. Test-retest reliability coefficients were taken on the SSHA at four-week intervals ranged from .93-.95 for subtests and total scores. Evidence for validity was registered in terms of correlation coefficients -- .21 mean correlation coefficients between the survey and aptitude tests and a .36 between the SSHA and grades. A more recent study (Goldfried and D'Aurilla, 1973) tested the validity of the SSHA with peer ratings and self-ratings of academic effectiveness and reported higher validity coefficients than when grades were used as the criterion. Buros (1972) had

listed the self-rating technique as a threat to predictive validity.

Questions 21, 22, 23, assessed learning style and expected level of performance as defined by the Canfield-Lafferty Learning Styles Inventory. (This inventory is a resource developed by the Academic Excellence Leadership Project, East Rochester, New York.)

Data Analysis

Data containing the English grammar exam scores, mathematics course grades, first semester grade point averages, and the number of semesters enrolled at Calvin were entered into the computer, and all statistical analyses in this study were conducted using the commercially available Statistical Package for Social Sciences (Nie, et al., 1981). The t-test was applied to each of the hypotheses concerning differences in grammar exam scores, mathematics grades, and first semester grade point averages. The t-ratios were then tested for significance at the predetermined alpha level of .05. Explication of the t-ratio is given by Hays (1973, p. 279) as follows:

$$t = \frac{M - E(M)}{\text{est. } \sigma\mu}$$

where

$$\text{est. } \sigma\mu = S/\sqrt{N-1}$$

and

$E(M)$ = expected value of M if H_0 is true.

The chi-square value and coefficient of contingency were calculated to test correlation of participation in the

Academic Support Program and retention because the measurement scale of the dependent variable, the number of semesters retained, was nominal and the hypothesis to be tested was one of association. The decision point for the rejection point of H_o was set at .05. Chi-square was formed on the statistic $\chi^2 = \Sigma \frac{(f_o - f_e)^2}{f_e}$, known as the Pearson χ^2 statistic (Hays, 1973, p. 539) in which

f_o = frequency observed;

f_e = frequency expected.

Because of the small sample size and consequent restricted degrees of freedom, the possibility existed that no significant differences would be found; there was a likelihood of a Type II error.

Similarly, the coefficient of contingency is a nonparametric method of determining correlation; and it, therefore, underestimates the degree of association.

$$C = \sqrt{\frac{\chi^2}{N - \chi^2}}$$

Although it was not possible to control for motivation and persistence, the importance of these and the following external variables upon retention needed to be recognized:

(1) A student's original goal might not have been to attend four years or to attain a degree.

(2) A student's original goal might have been altered due to financial or personal circumstances.

(3) A student's goal for a liberal arts education might no longer be appropriate once it had been experienced.

Results of the survey are presented graphically through a series of figures and tables indicating frequencies observed. While data provided a descriptive profile of Academic Support Program participants who had remained at Calvin at least five semesters, the data was analyzed in terms of the purpose of the study. (The purpose was not the evaluation of individual students but the evaluation of the program and an investigation into the ways it might better enable its participants toward academic success.)

Summary

Chapter III contained a discussion of the selection of students, the data gathering instruments, and the design used to evaluate a learning assistance program in a liberal arts college.

The major research questions were stated and procedures for determining outcomes related to these questions were defined. Also specified were the methodology for conducting the statistical data analysis and obtaining contextual data through the questionnaire.

Chapter IV will include the hypotheses of the study, a statistical analysis of the data related to each hypothesis, and a descriptive narrative of the questionnaire responses.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

Introduction

The purpose of this study was to assess the effectiveness of the Academic Support Program through

(1) its ability to equip academically "high risk" students with the skills needed to complete the related college class and with the conceptual skills needed for academic studies and the ordering of life experiences and

(2) its effect upon the retention of students in the college until they reached reasonable or anticipated goals.

Archival data were gathered, and a questionnaire was mailed. In this chapter, the statistical analysis of data are presented for each of the following major research questions:

1. Do academically "high risk" students who accept the invitation to participate in the Academic Support Program have significantly higher grades in related college courses than do similarly "high risk" students who were invited to participate in the programs but chose not to do so?
2. Do academically "high risk" students who participate in the Academic Support Program have a

positive correlation to retention in Calvin College?

3. Do former participants of the Academic Support Program who are still enrolled in the college after five semesters exhibit internal motivation and goal directed behavior and express a positive relationship to the program?

The first two questions were restated in the form of null hypotheses which became the organizational structures for this chapter. The hypotheses were tested through statistical procedures--a t-test and chi-square. The chapter concludes by addressing the third general question by means of data obtained through a mailed questionnaire.

Statistical Analysis

Effects on Grammar Exam Scores

Hypothesis One. There is no difference in the English grammar exam scores of invitational students who participated in the Academic Support Program and of invitational students who chose not to do so.

Rationale for the Hypothesis. A panel of experts in the fields of learning assistance and educational research is in concensus with Boylan (1981) who suggested that individual grades in particular courses may be a useful measure of the effectiveness of a particular aspect of a program. For several decades academic performance has been clearly regarded as the sine qua non for validation of remedial courses.

Findings. The effects of the independent variable, participation in an Academic Support grammar class, were measured by using the group means as the basis of comparison and calculating the t-ratio for the two sets of sample scores. The statistical decision was based on a .95 confidence level, depicting the probability of the alpha error at a level of .05. The t-test was applied to determine the statistical significance of the difference between the group mean grammar exam score for those who had participated in the Academic Support grammar class and those who had not, and the t-value was determined using the pooled variance estimate and two-tail probability. Results are presented in Table 4.

Table 4. -- Comparison of mean grammar exam scores for invitational groups.

	N	$\bar{X}$	SD	Standard Error	F	df	t-value
Took Academic Support grammar class	26	76.15	7.49	1.47	1.82	51	3.66*
Did not take Academic Support grammar class	27	67.15	10.10	1.94			

*p = .001.

The difference in the mean performances of the two groups on the English grammar exam was statistically significant; $p < .001$. Therefore, the null hypothesis was rejected.

Effects of English 100 Grades

Hypothesis Two. There is no difference in English 100 semester grades between those invitational students who participated in the Academic Support grammar classes and those invitational students who did not.

Rationale for the hypothesis. Grammar and writing cannot be taught well in isolation. Although the specific objectives of the grammar lab were directed toward a proficiency in grammar and usage, a tangential effect was an improvement of the sense of sentence structure and the incorporation of correct grammar and usage and a variety of sentence patterns into the students' writing.

Findings. To determine the possible effect of participation in an Academic Support grammar class, the independent variable, on English 100 grades, the dependent variable, the *t*-ratio was calculated for the two sets of sample scores. The statistical decision was based at a probability level of .05 and the *t*-test was applied to determine the statistical level of significance. Results were determined using the pooled variance estimate and two-tail probability and are depicted in Table 5.

Table 5. -- Comparison of mean English 100 grades for invitational groups.

	N	$\bar{X}$	SD	Standard Error	F	df	t-value
Took Academic Support grammar class	26	2.35	1.09	0.21			
					1.04	51	2.28*
Did not take Academic Support grammar class	27	1.67	1.07	0.21			

*p = .027.

The difference in English 100 semester grades received by the two groups of invitational students was statistically significant; $p < .027$. Therefore, the null hypothesis was rejected.

Effects on First Semester Grade Point Averages

Hypothesis Three. There is no difference in first semester grade point averages of invitational "high risk" students who participated in study skills labs and of similarly "high risk" students who chose not to do so.

Rationale. Because the study skills classes provided content designed to enhance a student's academic skill, including metacognitive strategies such as comprehension monitoring, cognitive information-processing strategies, and support strategies, the expectation was logical that "high risk" students who were provided these skills through the Academic Support Program should perform better in their college classes

than "high risk" students who had not participated. The study skills classes also included periodic sessions of academic counseling intended to assist the student in moving toward realistic academic objectives.

Use of grade point averages as a determiner of program success is common. For example, grade point averages of former developmental students and those of a control group with comparable SAT scores was the means used by the Board of Regents in Georgia for assessment of their statewide developmental studies programs (Presley, 1981).

Findings. To determine the possible effect of participation in a study skills class, the independent variable, on first semester grade point average, the dependent variable, two-tail *t*-tests were computed on the mean first semester grade point averages for both samples of invitational students. The statistical decision was based at a probability level of .05, the *t*-test was applied to determine the statistical level of significance, and results were analyzed using the pooled variance estimate and two-tail probability. Findings are recorded in Table 6.

Table 6. -- Comparison of mean first semester grade point averages for invitational groups.

	N	$\bar{X}$	SD	Standard Error	F	df	t-value
Took Academic Support study skills	26	2.10	0.83	0.162			
					1.65	51	-0.69
Did not take Academic Support study skills	27	2.24	0.64	0.12			

$p > .05$.

There was no statistically significant difference in first semester grade point averages; $p > .05$. The null hypothesis was accepted.

Effects on Mathematics Grades

Hypothesis Four. There is no difference between the grades received in the required mathematics course by invitational students who participated in an Academic Support mathematics lab and invitational students who chose not to do so.

Rationale for the Hypothesis. The mathematics labs were structured so that course content emphasized the skills and concepts needed for the subsequent mathematics courses. Since the lab reviewed and taught the material assumed to have been mastered prior to the college mathematics course, a semester of review in these areas should have given academically "high risk" students the background needed to succeed in the subsequent class. Cronbach (1963) recommends such

means of assessment by endorsing formal study designed primarily to determine the post-course performance of a well-described group with respect to many important objectives.

Findings. To determine the possible effect of participation in an Academic Support mathematics lab, the independent variable, on the subsequent college mathematics course grade, the dependent variable, two-tail t-tests were computed on the mean mathematics course grades for both samples of invitational students. The statistical decision was based at a probability level of .05, the t-test was applied to determine the statistical level of significance, and results were analyzed using the pooled variance estimate and two-tail probability. Table 7 presents the findings.

Table 7. -- Comparison of mean mathematics core course grades for invitational groups.

	N	$\bar{X}$	SD	Standard Error	F	df	t-value
Took Academic Support mathematics class	19	2.00	1.25	0.29			
					2.31	36	.92
Did not take Academic Support mathematics class	19	1.68	.082	0.19			

p >.05.

Note. Missing observation = 1.

There was no statistically significant difference in the mathematics course grades received by participants of the Academic Support mathematics labs and similarly "high risk"

students who had not participated in the labs; $p > .05$. The null hypothesis was accepted.

Effects on Retention

Hypothesis Five. There is no correlation between retention and participation in the Academic Support Program for invitational "high risk" students.

Rationale for the Hypothesis. Based on the belief that learning assistance programs help underprepared students stay in college through the provision of academic monitoring and support systems and through the provision of needed skills, it is a common research practice to use retention as a valid measure of a program's success and as one to which administrators respond (Astin, 1982; Donovan, 1975; Hoban, 1983; Martin, Blanc, and DeBuhr, 1982; and Sullivan and Wilson, 1980).

Findings. The chi-square and the coefficient of contingency tests of statistical significance were used to determine whether there was a systematic relationship between participation in the Academic Support Program and retention. The decision point for rejection of the null hypothesis was set to reject H_o at $p < .05$. The same procedures were used to test the correlation for four semesters retention and for six semesters. Table 8 presents the findings correlating participation in the Academic Support Program with retention for four semesters; Table 9 depicts the findings for six semesters.

Table 8. -- Correlation of participation in the Academic Support Program with retention for four semesters.

