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AUTHOR Linthicum, Dorothy S.
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ABSTRACT

A study was conducted to determine the scope and characteristics of developmental/remedial activities in Maryland's 17 community colleges in terms of objectives and goals, courses and activities, student information, costs and revenues, and administration and organization. The study revealed: (1) 15 colleges offered developmental education for credit in English and mathematics; (2) 15 colleges offered courses in reading and/or study skills, and provided tutoring, counseling, and self-paced instruction; (3) total enrollment in remedial courses in fiscal year (FY) 1978 was more than 42,000--30,000 in credit courses and 12,000 in continuing education courses; (4) direct costs for FY 1978 totaled about $3.4 million (direct remedial instructional cost for each remedial full-time equivalent (FTE) student statewide was $931); and (5) developmental programs tended to be decentralized, with most programs conducted within academic departments. Another aspect of the study involved measuring a sample of students enrolled in developmental English courses at eight colleges against the success of a sample of students enrolled in English 101. Developmental students tended to complete fewer college-level English courses and make lower grades than the control group. The study report considers the implications of the findings in terms of placement, open admissions, professional development, organizational structure, evaluation, and funding. (DR)

STATEWIDE ASSESSMENT

OF

DEVELOPMENTAL/REMEDIAL EDUCATION

AT

MARYLAND COMMUNITY COLLEGES

Dorothy S. Linthicum

Maryland State Board for Community Colleges
The Jeffrey Building • Annapolis, Maryland 21401
September 1979

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PREFACE

In the past few years developmental/remedial education in Maryland has been widely discussed. The debate has ranged from the effectiveness of current programs to the type of institution that should offer developmental/remedial education. The missing element in most of the discussions was actual data about the numbers of students enrolled in developmental/remedial activities, program costs, and success of developmental students in college level coursework.

The State Board for Community Colleges, with funding from the Division of Vocational-Technical Education, State Department of Education, and the State Board for Higher Education, has spent the last year filling in many of those missing elements for community colleges. This report describes the characteristics of developmental/remedial activities, students, and costs at community colleges and evaluates the success of selected developmental students. Data came from a survey prepared by the State Board for Higher Education in conjunction with an additional State Board for Community Colleges questionnaire and interviews with faculty and staff working in developmental/remedial education at the community colleges. The evaluation portion of the study was designed by Dorothy S. Linthicum, a State Board for Community Colleges staff consultant.

We found that students needing developmental help have many opportunities at Maryland community colleges. The activities have been tailored by each college to meet the unique needs of its constituency. The enthusiasm and support of most faculty has made developmental/remedial education a strong component of the colleges.

Many people have supplied information and shared ideas and suggestions for this study. We are especially grateful for the time and support provided by the people designated as developmental coordinators for this study at each of the community colleges. James D. Tschechtelin and R. Malcolm Rodgers of the Board staff also provided assistance.

BRENT M. JOHNSON
EXECUTIVE DIRECTOR

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INTRODUCTION

Developmental/remedial activities in Maryland public higher education have been the center of controversy and debate during the past few years. Discussions have included philosophical questions, cost considerations, and impacts of the activities on colleges and students alike. However, little data exist about the developmental/remedial courses and activities in any of the higher education segments. The State Board for Higher Education *Maryland Statewide Plan for Postsecondary Education* states:

> "Remedial practices differ widely among institutions. There are a lack of standardized definitions in the field as well as a lack of definitive research findings on the effectiveness of the programs."

Community colleges in Maryland, through the open admissions policy, have always served the "nontraditional" student through innovative scheduling and programming. The diverse developmental/remedial programs also reflect each institution's attempt to meet the unique needs of different populations. The result has been developmental/remedial credit and noncredit courses, reading centers, learning laboratories, tutoring services, self-paced instruction, specialized counseling, and other activities.

PURPOSE

The first purpose of this study is to determine the scope of developmental/remedial activities available at each of the seventeen community colleges. Differing community needs have resulted in a range of objectives, course offerings, support activities, student participation, costs, and administrative organization. Before any decisions can be made about future funding of developmental/remedial activities or the type of institutions that can appropriately provide remediation, there must be some knowledge about the current status of developmental/remedial education. It is important to have at least an approximation of the ranges of programs and services available and to identify the similarities and differences among the colleges.