	Did not remain four semesters	Did remain four semesters	
Invitational students who participated in Academic Support	a 22	b 30	52 = a + b
Invitational students who did not participate in Academic Support	c 14	d 37	51 = c + d
	a + c = 36	b + d = 67	103 = N

χ^2	df	p	ϕ	C
1.89	1	0.17	0.16	0.15

The analysis of these data revealed no statistically significant correlation between participation for invitational "high risk" students who participated in the Academic Support Program and persistence in college for four semesters. (χ^2 = 1.89; C = 0.15; p > .05.) A statistical decision was made to accept the null hypothesis..

Table 9. -- Correlation of participation in the Academic Support Program with retention for six semesters.

	Did not remain four semesters	Did remain four semesters	
Invitational students who participated in Academic Support	a 29	b 23	52 = a + b
Invitational students who did not participate in Academic Support	c 24	d 27	51 = c + d
	a + c = 53	b + d = 50	103 = N

χ^2	df	ρ	ϕ	C
0.47	1	0.49	0.09	0.09

Examination of a standard table of chi-square revealed that these results were not significant at the .05 level. There appeared to be no statistically significant correlation between participation for invitational "high risk" students who had participated in the Academic Support Program and persistence in the college for six semesters. ($\chi^2 = 0.47$; $C = 0.087$; $p > .05$.) A statistical decision was made to accept the null hypothesis.

An alternative methodology testing the same relationship between participation of invitational students in the Academic Support Program and the number of semesters students remained at Calvin utilized the t-test on the mean number of

semesters retained and stated the null hypothesis as one of difference rather than one of association.

Restatement of Hypothesis Five. There is no difference between the mean number of semestesr enrolled at Calvin College by students who participated in the Academic Support Program and the mean number of semesters enrolled by those invitational students who chose not to participate.

Findings. The effects of the independent variable, participation in the Academic Support Program, on the dependent variable, retention at Calvin, was measured by calculating the t-ratio for the two group means. The decision point for the rejection of the null hypothesis was set at a level of .05, and a t-test of significance was applied to determine the statistical significance of the difference in group means. Findings are reported in Table 10.

Table 10. -- Comparison of mean number of semesters persisted for invitational groups.

	N	$\bar{X}$	SD	Standard Error	F	t-value	two-tail probability
Participated in Academic Support Classes	52	3.96	2	0.28			
					1.28	-1.52	0.13
Did not participate in Academic Support Classes	51	4.53	1.77	0.25			

$p > .05$.

There was no statistically significant difference in the number of semesters retained for invitational students who had participated in the Academic Support Program and those who had chosen not to do so. Therefore, the null hypothesis was accepted.

Descriptive Data

The Research Question. Do former participants of the Academic Support Program who are still enrolled in the college after five semesters exhibit internal motivation and goal directed behavior and express a positive relationship to the program?

Rationale for the Questionnaire. Qualitative research provides supplementary evidence of program quality and through the inductive method provides data ranging from frequencies to attitudes and opinions. According to Isaac and Michael (1981) information obtained from questionnaires may be used to

(1) answer questions that have been riased,

(2) assess needs and set goals,

(3) determine whether specific objectives have been met,

(4) establish baselines against which future comparisons might be made,

(5) describe what exists and in what amount.

The questionnaire of this study was designed to provide a descriptive profile of former participants who had persisted

at Calvin for at least five semesters and to provide participant feedback as to their perceptions of the program's success in meeting its goals. Astin (1982, p. 7) has cited the importance of feedback in an action oriented view of quality assessment, and Broadbent, Kennebrew, and Rachavong concur in Boylan (1981, p. 7) that student satisfaction is an indicator of program success.

The information obtained from the questionnaire was analyzed for implications as to whether the program had contributed to the academic success of these former participants. The descriptive data was also assessed from the perspective of current learning assistance literature which has encouraged attending to individual learning styles and methodologies of skill building beyond the traditional.

Findings. Responses to the questionnaire are summarized in the following narrative. They are presented graphically in the Appendix as follows:

Appendix E. Descriptive Composite of Respondents: Original purpose and intended length of stay, Schools originally considered, Reason selected Calvin, Declared major.

Appendix F. Respondent Perceptions of Academic Support Program

Appendix G. Percentage of Respondents Reporting Use of Appropriate Study Skills and Time Management.

Appendix H. Respondent Learning Style Preferences

Categorization of respondents by length of stay and Academic Support components they had participated in determined that almost equal numbers of respondents had been at Calvin three years as four (4 years = 30; 3 years = 31). Although 71 percent of the respondents had participated in the grammar and study skills and 29 percent in the math labs, the breakdown of respondents for years of retention was similar (30 percent of four year respondents were math lab participants; 29 percent of the three year respondents were math lab participants). Participation in the Academic Support Program had been required for 67 percent of the respondents.

Responses to the questionnaire are summarized as they relate to questions which were implicitly addressed in the questionnaire.

1. What was the purpose for coming to Calvin originally, and what was the anticipated length of stay?

When respondents checked their original purposes for coming to Calvin, "to obtain a B.A." degree was checked most frequently (31 percent of the total). The second highest reason given in both groups was "to discover career interests" (23 percent of total group). Other reasons were checked much less frequently.

Responses to the question about original intended length of stay showed that 74 percent of the total number had originally intended to study at Calvin for four years. However, 18 percent had intended to stay for only one year.

2. Was enrollment at another college originally an option?

More often than not respondents checked that they had applied only to Calvin (67 percent of the total). Of the complete number of respondents, only 8 percent indicated that Calvin had not been their first choice.

3. What determined the choice to attend Calvin?

When the question was asked as to what determined the final decision to come to Calvin, 34 percent of the total checked "family and friends had attended"; 33 percent checked "parental influence".

4. Was there a particular major chosen more frequently than others by respondents?

Most respondents (64 percent of the total) had never changed their majors once they had been declared. By asking for the respondent's major, the questionnaire was attempting to determine if students who had participated in the Academic Support Program chose one major field of study more than others. No one choice was predominate although respondents in both groups selected business and elementary education more frequently than the other fields.

5. What were the respondents' perceptions of the Academic Support Program in terms of relevance to previous needs and contribution to academic success?

With regard to each component of the program, the majority of participants conveyed that the course had been helpful:

Study skills 006 -- 68 percent

Grammar 007 -- 95 percent

Math 004 -- 63 percent

Math 005 -- 51 percent

Of the total number of former participants, 63 percent had actually recommended the Academic Support Program to another student.

Two aspects of the Academic Support instructor's advising role appeared frequently as having been most helpful. "Assistance with time management" was checked by 46 percent of the total number of respondents and "assistance with study skills" by 35 percent. This was followed by 21 percent who checked personal tutorials.

6. Were the respondents presently incorporating the content of study skills classes and the concepts of time management into their academic roles?

On the whole former Academic Support participants indicated improved study habits and time management. In each category of responses but one, more students indicated appropriate behaviors than did not; an equal number checked that they did/did not keep up work regularly.

7. What was expressed as the preferred learning style of the majority of respondents?

In terms of preferred learning styles, former grammar students expressed a preference for listening (42 percent of the time) followed by direct experience (41 percent of the time). Similarly, former mathematics students preferred

listening 40 percent of the time and direct experience 39 percent of the time. Second choice responses were more evenly distributed although listening had noticeably fewer checks.

Almost twice as many respondents in each category indicated a preference for receiving specific directions for projects and papers than being allowed the freedom to determine their own goals. No predominant pattern was indicated, however, to suggest that former Academic Support participants usually anticipated that their scores would be higher or lower than those actually received.

Summary

Chapter IV presented the research questions, the null hypotheses and rationale for each hypothesis and summaries for the findings of each hypothesis. The first two hypotheses were rejected; the latter three were accepted. Descriptive data were summarized with relationships being made to questions implicit in the questionnaire.

Chapter V will discuss the findings summarized in Chapter IV and interpret them in the context of this study and related literature. A post hoc analysis of the data related to retention is included, and its implications discussed. The chapter will also present problems encountered in the research, implications for the Academic Support Program, and recommendations for further study.

CHAPTER V

DISCUSSION OF RESULTS

Introduction

This study assessed the effectiveness of the Academic Support Program by addressing short and long term goals of the program:

(1) the equipping of academically "high risk" students with the skills needed to complete the related college class,

(2) the equipping of "high risk" students with conceptual skills needed for academic studies and the managing and ordering of life experiences, and

(3) the retention of students until they reach reasonable goals.

To facilitate such evaluation of the program, hypotheses were generated from the following research questions:

1. Do academically "high risk" students who accept the invitation to participate in the Academic Support Program have significantly higher grades in related college courses than do similarly "high risk" students who were invited to participate in the program but chose not to do so?
2. Do the academically "high risk" students who participate in the Academic Support Program have a

positive correlation to retention in Calvin College?

3. Do former participants of the Academic Support Program who are still enrolled in the college after five semesters exhibit internal motivation and goal directed behavior and express a positive relationship to the program?

A questionnaire was utilized to gather information for:

(1) investigating the perceived effectiveness with which the Academic Support Program assisted its participants in assimilating the strategies of effective learners,

(2) providing descriptive data about participants which indicated the ways the participants perceived the effects of the program,

(3) obtaining descriptive data from participants which provided a basis for informed decision making related to modification of the Academic Support Program and its system of delivery.

Summary of the Study

The population of the study included the 103 students who were invited as freshmen in the fall of 1980-81 to participate in the Academic Support Program at Calvin. These invitational students were categorized on the basis of their participation or lack of participation in the Academic Support Program. This population was then described based on

mean performances on the standardized ACT and high school grade point averages.

The two groups of fall of 1980-81 invitational students were studied for differences in specific college course grades, first semester grade point averages, and numbers of semesters persisted at Calvin. Null hypotheses were constructed for all dependent variables and the level of significance set at .05. Hypotheses related to academic performance were measured by calculating the *t*-ratios for group means; the hypothesis correlating participation in Academic Support with retention was tested using chi-square.

Findings for these hypotheses are summarized in Table 11.

Table 11. -- Summary of research findings for null hypotheses.

	Null Hypotheses	Findings
Hypothesis One:	There is no difference in the English grammar scores of invitational students who participated in the Academic Support Program and of invitational students who chose not to do so.	Rejected, p = .001
Hypothesis Two:	There is no difference in English 100 semester grades between those invitational students who participated in the Academic Support grammar classes and those invitational students who did not.	Rejected, p = .027
Hypothesis Three:	There is no difference in first semester grade point averages of invitational "high risk" students who participated in study skills labs and of similarly "high risk" students who chose not to do so.	Failure to reject
Hypothesis Four:	There is no difference between the grades received in the required mathematics course by invitational students who participated in an Academic Support mathematics lab and invitational students who chose not to do so.	Failure to reject
Hypothesis Five:	There is no correlation between retention and participation in the Academic Support Program for invitational "high risk" students.	Failure to reject
Restatement of Hypothesis Five:	There is no difference between the mean number of semesters invitational students who participated in the Academic Support Program remain at Calvin College and the mean number of semesters of those invitational students who chose not to participate.	Failure to reject

A questionnaire was sent to a group of 97 former participants of the Academic Support Program who had enrolled in Calvin in 1980 or 1981 and still were retained. The questionnaire was utilized for the purpose of obtaining descriptive data about former Academic Support Participants who had remained at Calvin for at least five semesters.

Major Results and Discussion

The results of each of the hypotheses tested are presented and discussed separately. These are followed by a discussion of the findings from the questionnaire.

Participation in Academic Support and Academic Success

The academic performance of a program's participants has been a traditionally accepted means of studying the success of isolated components of a program (Boylan, 1981; Noel and Saluri, 1983). Developmental programs which offer structured courses that provide course content and strategies for negotiative content designed to reflect the reading, writing, and mathematical demands that subsequent courses will make on these "high risk" students have been reported as those that have the most encouraging retention data (Suanne Roueche, 1983, p. 3).

English Grammar Exam Scores

The difference in performance of the two invitational groups on the English grammar exam was significant. The mean score on the one hundred point objective exam for those who

had participated in the Academic Support grammar classes was 76.15; the mean score for those who had chosen not to participate was 67.15.

It would appear that students who had a weak background in English grammar and usage did become more proficient in these areas through participation in the grammar classes. These students, in fact, performed above the mean of the total group of English 100 students who were enrolled that semester ($N = 366$, $\bar{X} = 72.43$, $SD = 10.25$).

English 100 Grades

These same invitational students who participated in the Academic Support grammar classes received English 100 grades that differed significantly ($p < .027$) from those received by the invitational students who had not participated. The mean English 100 grades were 2.35 and 1.67 respectively. While it is realized that knowledge of grammar does not necessarily make one a good writer, such knowledge can facilitate the writing process. Because the grammar classes attempted to make a relationship between knowledge of grammar and an application of these concepts in writing, it was assumed that the students who participated in the grammar classes would incorporate the skills taught into their own writing.

Although the fact that the English 100 classes were taught by numerous professors could account for grade differences, an investigation into student schedules determined that all Academic Support Program participants were in

English 100 classes taught by three different professors, each of whom had additional sections taught with similar standards which included students from the invitational group that did not participate. The difference in English 100 grades suggested that students who had participated in the Academic Support grammar classes were more effective writers in their English 100 classes than were their counterparts.

First Semester Grade Point Averages

The study by Martin, et al. (1982) is representative of many which find a positive correlation between participation in supplemental instruction and higher first semester grade point averages. The Academic Support Program study skills courses emphasized practical skill building directly related to core courses, provided metacognitive and cognitive information processing strategies, illustrated techniques of effective study skills and time management, and attended to affective development. These courses, therefore, provided the means for academic success which could be reflected in grade point averages higher than those of similar "high risk" students who did not participate in the study skills courses. This study, however, did not find a significant difference between the means of the two sets of grade point averages.

The lack of difference might have been produced by variations in the mean course loads carried by the comparison groups. In this study it was assumed that students who dropped courses that might have negatively affected the grade

point average would have done so in fairly equal numbers for each group. That the possible effects of the number of courses related to grade point average was not determined was a limitation of this component of the study.

The lack of differences for these groups might also have implied that "high risk" students in this invitational category inherently possessed some of these skills which had not been called forth in high school. Perhaps an increase in maturity or motivation toward academic success had now caused these invitational students who had not participated in the Academic Support Program to strive toward their full academic potential.

It might be implied that the study skills class had a more positive relationship to grade point average for students who had been admitted on probation. Because there was no control group for comparison, it can only be assumed, however, that a contribution was made. Research such as that done by Landward and Hepworth (1984) indicated that such students not only benefited from support services but performed academically beyond their predicted levels of performance.

It was of value to note that while studies have emphasized the impact of learning assistance programs on grade point averages, studies are finding the apparent success of learning assistance programs to be short lived (Landward and Hepworth, 1984). The short-range potency of such programs is attributed to the withdrawal of the academic support and assistance that had been provided during the first quarter.

Kulik, et al. (1983) also cautioned in his own quantitative research on developmental programs that by the standards of social science research effects may appear slight but for the "high risk" students enrolled the benefits seem real enough.

Mathematics Grades

The Academic Support Program mathematics classes had their origin in a principle similar to one expressed at a 1984 conference for learning center professionals by John Roueche, "Placement tests should be used to exclude students from courses until they are ready to succeed in that course--otherwise you are asking for them to commit academic suicide." The course content of the mathematics classes, taught at two levels of mathematical competence, was drawn from materials which instructors of mathematics-related core courses assumed students should have mastered prior to course enrollment.

In this study participation in an Academic Support mathematics lab appeared to make no significant difference in the grade received in subsequent core related mathematics courses. The mean grade for those who had taken an Academic Support class was 2.0, slightly higher than the mean of 1.68 for those who had not participated; however, no statistically significant difference in these means was determined.

This finding was not inconsistent with complaints frequently registered by students who had taken the Academic Support mathematics labs and stated that these courses did not help with subsequent mathematics requirements. The December 1983 Report to the Dean for Academic Administration on the

Academic Support Program alluded to this problem:

> The range and diversity of student weaknesses in mathematical competence is too great to be dealt with in a one-semester course at either the elementary or intermediate level. In addition, students who are placed in review courses all too often fail to see the need for mastery of concepts; they view math courses as obstacles to achievement.

This perception and the frequently expressed trait of "math anxiety" made a difference as well in the data which could be collected for this study. There were no mathematics-related core grades for twelve students. Invitations to participate in the Academic Support Program mathematics had originally been extended to 50 freshmen; 26 had participated in the classes. In gathering the data needed for this study, however it was discovered that seven of those who had taken Academic Support mathematics and five of the invitational students who had chosen not to had never taken the required mathematics-related core course, even though they had been enrolled in school during subsequent semesters.

Participation in Academic Support and Retention

Many evaluators perceive student attrition as one valid measure of program success; programs productive in delivering student learning are assumed to have higher persistence rates as well (Hoban, 1983). Furthermore, outcome measures, such as higher retention figures, have been considered indispensable for verifying the worth of a program to administration that needs to be convinced of a program's worth (Silverman, 1983). The belief has traditionally been that the more

students learn the more likely they are to persist toward graduation.

A major finding of a study by Steele (1978) placed students' perceptions of their progress toward academic and career goals as the area most highly correlated with retention. In the Academic Support Program each participant had an advisor who made explicitly clear what was expected and provided a systematic evaluation of student progress. Specifically at mid-semester, the instructor/advisor met with the student to discuss academic progress, to reassess the student's semester goals, and to formulate a plan for attaining these goals.

In this study, neither the *t*-test nor chi-square applied to retention data yielded any evidence to indicate that participation in Academic Support had a positive effect on retention for invitational students. The chi-square and the coefficient of contingency tests showed no significant relationship between participation in the Academic Support Program and the number of semesters students remained at Calvin--either for four semesters of retention or six semesters. Because of the small *N* studied, the study also included the *t*-test of difference. This, however, gave no indication either of any effect of participation in Academic Support on retention.

In light of the research cited emphasizing retention as an outcome measure both of the program's effectiveness and worth of the advising component, the findings of this study

were puzzling. As mentioned previously, the Academic Support Program placed a high priority on evaluation of student progress and improvement of the student's self-concept with a basis in graded academic achievement; Academic Support also used as advisors the classroom instructors who were concerned with both the cognitive and personal sides of the student. This according to Cross (1976, p. 42) constituted the ideal. In this program two of the five instructors had counseling certification as well.

One dimension of support counseling has not been emphasized in retention literature although it was attended to by Cope and Hannah (1975). That dimension considered times it might have been appropriate to facilitate dropping out. These times included the counseling of a student out of the college when a realistic assessment of the student's academic ability did not indicate the possibility of attaining a degree within reasonable time limits or when it revealed a career interest better served in other than a liberal arts college. The Academic Support Program worked closely with the career exploration services of the Broene Counseling Center and assisted students frequently in the search for institutions which would better provide the preparation needed for their career goals.

Another factor which might have helped to explain the lack of significance in the differences of retention of the two invitational groups was the fact that retention studies usually refer to the retention of all participants while the

retention component of this study compared only the invitational students who participated or did not participate in the program. An inquiry into retention statistics for all participants found the following enrollment pattern:

-- Most recently, 60 percent of fall 1982 Academic Support Program enrollees returned to college for a second year. (An informal survey this 1984 school year given to all Academic Support Program enrollees revealed only 36 percent expected to obtain a degree from Calvin, 17 percent definitely planned to transfer after one or two years.)

-- An examination of first semester reports for conditionally admitted freshmen from 1980 through 1983 showed a large percentage of these students each year had returned second semester in good standing (Appendix I). During the same four-year period, the number of regularly admitted students returned on probation had decreased from 49 to 25; the number subject to dismissal had decreased from 25 to 10.

These findings were also put into perspective when one considered that more than one-fourth of the freshmen at a four year college failed to return the next consecutive year (Astin, 1975; Pascarelli and Terenzini, 1980). The percentage of those expected to become part of attrition statistics is even greater for "high risk" students with developmental lag.

Descriptive Data

The questionnaire provided a descriptive profile of former participants who had persisted at Calvin for at least five semesters, feedback as to respondents' perceptions of the program's success in meeting its goals, and data indicating the possible contribution of the program to respondents' academic success. Findings are discussed related to the questions implicitly addressed in the questionnaire.

Background Profile

The number of respondents was 61 which represented 67 percent of the total group of former Academic Support Program students who had participated during 1980 or 1981 in the program and still remained at Calvin. (The total number of students admitted in the fall of 1980 through the spring of 1982 who had participated in the Academic Support Program was 461.)

Almost equal numbers of respondents had been at Calvin three years as four (4 years = 30; 3 years = 31). Although 71 percent of the respondents had participated in the grammar and study skills and 29 percent in the mathematics labs, the breakdown of respondents for years of retention was similar (30 percent of four year respondents were mathematics participants; 29 percent of the three year respondents were mathematics lab participants). In the original groups, a much larger percentage of mathematics participants was represented.

Table 12. -- Breakdown of Academic Support Program participants by area of study.

	1980-81		1981-82	
	N	Percentage	N	Percentage
Mathematics	104	43	105	47
English	135	57	117	53
Total	239	100	222	100

These findings suggested that either more students who experienced the English components rather than mathematics components had persisted toward graduation or that more former mathematics participants were included among the non-respondents. A breakdown of students to whom the questionnaire was sent categorized 65 percent as former English participants, 35 percent mathematics; these data indicated that both possibilities were true.

Original Purpose and Intended Length of Stay

That the majority of respondents had career related interests as an original purpose for coming to Calvin was evidenced by the indication of 31 percent that their original purpose was "to obtain a B.A. degree" and of 23 percent "to discover career interests". A finding of related but greater consequence was that 74 percent of the respondents had originally intended to study at Calvin for four years. Although participation in the Academic Support Program may have facilitated academic progress toward reaching this goal, external

variables such as motivation and persistence related to an original goal may have also contributed to retention.

Although a causal statement cannot be made relating participation in Academic Support to retention for at least five semesters for the 18 percent who indicated that they had intended to stay for only one year, the Academic Support Program may have made a positive contribution to their decisions to stay by providing the skills, background, and emotional support necessary to take on an academic goal not originally perceived as desirable or realistic.