The evaluation of a segment of developmental/remedial education is the second purpose of the study. Through a study of student success in eight community colleges, an evaluation model has been developed to measure the impact of specific academic courses. At this time sixteen of the colleges offer some remedial course work in the basic skills of reading, writing, and mathematics. The evaluation system can point to strengths and weaknesses and provide overall information about the success of the students.

STATEMENT OF THE PROBLEM

The problem that prompted this study was the uncertainty about the characteristics and effectiveness of developmental/remedial education at Maryland community colleges. Many believe that significant portions of the colleges' budgets are being spent to provide developmental/remedial education to large numbers of community college students. The State Board for Higher Education Statewide Plan also has directed the community colleges to "make developmental/remedial education available commensurate with the needs of their students." (p. 36) This might result in an expansion of current activities. Until the characteristics and effectiveness of current activities are known, however, arguments for expansion have little meaning.

DEFINITIONS

One of the problems in studying developmental/remedial education is the lack of a clear definition that is widely accepted. The section on objectives and goals in Part I will illustrate how Maryland community colleges have broadened the definition of developmental/remedial education. Not only are basic skills in reading, writing, and mathematics emphasized, but also affective areas in human potential and self-concept.

Much of the data used in Part I, however, come from a survey instrument designed by the State Board for Higher Education to gather information on remedial activities. The complete definition used by the State Board for Higher Education is in Part I. An excerpt provides the major thrust:

> ". . . Developmental/remedial activities are the policies, practices, programs, and courses designed to meet the needs of students entering an institution who, because of socio-economic and/or educational deprivation, physical handicap, or other reasons, lack the functional/academic skills considered necessary to do COLLEGE LEVEL WORK AT THAT INSTITUTION."

In order not to duplicate the State Board for Higher Education Study, or to add to the colleges' workloads, the State Board for Community Colleges asked the colleges for only general information, such as objectives and goals. Most of the information in Part I about student enrollment and costs, therefore, describes only remedial activities as defined above.

RESEARCH QUESTIONS

1. What are the objectives and goals of developmental/remedial programs at Maryland community colleges?

2. What developmental/remedial courses and activities are now being offered at Maryland community colleges?

3. How many students participate in developmental/remedial courses and activities?

4. What kind of person participates in developmental/remedial courses and activities?

5. What are the direct costs of offering developmental/remedial courses and activities?

6. How are developmental/remedial courses and activities organized administratively?

7. Are students who take basic Erglish review courses as successful in completing subsequent college level course work as those who do not take the basic course(s)?

8. Are any changes needed to improve developmental/remedial education in Maryland community colleges?

Responses to the first six questions are in Part I, question 7 in Part II, and question 8 in Part III. Descriptive information has been collected through meetings, interviews, and surveys. In addition to the data from the State Board for Higher Education developmental/remedial survey, information was collected from each college concerning credit and noncredit (continuing education) developmental programs. A task force made up of developmental/remedial coordinators from each college also has met with State Board for Community Colleges staff to discuss campus programs. In addition, interviews were held with deans, faculty, and staff involved in developmental work.

Information in the evaluation portion of the report came from a study of remedial English courses at eight community colleges. Recommendations in the last section were drawn from the information collected, from the literature, and from interviews with those actively involved in developmental/remedial education at community colleges.

PART I

CHARACTERISTICS OF DEVELOPMENTAL/REMEDIAL ACTIVITIES AT MARYLAND COMMUNITY COLLEGES

Characteristics of developmental/remedial activities at Maryland community colleges are as diverse as the colleges themselves. The purpose of this section is to identify the components that are similar or different at each of the seventeen colleges. Five areas will be explored--objectives and goals, courses and activities, student information, costs and revenues, and administration and organization of developmental/remedial education.

OBJECTIVES AND GOALS

Developmental/remedial activities are usually offered by two distinct branches of the colleges. Courses and activities offered through the credit programs of the academic departments of a college are usually geared toward helping students attain the cognitive and affective skills needed for college level work. Courses offered through continuing education may also serve students with these needs but, in addition, may serve adults with more fundamental developmental needs. Throughout this report, these two groups will be analyzed separately.