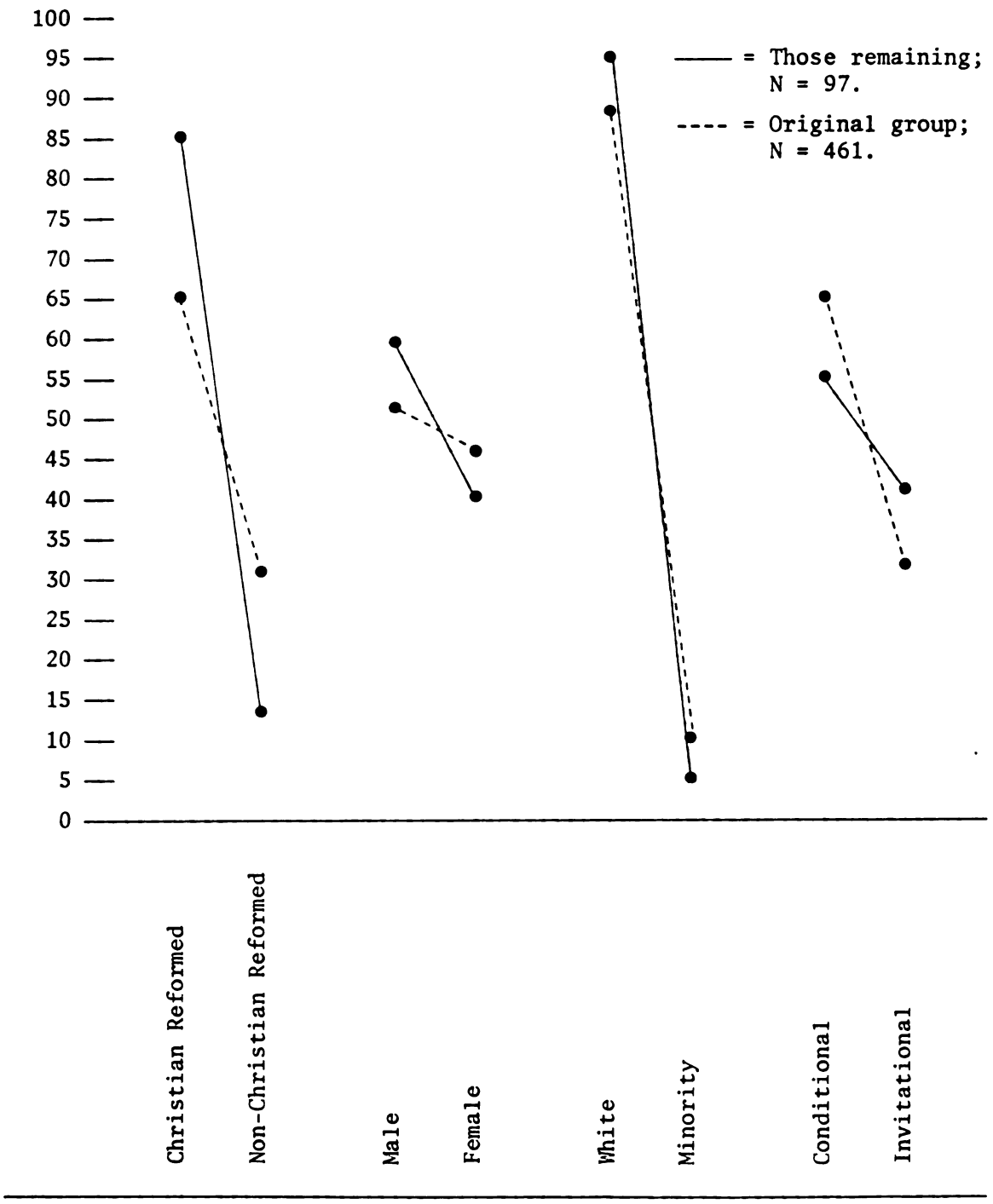
Schools Originally Considered

In the Christian Reformed denomination, a major emphasis is placed upon Christian education received specifically from schools sponsored by the denomination. For that reason Calvin College has traditionally been considered a college for mainly Christian Reformed students of Dutch heritage. Recent years have brought larger numbers of non-Christian Reformed and minorities to the campus. A profile of the 184 students currently enrolled in Academic Support courses (37 are voluntary participants) showed that both international students and American ethnic minorities participated in the Academic Support Program four times more frequently than they occurred in the student body, and together these groups comprised 11 percent of the Academic Support enrollment. The Academic Support Program also served a higher proportion of students from denominations other than Christian Reformed; 39.1 percent

were in Academic Support courses as opposed to 26.5 percent in the college as a whole.

In view of this background then, the fact that 67 percent of the respondents had applied only to Calvin was not surprising. Only eight percent of the respondents had not indicated that Calvin was not their first or only choice. Identification of the non-respondents allowed for data to be retrieved from records and a comparison to be made of the original group who had participated in the Academic Support Program with those of the same group who still remained after five semesters. This comparison is presented in Table 13.

Table 13. -- Comparison of the 1980-81 Academic Support participants with those of that group who remained after five semesters.



By comparing the group of former Academic Support Program participants to whom the questionnaire was sent to the larger group of which it was originally a part, the following observations were made:

(1) The percentage of non-Christian Reformed who remained enrolled for at least five semesters dropped from 34 percent to 16 percent. This change had significant implications for the college as well as the program in that recruitment of minorities and non-Christian Reformed has been an emphasis of Calvin's advertising for the past two years. Attention must be paid to appropriately serving these groups once they enroll. Part of these data could reflect the fact that for many of the Christian Reformed students transferring to another institution is not an option. (Often strong parental pressure required attendance at a denominational school.)

(2) Fewer female than male students were retained; this reflected the traditionally expected retention pattern.

(3) Minority students were more apt to leave Calvin than white students; again this had implications related to current recruitment literature. Within this grouping a larger number of foreign born than American minorities were retained.

(4) The percentage of conditional students changed from 64 to 56 percent. It appeared that many who had

been given conditional admission with required participation in the Academic Support Program were persisting in their academic efforts.

Students' expressed reasons for coming to Calvin related directly again to the Christian school emphasis within the denomination. Thirty-four percent of the respondents indicated they had chosen Calvin because "family and friends had attended", 33 percent because of "parental influence". Four persons had chosen Calvin because of academic offerings; two of these specified the program as pre-seminary. None of the respondents indicated that the availability of the Academic Support Program had influenced selection. This was of consequence in terms of program evaluation; successful programs are known to attract students. This fact was, however, curious when one remembered that in reality it was only because the Academic Support Program was available that many of the respondents were given admission. (All students admitted on probation were required to participate in the Academic Support Program.)

Declared Major

Purposive original educational goals were characteristic of a large number of the respondents. Once a major had been declared, 64 percent never changed it; 24 percent changed majors only one time. Again strong career goals or original motivation to attain a B.A. degree might have contributed to retention.

The variety of majors declared by former participants illustrated that the Academic Support Program was not giving opportunity to pursue career goals in one area more than others; twenty-four majors checked represented thirteen different departments in the college. Slight preference of major was given to business (15 percent) which was congruent with a national trend. Next in rank was elementary education (10 percent); this was not disproportionate to the number of education majors in the college as Education was one of the larger departments in the college.

Participant Perceptions of Academic Support Program

The success of a program is partially determined by the degree participants perceived it to be effective. (For 30 percent of the respondents, Academic Support had not been required.)

(1) the 34 students who had taken study skills reported the following:

-- 68 percent indicated study skills taught had contributed to academic success in other college courses,

-- 74 percent found the material appropriate,

-- 68 percent would recommend the course to others.

Four students added statements that the course would have been helpful had they as students been motivated to apply the skills and concepts taught.

(2) The 39 students who had participated in grammar classes responded as follows:

-- 95 percent felt the course helped in English 100,

-- 82 percent perceived the material as appropriate,

-- 97 percent would recommend the course to others.

Five students recorded that the material was inappropriate because it was the same grammar content that had been covered in high school.

(3) The 14 students who had taken the elementary mathematics review as preparation for the general math core indicated the following:

-- 64 percent had found the class prepared them for Math 100,

-- 50 percent felt the material was appropriate,

-- 63 percent would recommend the course to others.

(4) The nine students who had enrolled in the algebra review of mathematics-related core perceived the course as follows:

-- 66 percent felt the course had prepared them for their related core course,

-- 44 percent thought the material covered was appropriate,

-- 88 percent would recommend the course to others.

The fact that the majority of students who had participated in the Academic Support mathematics labs perceived them as helpful was especially important, for a frequently expressed complaint made was that these labs do not prepare for the

subsequent mathematics courses. It could have been that many former participants who had not been successful in mathematics core were no longer enrolled at Calvin. Five of the respondents added written statements, however, to the effect that the Academic Support mathematics course had only served to put them a semester behind; one expressed extreme resentment at having to pay for a course which did not give graduation credit. (It was surprising that no other request for credit bearing courses was received as this is a common concern of students while they are enrolled in the program.)

Overall responses suggested that former participants perceived the Academic Support Program as having been effective in providing their needed academic support. Active approval was represented by the fact that 63 percent of the respondents had actually recommended the program to another student. Respondents had checked that most helpful of the advising services was assistance with time management, followed by assistance with study skills and then personal tutorials. In ten incidents respondents added notes of appreciation for the program. Some comments were directed toward specific instructors; several thanked generally for the patience of the staff. Four recorded as the greatest benefit of the program a factor not listed on the questionnaire--"a boost given to self-confidence" and "a belief expressed in my ability".

Study and Academic Patterns

Questions 12-21 were drawn from the Brown-Holtzman Survey of Study Habits and Attitudes, Form C, 1965. The stated purpose of this survey was the identification of students whose study habits and attitudes differed from those of students who earned high grades. The responses to the questionnaire in this study categorized the student as to appropriate and effective study and academic patterns opposed to ineffective ones. These particular questions were especially pertinent for the students in this study as each question had a direct relationship to one of the primary skills or concepts taught in the study skills classes. Students who reported use of these techniques or expressed little difficulty with academic skills were assumed to have made transferrence of the study skills content to their own academic roles and methods. Descriptive data related to study skills are summarized in the following statements.

-- In every instance but one, the majority of students reported to have the study habits and techniques of effective students.

-- An equal number indicated assignments were done/not done on a regular basis; a slightly different number in each category reported organization of time as routine, yet 90 percent did not perceive procrastination as normal for them.

--The fact that 93 percent expressed a willingness to talk to professors about academic concerns was

encouraging. Because "high risk" students are often hesitant to confront professors, the Academic Support components emphasized the acceptance and appropriateness of doing so.

-- Skills related to reading the text and recalling material were lacking for only a few.

-- Organization of material in preparing for and in the writing of an exam was represented as a challenge for a somewhat larger number. This skill, however, is also closely tied to understanding of content and preparation as well.

Former participants of the Academic Support Program who are persisting toward graduation reported, for the most part, that their study habits and academic patterns were those of effective learners.

Preferred Learning Style

Question 21 of the questionnaire addressed preferred learning style of the respondents. Literature pertaining to learning styles, the means by which a student best receives and processes information, has had important implications for learning assistance programs (Brown, 1982; Dunn, 1978; Grant and Hoeboer, 1978; and McCarthy, 1980). Such research has characterized students in developmental programs as overwhelmingly concrete in their learning. These concrete learners benefit from educational experiences that include simulation and exploration ann correspond to the learner with a right hemispheric preference who is analytic rather than

global in processing information. Because Calvin, like most liberal arts colleges, has continued to use the traditional teaching methods of lecture and assigned readings, (the preferred learning styles of left-hemispheric students who process readily in the abstract, reflective manner) students in learning assistance programs may not have experienced sufficient concrete experiences to have opportunity for success.

The Academic Support Program acknowledged a need to begin working with developmental guidelines using instructional modes and materials that best complement the learning style of each student and recognized a weakness in this area of program delivery. Question 21, therefore, was included to determine how closely Calvin's "high risk" students coincided with characteristics literature associates with developmental students and to provide data that could become the impetus for attending to the preferred learning styles needs developmental students bring into the classroom and for implementing subsequent professional development sessions related to adjusting/expanding teaching methods.

Respondents ranked preferred learning style similarly to the developmental students in the research of Lee (1980): listening was preferred by most, followed by direct experience. The same pattern characterized former participants of Academic Support English classes (43 percent preferred listening, 41 percent direct experience) as of mathematics labs (40 percent preferred listening, 39 percent direct experience). Lee explained that reading usually was not a preference

because these students have had difficulty extracting meaning from what they have read. He also described developmental students as having a preference for following specific directions rather than having the freedom to set their own goals and be self-directive. As anticipated, in this study a preference for following specific directions was checked by 71 percent of the respondents.

Questions 22 and 23 asking for the student's predicted level of performance attempted to gain data which could be interpreted in relationship to self-concept and locus of control. Respondents were equally divided between the two categories. Nevertheless, developmental education research has had much to say about "locus of control" and its relationship to motivation and the assumption of responsibility for ones own academic success. Staff in the Academic Support Program must become more cognizant of the social learning theory developed by Rotter (1966) which has attributed control over payoffs as completely outside the individual's control (external) or controlled by ones behavior completely (internal) if the program is to provide the experiences which might help students to overcome "learned helplessness" and internalize "locus of control".

CHAPTER VI

CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Summary of the Study

The Academic Support Program at Calvin College was assessed by the effectiveness with which it provided academically "high risk" students with skills needed to be successful in subsequent academic work and with support in both cognitive and affective domains. The evaluation addressed the impact of participation in the Academic Support Program on academic success and retention in the college; it also yielded descriptive data which provided a profile of former program participants who had remained at Calvin five semesters and indicated participant perceptions of program effectiveness.

Participation in the program yielded significant differences in English scores and grades but none for first semester or mathematics grades, nor did participation correlate with retention. The descriptive data, however, revealed participants had perceived the components as helpful and recommended them to others. The program also was consistent with characteristics literature had equated with program success.

Conclusions and Implications

Program Effectiveness Related to Research Questions

The apparent overall effectiveness of the Academic Support Program is summarized in relationship to the general research questions.

1. Do academically "high risk" students who accept the invitation to participate in the Academic Support Program have significantly higher grades in related college courses than do similarly "high risk" students who were invited to participate in the program but chose not to do so?

Test results indicated that invitational students who had participated in the Academic Support English classes had higher grammar exam scores and higher English 100 grades than did the comparison group. The study implied that the extra time spent on study of grammar and usage did have a positive effect on the writing skills of invitational students; this had implications for academic advising and administrative decisions related to number of invitational students to accommodate in the program. Invitational students should be encouraged to participate in this component, as the brief review of usage in the writing class did not seem to be sufficient nor did the personal motivation to do ones own review bring enough response to meet expected levels of success.

There was no significant difference in mathematics course grades based on participation in the Academic Support

mathematics classes. Perhaps this may have been partially attributed to the range and diversity of student weaknesses in mathematical competence which often were too great to be dealt with in one semester.

These findings, however, reflected a need to examine all aspects of the mathematics component to explore options that might lead to greater academic success in math-related core courses for those who had participated:

(1) The curriculum should be investigated to determine whether course content does relate to concepts and skills assumed to be prerequisite to the related core course and whether the material assumed to be covered is in actuality taught in its entirety.

(2) The breakdown of courses should be examined to determine if diverse student needs might be better met by the reorganization of courses into smaller components with allowances for independent work.

(3) The instructors should be evaluated related to subject matter competency, appropriateness and effectiveness of teaching methods, relationships with students, and willingness to devote time to students beyond the classroom.

(4) The materials and texts being used should be reviewed to determine whether they are relevant to student needs and of an appropriate level of difficulty.

(5) Interaction between the instructional staff in the Academic Support mathematics classes and those in the mathematics department should be encouraged to help form mutually supportive relationships.

(6) The need for award of credit for the courses should continue to be addressed. Credit might bring increased motivation in student effort which could lead to greater understanding of the material.

(7) The deficiencies in mathematics background for many students who are admitted to Calvin should be addressed. The Admissions Committee should assess whether it is realistic to admit a student with only one year of high school mathematics and expect the deficiency to be remediated sufficiently through the provisions of the Academic Support Program.

Invitational students who had participated in study skills labs did not have significantly higher first semester grade point averages than did those who had chosen not to participate in the labs. The impact of various course loads and extraneous variables, such as maturation and motivation, on the impact of this study has been discussed.

Findings related to first semester grade point averages of conditionally admitted freshmen suggested a more positive outcome. These data are included in Appendix I. In the last semester, fall of 1983, 56.3 percent (N=74) of the conditionally admitted students returned second semester with a grade

point average of $\geq$ 2.0. Only 18 of these had had a high school grade point average above a 2.5. Returned on good standing were 75.6 percent (N = 99). It would appear that the Academic Support Program has had a broader effect on grade point averages than the research related only to invitational students has indicated.

2. Do the academically "high risk" students who participate in the Academic Support Program have a positive correlation to retention in Calvin College?

Retention as a tangential outcome for the Academic Support Program was addressed in three ways. First, a study of invitational students who had remained at Calvin for at least five semesters applied both the *t*-test and chi-square to retention data. No statistically significant relationship to retention was cited for invitational students who had participated in the Academic Support Program.

Secondly, an investigation into status of conditionally admitted freshmen found encouraging numbers being returned second semester with an academic status of good standing. Although decreasing percentages were being returned on probation, increasing percentages were subject to dismissal after one semester as well. The Committee on Probation and Retention attributed this finding to the fact that as the program had become better known it had attracted more students at the lower end of the academic continuum.

Finally, a questionnaire sent to all former participants of the Academic Support Program who were still enrolled

at Calvin after at least five semesters yielded a descriptive composite of those high risk students who were persisting toward graduation. Of the respondents (N = 61), 18 percent indicated an original intent to remain only one year at Calvin. Perhaps, for some of these, the Academic Support Program had provided sufficient cognitive and affective support to encourage them in their persistence in the college; for the 67 percent of the respondents who had originally been conditional admits, it was the very existence of the Academic Support Program which allowed them the opportunity to enter the college and initiate their studies.

Results which showed no significant differences in retention for invitational students who had participated in the Academic Support Program might have implied ineffectual advising of a nature that imparted empathy without a course of action. Or the findings might have indicated that what took place was thorough intrusive advising. Such advising would not have precluded the counseling of a student out of the college when a realistic assessment of the student's academic ability did not indicate the possibility of attaining a degree within reasonable time limits or when it revealed career interest better served by other than a liberal arts college. Exploration in the area of counseling techniques should be encouraged as an appropriate option for the professional development of Academic Support instructors.

3. Do former participants of the Academic Support Program who are still enrolled in the college after

five semestesr exhibit internal motivation and goal directed behavior and express a positive relationship to the program?

Through the use of a questionnaire, this study addressed the effectiveness of the Academic Support Program as perceived by former participants and defined the study habits of the respondent group. Responses to the questionnaire suggested that these students were employing the methodologies for time management and study habits utilized by successful students. Although assessment through self-report was not necessarily reliable, there would have been no advantage to the student to misrepresent usual habits.

The majority of respondents recorded that each component had been helpful in attaining academic success of a related nature and assessed the content of the course to have been appropriate. While 83 percent indicated they would recommend the Academic Support Program to other students, 63 percent conveyed they had actually done so. While respondents gave positive feedback about all areas of the advising component, an unanticipated outcome of the questionnaire gave additional insight into students' perceptions of the program. Numerous unsolicited notes were written on the questionnaire thanking for the emotional support the program had given beyond academic support. Several students expressed encouragement to persist had come from attitudes conveyed by Academic Support staff who had indicated a confidence in the students and the probability of their being able to learn skills

necessary for academic success. Many students turned in questionnaires personally as though an excuse had been legitimately provided to come back and convey a message of appreciation. The Academic Support Program was apparently perceived as a program offering high levels of facilitative conditions and content and services possessing relevance to student needs.

Program Effectiveness Related to Institutional Goals

Central to this study of the Academic Support Program was an assessment of the effectiveness with which the program was facilitating the mission statement of the college and institutional goals. The Academic Support Program had been given a specific mandate to aid in the achieving of institutional goals by assisting students to gain the skills needed to cope with the work requirements of the curriculum and to achieve a level of competence which would enable them to master regular course offerings. This study presented the program as accountable in carrying out this specific task. The program appeared to be reaching the specified target of "high risk" students, and intervention efforts were conducted as specified in the program design. Outcomes of the study suggested the program was accomplishing its intended goals--academic success and retention--for a sufficient number of its participants to encourage continuation of the program. Success rates, however, were not so high that efforts to

monitor effectiveness and identify potential areas for modification should not be continued.

Program Effectiveness Related to Literature Review

Current literature related to learning assistance programs is consistent in identifying characteristics of programs that correlate with program success. The Academic Support Program had many elements in common with those of the successful programs reported in the national study of Suanne Roueche (1983). Namely, the Academic Support Program had strong administrative support and shared a responsibility with its students for professional service in initial assessment, placement, and interventions to improve academic performance; it incorporated mandatory assessment and placement of "high risk" students as another indication it was sharing responsibility with the students for their academic success; it provided structured curriculum with content material relevant to the students' needs and goals; and it had integral systems for the monitoring of those student behaviors that contribute to failure. More specifically, the program provided a supportive learning climate and an holistic approach to counseling which attended to affective considerations and improved self-concepts as well as to academic monitoring and advising. This holistic approach to counseling, often referred to as "intrusive advising", has been reported to recent national studies of learning assistance programs as

essential to their success (Donovan, 1977; Haughney, 1983; Jackson, 1979).

The Academic Support Program, however, did not perceive itself as a static venture nor did it ignore recognized weaknesses. While acknowledging that most successful programs are credit-bearing, the Academic Support Program remained in the midst of a long-standing debate on the awarding of credit for remedial work. Similarly, the need for administrative faculty appointments was being addressed. Such appointments in similar programs have contributed to the credibility of the department and increased perception of the instructors as professionals.

The Academic Support Program realized its need to interface more with other departments. During the last semester of the study, the program attempted to bring training in critical thinking and higher order reasoning into reading/lecture courses which freshmen typically take through an experimental model similar to the Supplemental Instruction model introduced by Martin at the University of Missouri-Kansas City (1983).

The review of related literature in this study had implications for the Academic Support Program as well. Attention focused upon concerns increasingly addressed by learning assistance professions made the Academic Support Program cognizant of a need to accommodate students individually through flexible completion strategies and attention paid to various learning styles. Theories of motivation and "locus

of control" had direct implications for learning assistance programs, and research such as that by Roueche and Mink (1982) which specified practical applications of theory for those working with students who have learned "helplessness" and externalized their "locus of control" must be taken seriously by practitioners, such as the Academic Support instructors, if the program is going to provide optimum opportunities for students to realize self-directed success.

This study, if shared with other learning assistance professionals, would have implications beyond the scope of the Academic Support Program. By acquainting others with evidence of program effectiveness/or ineffectiveness, the study could assist other administrators in their own program planning and development and through program description alert other administrators to components and procedures they might wish to implement.

While literature frequently has cited the importance of evaluation for learning assistance programs, it also has reminded that evaluation must be tailored to the specific program (Rossi and Freeman, 1982). This study, therefore, cannot be used as an evaluation model for another learning assistance program without modification, but it could provide a representative framework for the routine, systematic selection of data, for conducting of a learning assistance program evaluation in a liberal arts college, and for publishing evaluation results.

In addition, this study has responded to the frequent requests that program evaluations be professionally shared. Such exchange could help not only to formulate a concensus of what constitutes program success and to provide models which could be an encouragement to implement evaluation as a component essential to program development but also could contribute additional theory and practice to the research which is accumulating and forming the basis of learning assistance as a field of study. A forum for the sharing of strategies and evaluations of individual programs has been provided through the many national and regional conferences for learning assistance professionals held yearly. Special interest groups also have become available as vehicles for communication of ideas; this researcher is a member of one such organization, The Academic Excellence Leadership Project, which has encouraged interaction among its network of members through a bulletin published six times yearly.

Recommendations for Further Study

1. An evaluative study of the Academic Support Program should continue to be done at yearly intervals to encourage program evaluation as an essential component of the program's development. The focus of each evaluation should center on current Academic Support participants as the population to be followed through their semesters at Calvin; the framework might be altered as the results of one study might dictate a change for another. In addition, to ensure systematic and ongoing program evaluation, processes need to be developed

for the collection and organization of information about participants during their Academic Support experience.

2. This study should be replicated in other environments. Replication of the study in liberal arts colleges which are not church-related might give a more realistic assessment of the impact of the program upon its participants when other academic opportunities are an acceptable option.

3. The focus of the study should be expanded to include the assessment of academic outcomes of "probational students" as well as "invitational students". The attention paid to "invitational students" in this study was necessitated by the fact that no control group existed to serve as a comparison for the "conditional students", all of whom are required to participate in the program. Research investigating the methods used in other program evaluations to determine the effects of the program on all participants would decrease this limitation of the study.

4. The design of this study should be enlarged to include the assessment of other program concerns. One such concern is the cost effectiveness of the structure. By viewing the Academic Support Program as an income generator and by examining credits accrued outside the learning assistance program, one could determine whether the program is a financial asset or liability. This could be accomplished through the use of retrospective comparative analyses such as that used by Cicco and Associates (1979).

5. Another aspect which future evaluations of the Academic Support Program should address is the perception of the program by faculty members in other departments. A questionnaire sent to faculty for this purpose would be appropriate. At the time of the present study, however, interaction of the Academic Support Program with other departments was limited to the degree that the number of potential respondents who could provide the requested data was too few.

6. A response should be made to the request of the network of learning assistance professionals for the sharing of such studies as this. By circulating the findings of this study to others in the field, this researcher could contribute to knowledge of what constitutes evidence of good program success and provide additional criteria against which another study could plan its design and/or evaluate its results.

7. Efforts should be made to increase the visibility of the Academic Support Program within Calvin College. Findings of this study should be published among the faculty of Calvin College to clarify the relationship of the Academic Support Program to the broader mission of the college and to provide a basis for presenting the Academic Support Program as a program that is a support not only to students but indirectly to most departments of the college as well.

8. Additional studies should be conducted which assess the program using as criteria--not the traditional variables of academic success and retention--but variables which relate to the program's commitment to meeting the needs of the whole

person. While congruence was evident between the college goal for the program, specifically the provision of skills for "high risk" students so that they might complete subsequent core courses, and program goals, the Academic Support Program professionals emphasized meeting affective needs as well as cognitive. The findings of this study indicated that the effects of the program on participants might not be articulated by goals that are easily quantified or that relate to short term correction of deficiencies. Instead effects often relate to goals such as greater student independence, self-confidence, and responsibility through the development of a range of academic skills. Assessment using such variables as the following would be especially appropriate in a church related institution where the students and faculty feel a part of a community that has some cohesion and care about each other and the college and would assess the learning assistance program according to the effectiveness with which it--

Reflects a concern for the growth and development of potential. The frequent contact of the instructor/counsellor with the student allows a relationship to develop which puts attention on the learner not the subject matter, reflects the instructor's personal concern over the student's inappropriate approaches to academic success, and could ultimately result in an understanding by the student that he/she is an acceptable human being whatever his/her academic standing. Self-esteem could be enhanced as strengths and interests are

revealed and valued. Although such understanding is communicated systematically by professionals in the program, program services need also to be translated to meet these defined, varied interests.

Imparts in students a sense of self-confidence. Through the diagnosis and careful management of the learning process, an environment is created that helps students learn and rewards achievements. The increased contact provides opportunity for frequent monitoring and assistance and later occasional reinforcement, thus helping the student to become a self-directed learner. Through a well-defined instructional approach to learning, geared toward success not failure, a curiosity about capabilities is frequently created in students which creates a willingness to take risks and discover new knowledge and skills through their own efforts.

Characterizes improved "motivation" as a consequence of improved academic performance. By showing what good learners do and teaching the skills of good learners, instructor/counsellors provide students with the skills which often have the consequence of improved performance and increased academic motivation. The skills emphasized--such as, critical thinking skills, time management, processing of information, and organized study methods--are those which, when assimilated, translate as well to life skills students can apply outside their academic roles.

Assists in making decisions about life and its purposes. As students achieve success in the components of the program

and learn to commit themselves to short-term goals, they frequently become more confident in their abilities, reassess or establish goals, and stretch toward careers not originally considered possible. In conjunction with the Broene Counseling Center, the Academic Support Program has encouraged students to conduct a thorough exploration of abilities and interests, goals, and future plans. As a result of the decision making process, a conclusion might be drawn that career goals could be better served in other than a liberal arts institution, or a realistic assessment of academic abilities might indicate competencies should be built on strengths which do not require academic preparation. In such situations attrition should not be viewed as a loss of funds or wasted effort on the part of staff but as the outcome of services rendered which facilitate another aim of Calvin College--the equipping of students to effectively live Christian lives in a contemporary society.

Provides emotional support by giving insights into academic strengths and weaknesses through the knowledge of learning styles. Developmental students include large numbers who are concrete learners and do not learn as effectively from traditional lecture and assigned readings. Therefore, participants of learning assistance programs could benefit emotionally as well as academically from an increased awareness of their own learning styles. Students could gain a perspective which would allow them to perceive themselves as learners who could be as capable as their peers if they learned to

adapt traditional teaching methods to their unique learning style preferences.

Utilizes a holistic approach related to coping with developmental tasks. An emphasis of a program not on short term correction of deficiencies but on the extension of human developmental theory supports personal well-being beyond that of assessment of aptitude or academic achievement. For example, the Academic Support Program frequently has counselled concerning test anxiety and stress management. An understanding of the means for dealing with these constructively contributes to a sense of total "wellness" often emphasized by the college.

Establishes within students an internal "locus of control". The developmental student often has acquired a learned helplessness developed from a reinforcement history of past behaviors. Counsellors through the learning assistance program provide conditions essential for establishing an internal "locus of control": potential for learning; consistent reinforcement; valued, relevant reinforcers; and favorable psychological situations (Roueche and Mink, 1982). Participation in the Academic Support Program for some could result in a belief that the outcome of most situations depends upon their behaviors and personal characteristics not on those external to themselves.

Assessment of the Academic Support Program using these less traditional variables could present the program as one which provides the commitment to and capacity for serving the

needs of the institution. In addition, the program could be presented as a positive medium for accomplishing one of the specific goals of Calvin College--the development of students to become leaders or perceptive followers in the task of promoting Christian culture.

APPENDICES

APPENDIX A

COVER LETTER FOR QUESTIONNAIRE

APPENDIX A

COVER LETTER FOR QUESTIONNAIRE

February 3, 1984

Dear

The enclosed questionnaire is part of an evaluation of the Academic Support Program at Calvin College and, when tested, took approximately five minutes to complete. The completed questionnaire will provide data that will help the Academic Support Program better understand characteristics, such as preferred learning style, of students who participate in our program and enable the Academic Support Program to more effectively provide its services. All data will be assured anonymity. In addition, the study is being conducted as part of my dissertation research and will contribute to my work related to the evaluation of learning assistance programs. Some of you who were in my 007 classes might be interested to know I have reached this final stage in meeting my Ph.D. requirements. Many of you have questioned me occasionally about my progress, and I wish to thank you for your encouragement and support.

I am particularly desirous of obtaining your responses because the study is concerned with present Calvin students who participated in the Academic Support Program in 1980-1981. Since you are one of the 32 percent of this total group who is still a Calvin student, it is especially important that your responses are included, and I appreciate your taking time to complete the questionnaire. Please return the survey in the enclosed envelope through Inter-Campus-Mail by February 17, 1984.

Sincerely,

Beverly Morrison

Academic Support Instructor

APPENDIX B

ENGLISH 100 GRAMMAR EXAM

APPENDIX B

ENGLISH 100 GRAMMAR EXAM

INSTRUCTIONS: Fill in your name, the date, your instructor's name, and the letter of your section (in the blank marked "Grade or Class").

Do not write on the test and make no stray marks on the answer sheet. Turn in both when you are finished.

A. PARTS OF SPEECH:

a. noun b. verb c. adjective d. adverb e. pronoun

1. While taking this test, <u>you</u> can learn about a popular American author.

2. The first major writer to define and fully express the national <u>ideal</u> was Mark Twain.

3. Mark Twain's <u>real</u> name was Samuel Langhorne Clemens.

4. John Marshall Clemens, the author's father, was a <u>lawyer</u>.

5. Samuel Clemens was born on November 30, 1935, the fifth of <u>six</u> children.

6. His hometown in Missouri was Florida, located on the Salt River, a <u>tributary</u> of the Mississippi.

7. When Sam was four, the Clemenses moved to the <u>more</u> thriving town of Hannibal.

8. The poverty of the family apparently <u>caused</u> young Sam no deep anxieties.

9. Sam had a happy and <u>reasonably</u> carefree boyhood.

10. The happy memories he dwelt on later were not <u>those</u> of his father's house, however, but of his summer vacations at the farm of an uncle.

11. Sam Clemens soon became a leader in the <u>juvenile</u> deviltries of the village.

12. His favorite playmate was Tom Blankenship, the son of the <u>town</u> drunkard.

B. PARTS OF SPEECH:

a. preposition b. conjunctive adverb
c. subordinating conjunction d. coordinating conjunction

13. He saw two of his playmates drown in the Mississippi and several times nearly drowned himself.

14. The great excitement of village life was the coming and going of steamboats.

15. It was out of the memory of such boyhood experiences, played over by a vivid imagination, that Mark Twain created his novels.

16. For a decade Sam worked at the printer's trade; however, he did learn to write during these years.

17. His models were not books but the literary journalism to which he had access.

18. When he began to write similar pieces himself, he soon found them printed in his brother's paper.

19. He was only seventeen when he published these sketches, a significant achievement; nevertheless, they hardly indicated the magnitude of his talent.

20. Sam enjoyed writing, yet in the spring of 1857 he was dazzled by a new fantasy.

21. He became interested in a cocoa-hunting scheme; consequently, he took passage on a steamer to New Orleans, as the first stage of the journey.

22. While traveling down-river, he became acquainted with the pilot, Horace Bixby.

C. SENTENCE ELEMENTS:

a. subject b. simple predicate c. direct object
d. indirect object e. subjective complement

23. In the presence of a "lightning pilot" like Horace Bixby, Sam's boyish ambition quickly revived.

24. He gave up his scheme of going to the Amazon and paid Bixby $500 for privilege of becoming his cub pilot.

25. Mark Twain spent less than four years on the river, about half of it as cub pilot.

26. He later maintained that he loved the profession of piloting better than any he'd had since.

C. SENTENCE ELEMENTS (continued):

a. subject b. simple predicate c. direct object
d. indirect object e. subjective complement

27. Although he was famed on the river for his reading, he was so busy learning the river that he had no time for writing.

28. After he got his pilot's license, he wrote and published much in the New Orleans newspaper.

29. Piloting on the river was brought to a close by the outbreak of the Civil War, which shut down most river traffic.

30. Twain now joined a company of Confederate volunteers in much the same spirit of play-acting as in his boyhood.

31. Sam Clemens's hasty retreat from rebel soldiering shows that he had no real commitment to the Southern cause.

32. His brother Orion was more zealous and campaigned vigorously for Lincoln.

33. Through his friendship with Republican politicians, he secured appointment as Secretary of the newly-organized Nevada territory.

34. Orion gave Sam the invitation to come along as secretary to the Secretary.

35. The journey by stage was delightful to footloose Sam Clemens.

D. VOICE:

a. active b. passive

36. Tendencies displayed earlier were now confirmed.

37. Sam preferred motion to quiet, novelty to tradition, virility to culture, venture to prudence, luck to labor, and extravagance to moderation.

38. Quick to seek diversion, he was filling himself with the animation and excitement of Western life.

39. With another young man, he went to Lake Tahoe where a timber claim was staked out.

40. After starting a forest fire, both returned to Carson City to seek fresh diversions.

41. Presently he was smitten with the silver fever and tried prospecting and mining.

E. PHRASES AND CLAUSES:

a. independent or main clause b. dependent or subordinate clause
c. phrase d. sentence fragment

42. But Sam Clemens never struck it rich enough to pay his living expenses.

43. Once more he had recourse to journalism, this time not as a printer but as a writer.

44. His journalistic effusions were sporadic, but they were indicative of his natural bent.

45. When he took the offered job on the Enterprise, a newspaper, he entered upon the literary career he would pursue the rest of his life.

46. Sam Clemens's two years on the Enterprise were the making of Mark Twain.

47. A man of note and influence, which Twain enjoyed.

F. PUNCTUATION:

a. correct b. incorrect

48. Virginia City boomed, the Enterprise prospered, and Twain had at last found his true calling.

49. The ex-printer, ex-pilot, ex-miner, thus became a writer.

50. His colleagues on the Enterprise taught him much about writing; especially Goodman, his editor, who told him "to go all over town and ask all sorts of people all sorts of questions."

51. He also learned much from another reporter, William Wright, who wrote under a pen name.

52. It was perhaps the example of deQuille, a master of the literary hoax, that induced Twain to add this form of humor to his repertory.

53. His burgeoning popularity prompted Twain to adopt a pen name as well; therefore, (on February 2, 1863) he signed a piece written for his paper with "Mark Twain."

54. That name soon became so famous, that it virtually extinguished the public identity of Sam Clemens.

55. Mark Twain was not a responsible journalist; he was more interested in stirring up the public than informing it.

56. It was May, 1864, when Mark Twain fled the Comstock area.

F. PUNCTUATION (continued):

a. correct b. incorrect

57. He now went to San Francisco,--a city he had long wanted to see.

58. He spent the next two years in what he thought was "the most cordial and sociable city in the Union".

59. For four months he worked on the Morning Call; enjoying the life of city more than the drudgery on the paper.

60. When Mark's best friend, Steve Gillis, got in trouble with the law, the police began to harass the pair.

61. Mark sought refuge with Steve's only brother, Jim Gillis; this was in December 1864.

62. Jim Gillis's mining camp was in the middle of a ghost town on Jackass Hill.

63. Mark joined in the prospecting activities of Gillis and his partner in Calaveras County.

64. The example of Jim's story telling had taught him to make use of his own best literary gift: the ability to appreciate and express the humor of character, of individual differences and peculiarities.

65. Twain's story, "The Celebrated Jumping Frog," a humorous classic, was based on a story told by an old miner at Angels Camp.

66. He got a delightful assignment as a result of his recently gained fame as author of this story.

67. It was to go down to the Sandwich Isalnds and write some letters for the Sacramento Union, an excellent Journal.

68. He arrived in Hawaii in mid-March and his letters to the Union, published irregularly, beginning in April, were very popular.

69. In addition to his 24 letters to the Union, Mark furnished it a sensational news scoop.

70. Eleven sailors had drifted across the Pacific in an open boat, four thousand miles in forty three days, after surviving the destruction of the clipper ship Hornet.

71. He used the Hornet story, as the subject of a public lecture in San Francisco, on October 2, 1866.

72. This was his first of many appearances as a professional lecturer; in his lectures he frequently mocked those suffering from an idee fixe.

73. Mark Twain embarked on an excursion for the Holy Land, and wrote letters, containing a running report of his tour, to two newspapers.

F. PUNCTUATION (continued):

a. correct b. incorrect

74. Later he revised these letters for publication in the book, The Innocents Abroad.

75. One observation he made was: "Human nature is very much the same all over the world."

76. The year of publication of The Innocents Abroad, 1869, was a crucial year in Mark Twain's career.

77. In the same year, the private life of Sam Clemens changed when he became engaged to Olivia Langdon.

G. USAGE

a. correct b. incorrect

78. He had met her brother, whom carried Olivia's picture, while he was on his trip to the Holy Land.

79. This picture had such affect on him that he decided he would marry her.

80. He was invited to the Langdon's home when he returned to America.

81. When it was time to leave, he arranged to fall off of the carriage seat.

82. He acted as if he were hurt.

83. So they put him to bed where he was going to lay for two weeks.

84. Of course, he was really alright; he also enjoyed Olivia's tender care.

85. Twain and she were married in 1870.

86. At the end of everyday, Twain would set his day's work on Olivia's nightstand.

87. He excepted her correction without argument.

88. He helped to establish a publishing firm, but it went bankrupt.

89. He was in debt more than $100,000.

90. His family and he went to Paris, where they could live more cheaply.

91. He then went on a world-wide lecture tour on which he was real well received.

G. USAGE (continued):

a. correct b. incorrect

92. Everyone offered their business proposals to the now well-known author.

93. When he was seventy, he decided he was old enough to do exactly as he pleased.

94. Thus he ordered fourteen white suits and 100 white ties.

95. He'd entered the world with Halley's comet in 1835; hopefully, he would also leave with it.

96. The day after it's appearance, he fell into a deep sleep from which he never awoke.

97. Mark Twain wrote very well.

98. Many of his readers can't hardly decide which book they like best.

99. Between you and I, the best book is Huck Finn.

100. Some think Tom Sawyer is as good, if not better, than Huck Finn.

APPENDIX C

QUESTIONNAIRE

APPENDIX C

QUESTIONNAIRE

I. Background and Calvin experiences --

Circle the number which corresponds to the most appropriate answer. A few questions require a written response. All information will be kept confidential and be used only for research related to the Academic Support Program and improvement of its services.

Q 1. How many semesters have you been registered as a Calvin student?

1) 8 2) 7 3) 6 4) 5 5) 4

Q 2. What is your declared major?

Q 3. Have you ever changed your declared major:

1) No 2) Once 3) Twice 4) More than twice

Q 4. When you enrolled in Calvin, which of the following best described your original purpose?

1) No definite purpose
2) To take some courses on a trial basis
3) To obtain a bachelor's degree
4) To eventually transfer to a technical school
5) To discover career interests
6) To make friends and meet people
7) To increase knowledge and understanding in a specific academic field
8) To study in a Christian atmosphere
9) Other:

Q 5. At the time you enrolled, how long did you plan to attend Calvin?

1) One year 2) Two years 3) Three years
4) Four years and graduate 5) Other:

Q 6. When you enrolled in Calvin, had you applied for entrance to other colleges?

1) I applied only to Calvin College.
2) I applied to several colleges, but Calvin was my first choice.
3) I applied to several colleges, but Calvin was not my first choice.
4) Other:

Q 7. Which of the following best describes the reason you originally decided to attend Calvin College rather than another college?

1) Academic or professional programs available
2) Academic Support Program available
3) Christian college
4) Contacts with admissions office
5) Family or friends were attending/had attended
6) Location of Calvin
7) Parental influence
8) Size of Calvin
9) A campus visit
10) Other:

Q 8. Were you required to participate in the Academic Support Program?

1) Yes
2) No, but I chose to do so.

Q 9. Have you ever recommended any of the Academic Support Services to others?

1) No
2) Yes

If so, which ones?

Q 10. Which ASP course(s) did you take?

(Please circle the course and answer the sqeuence of questions for each course taken.)

1) 004 Math
   - Did 004 prepare you for the math-related core courses? Yes No
   - Was the material of appropriate difficulty for your needs? Comments: Yes No
   - Would you recommend the course to others? Comments: Yes No

2) 005 Math
   - Did 005 prepare you for the subsequent math course in your program? Yes No
   - Was the material of appropriate difficulty for your needs? Comments: Yes No
   - Would you recommend the course to others? Comments: Yes No

3) 006 Study Skills
   - Did 006 improve your performance in your other courses? Comments: Yes No
   - Was the material covered appropriate to your needs? Comments: Yes No
   - Would you recommend the course to others? Comments: Yes No

4) 007 Grammar Lab
   - Did 007 help you to succeed in English 100? Yes No
   - Was the material of appropriate difficulty for your needs? Comments: Yes No
   - Would you recommend the course to others? Comments: Yes No

Q 11. Which aspects of the advising provided by the Academic Support instructors did you find most helpful as a freshman? (Circle as many as apply.)

1) Assistance with course selection
2) Assistance with time management
3) Assistance with study skills
4) Personal tutorials related to course content
5) Direction to other support services, i.e. career counseling or tutoring
6) None of value
7) Other:

II. Study and academic patterns --

Circle the answer that best describes your present study and academic patterns.

Q 12. I ask my professors for clarification of assignments and assistance with problem areas of course work.

1) Never
2) Occasionally, but I am not comfortable doing so
3) Frequently, without hesitation as the need arises

Q 13. I keep up my assignments by doing them in a regular, planner manner rather than by focusing singularly on the most immediate assignments.

1) Never
2) Occasionally
3) Frequently
4) Always

Q 14. I procrastinate over papers and projects until there is insufficient time.

1) Never
2) Occasionally
3) Frequently
4) Always

Q 15. I have difficulty recalling what I have just read when reading assignments.

1) Never
2) Occasionally
3) Frequently
4) Always

Q 16. I have difficulty isolating important points when reading assignments.

1) Never
2) Occasionally
3) Frequently
4) Always

Q 17. When I refer to my notes, I find they are unorganized and include irrelevant information.

1) Never
2) Occasionally
3) Frequently
4) Always

Q 18. When I study for an essay exam, I organize the material in some logical order rather than study isolated facts.

1) Never
2) Occasionally
3) Frequently
4) Always

Q 19. I receive poor test grades because in a short period of time I have difficulty thinking clearly and organizing my answers.

1) Never
2) Occasionally
3) Frequently
4) Always

Q 20. I organize my time daily and make efficient use of my study time.

1) Never
2) Occasionally
3) Frequently
4) Always

Q 21. I prefer learning through the following general modality:

Circle (1) for your first choice and (2) for your second choice.

1 2 Listening: hearing information through lectures, tapes, etc.
1 2 Reading: reading texts, pamphlets, etc.
1 2 Iconic: viewing illustrations, movies, graphs, etc.
1 2 Direct expereince: handling or performing in labs, practice exercises, etc.

Q 22. I prefer assignments which give me

1) the freedom to set my won project objectives.
2) specific detailed directions to follow.

Q 23. My actual test grades are usually

1) better than I expect them to be.
2) not as good as I expect them to be.

APPENDIX D

LETTER OF PERMISSION

FROM PSYCHOLOGICAL CORPORATION

THE PSYCHOLOGICAL CORPORATION
7500 OLD OAK BLVD., CLEVELAND, OH 44130 (216) 234-5300 CABLE: HARBRACE

January 17, 1984

Ms. Beverly Morrison
310 Carnoustie, S.E.
Grand Rapids, MI 49506

Dear Ms. Morrison:

Enclosed please find one fully executed copy of a Permission Agreement authorizing you to include items from the Survey Habits and Attitudes in the survey you are developing as part of your doctoral research.

I am pleased that we were able to be of assistance.

Sincerely,

Karen Kray

Karen Kray, Supervisor
Rights and Permissions

KK:mgk

1269B

Encl.

APPENDIX E

DESCRIPTIVE COMPOSITE OF RESPONDENTS

APPENDIX E

DESCRIPTIVE COMPOSITE OF RESPONDENTS

	Frequencies	
	Took Academic Support English/ Study Skills	Took Academic Support Mathematics
N =	43	18
Number semesters registered:		
eight	18	9
seven	2	1
six	18	7
five	5	1
Declared major:		
accounting	1	1
biology	1	0
business	4	5
CAS	0	1
computer science	1	0
chemistry	1	0
criminal justice	1	2
elementary education	4	2
engineering	1	0
English	2	0
fine arts	1	1
German	0	1
history	4	1
math	1	0
music	3	0
nursing - BSN	1	0
physical education	4	1
psychology	3	1
recreation	1	0
religion	1	0
seminary	1	0
sociology	5	2
special education	1	0
speech	1	0

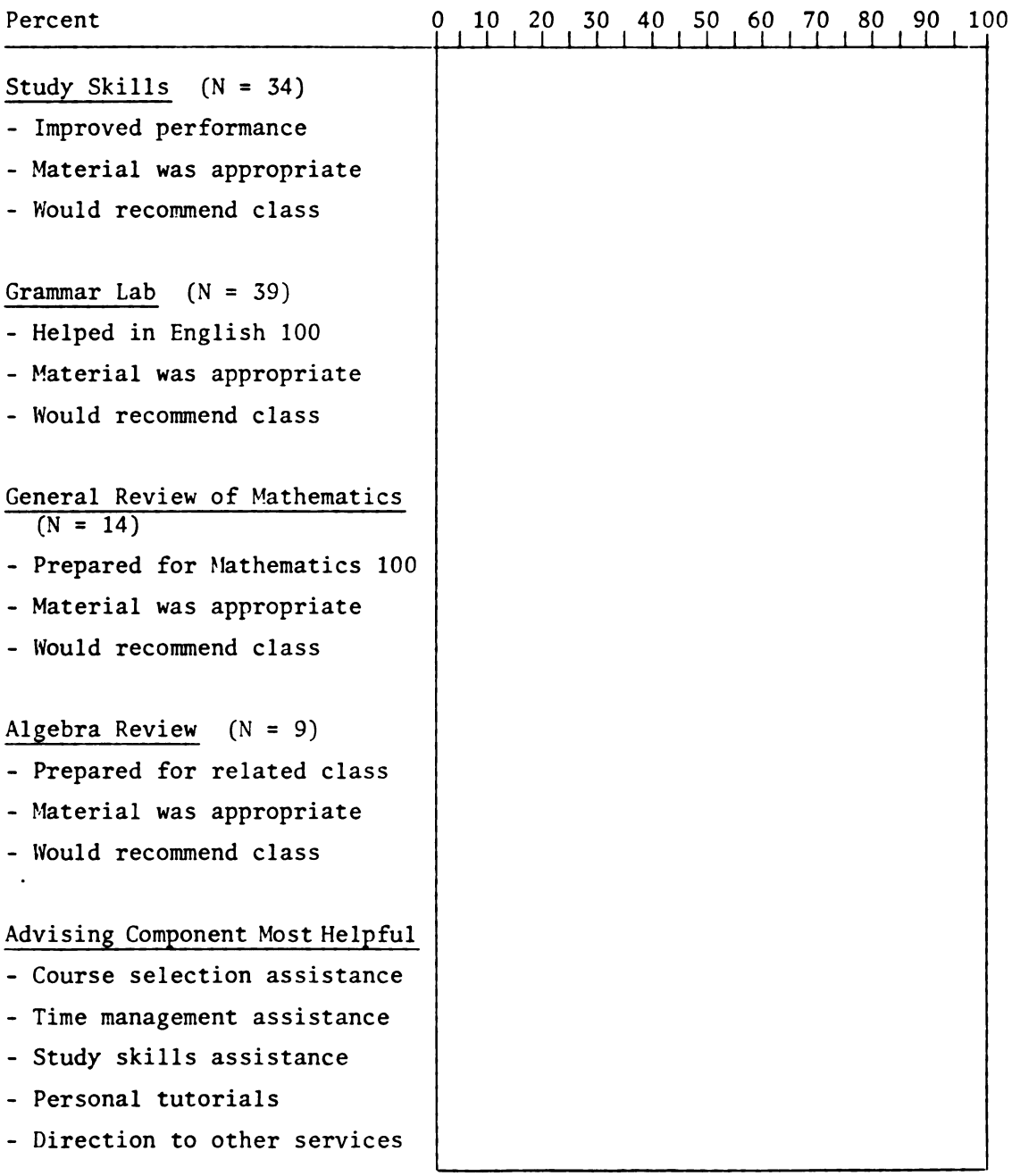
	Frequencies	
	Took Academic Support English/ Study Skills	Took Academic Support Mathematics
Changed major:		
never	24	15
once	12	3
twice or more	7	0
Original purpose:		
No definite purpose	2	2
Try courses	1	0
Obtain B.A. degree	12	7
Transfer to technical	3	1
Discover interests	7	7
Make friends	3	0
Increase knowledge in specific field	8	0
Study in Christian atmosphere	5	1
Other: Get away from home	2	0
Original intended stay:		
One year	7	4
Two years	8	0
Three years	0	0
Four years/graduate	28	14
Application to:		
Only Clavin	28	13
Others, but Calvin first choice	11	4
Others, and Calvin not first choice	4	1
Reason attended Calvin:		
Academic programs available	1	3
Academic Support Program	0	0
Christian college	5	1
Contacts with admissions	0	0
Family/friends attended	14	7
Location of Calvin	5	1
Parental influence	15	4
Size of Calvin	1	0
A campus visit	2	1
Other: Michigan Financial Aid	0	1

APPENDIX F

RESPONDENT PERCEPTIONS OF THE ACADEMIC SUPPORT PROGRAM

APPENDIX F

Table 14. -- RESPONDENT PERCEPTIONS OF ACADEMIC SUPPORT PROGRAM



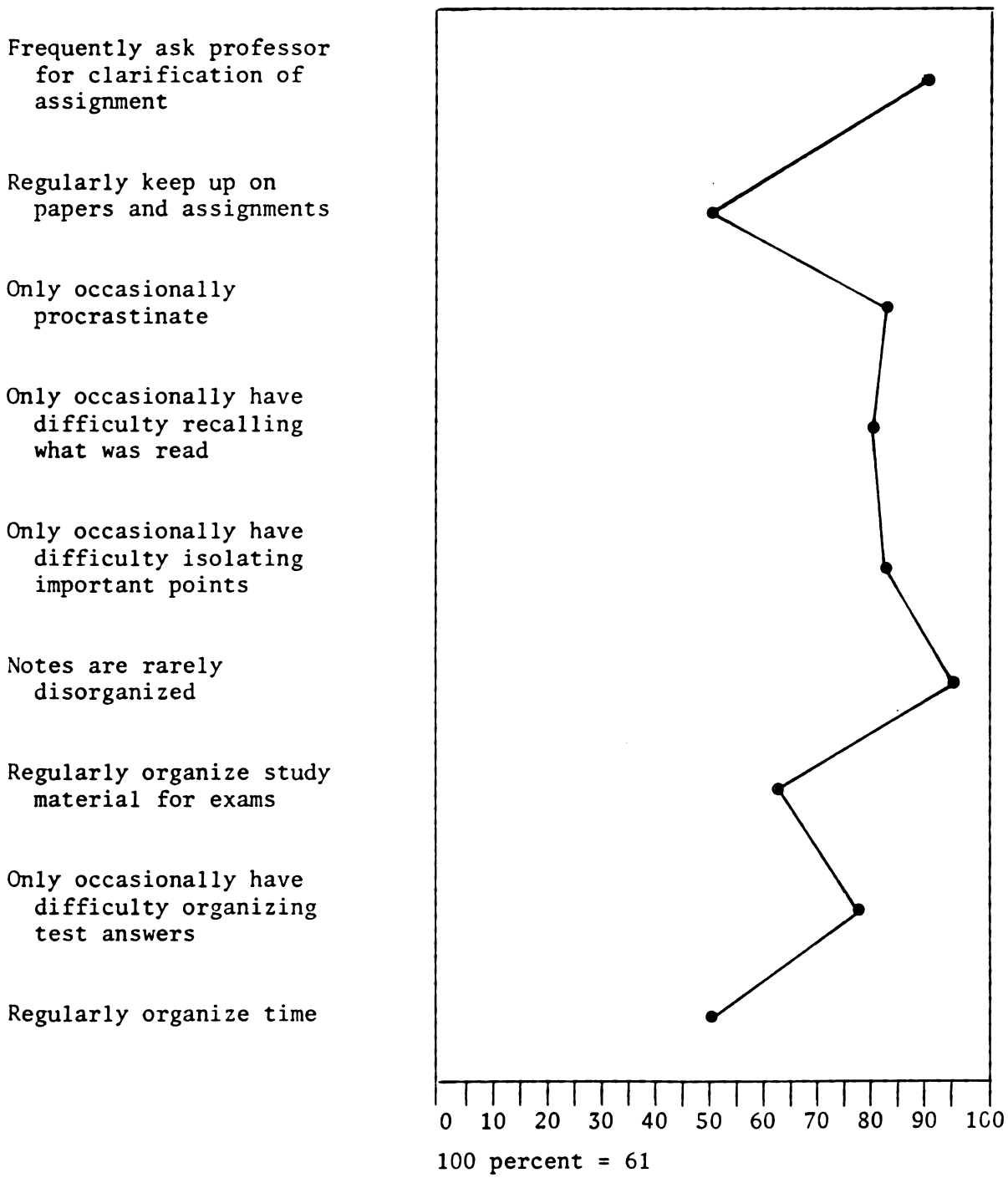
Note. Frequencies ≠ 61; some respondents took more than one component. Percentages ≠ 100; checked multiple helpful components.

APPENDIX G

PERCENTAGE OF RESPONDENTS REPORTING USE OF APPROPRIATE STUDY SKILLS AND TIME MANAGEMENT

APPENDIX G

Table 15. -- Percentage of respondents reporting use of appropriate study skills and time management.



APPENDIX H

LEARNING STYLE PREFERENCES

APPENDIX H

LEARNING STYLE PREFERENCES

Preferences	Took Grammar Lab/Study Skills	Took Mathematics Lab	Percent of Total Respondents
First choice:			
Listening	18	8	43
Reading	4	3	11
Iconic	4	0	6
Direct experience	17	7	40
Second choice:			
Listening	6	3	13
Reading	12	4	26
Iconic	14	8	36
Direct experience	11	4	25
Prefer setting own project objectives	12	6	30
Prefer following specific directions	31	12	70
Test grades are usually:			
Better than expected	21	8	48
Not as good as expected	22	10	52
For each category of preference	N = 43	N = 18	100

APPENDIX I

FIRST SEMESTER REPORTS FOR CONDITIONALLY ADMITTED FRESHMEN

APPENDIX I

FIRST SEMESTER REPORTS FOR CONDITIONALLY ADMITTED FRESHMEN

GPA	Academic Status	Fall, 1980		Fall, 1981		Fall, 1982		Fall, 1983	
		No.	%	No.	%	No.	%	No.	%
≥ 2.0	Good standing	34	35	44	48	40	36	74	56.5
1.5-1.99	Good standing	35	36	22	24	29	26	25	19.1
1.0-1.49	Return on probation	20	20	14	15	22	20	10	7.6
≤ 1.0	Subject to dismissal	5	5	6	7	14	13	16	12.2
	Withdrew	4	4	6	7	5	5	6	4.6
TOTALS		98	100	92	100	110	100	131	100

Note. During the same four-year period, the number of regularly admitted students returned on probation decreased from 49 to 25; the number who were subject to dismissal decreased from 25 to 10.

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