Credit Activities

Most of the colleges offer remedial courses and activities designed to provide the basic skills for college course work. (Wor-Wic Tech, the newest community college, is the only college in Maryland not offering some remedial course or activity in the credit area.) The other sixteen colleges have at least one course or activity which falls into the category of remedial as defined by the State Board for Higher Education (SBHE). The definition, as developed by the SBHE staff, is as follows:

> ". . . Developmental/remedial activities are the policies, practices, programs, and courses designed to meet the needs of students entering an institution who, because of socio-economic and/or educational deprivation, physical handicap, or other reasons, lack the functional/academic skills considered necessary to do COLLEGE LEVEL WORK AT THAT INSTITUTION. These activities are generally designed to address one or more of the following objectives:
>
> 1. To increase numerical computation skills,

2. To increase skills in written and oral communication,
3. To increase reading ability,
4. To provide these students with methods of effective study and problem solving skills;
5. To improve the academic adjustment of such students,
6. To provide these students with the knowledge generally included in the required high school curricula (English, Mathematics, and Natural Sciences),
7. To increase the proportion who complete a degree program or course of study."

The working definition is as follows:

Developmental/remedial activities "are those intended to give students the basic knowledge and skills needed in preparation for college level work. These activities, courses, or programs, generally, but not necessarily, designed especially for students judged by the institutions to be inadequately prepared, may be offered for credit or not; may be required or voluntary activity; may be taken prior to (i.e., Summer) or concurrently with regular academic work. They shall be restricted to activities in areas defined by the usual required areas of high school subject matter (English, Mathematics, and Natural Sciences), or shall fall clearly among tool subjects: reading, writing and verbal expression, basic number skills and methods of effective study.

Also included are other activities specifically designed to assist marginally prepared students, such as the federally supported Special Services Programs, counseling programs directed toward improvement of academic skills, tutoring programs, etc. However, programs designed to improve the personal or social adjustment of students, unless related to or part of a remedial/developmental program concerned with academic preparation or tool subjects, shall be excluded."

This definition was used by the SBHE in gathering information about developmental/remedial education in Maryland colleges and universities in a recent survey. Data from the survey are used in this report in describing the characteristics of developmental/remedial activities. Much of the student and cost data, therefore, deals only with the remedial activities taking place at the colleges. Information about objectives and organizational structure of developmental/remedial activities came from a separate State Board for Community Colleges survey and through interviews with college faculty and administrators.

Community colleges, because of open admission policies and diverse philosophies, have broadened the concept of remedial to encompass all students with developmental needs. Developmental education, therefore, is not limited to improving basic skill levels of a specific group of students.

Some of the colleges, especially those serving the more traditional 18- to 20-year old student, have objectives that deal primarily with remediation. Cecil Community College, for example, identifies these two primary objectives for developmental/remedial education:

1. To improve basic skills of students, and

2. To decrease the failure rate of students in academic courses.

Similar primary objectives were identified at Allegany, Anne Arundel, Charles, Essex, Frederick, Garrett, Hagerstown, and Montgomery community colleges.

Other colleges have expanded courses and activities to provide for the developmental needs of all students. Objectives of developmental/remedial education at Dundalk Community College are a good example of this:

"Assist students in the following processes:

a. Develop and/or review basic academic skills necessary for continued academic success (i.e., reading, writing, math, and study skills).

b. Develop and/or review basic life management skills necessary for continued academic success (i.e., goal setting, time management, decision making).

c. Develop increased self-confidence in academic activities.

d. Determine realistic and appropriate life goals (i.e., career, educational).

e. Develop and/or review prerequisite skills related to specific curriculums."

Objectives (a) and (e) relate to remedial activities found at all the colleges (except Wor-Wic Tech). The other objectives relate specifically to the developmental needs of students Dundalk serves. The developmental program at Prince George's not only has objectives relating to remedial activities but also deals with students who have employment goals. Through alternative instructional patterns, the college hopes "to improve the potential of our students to be successful in a field of employment with an opportunity to advance." Howard's developmental/remedial program includes an objective to help students adjust to college, and Chesapeake seeks to enrich students' personal lives. Catonsville emphasizes the importance of self-confidence, along with increasing basic skills. Harford tries to help students realize their potential within an academic environment and design a strategy for moving toward their goals.

The role developmental/remedial education plays at the Community College of Baltimore perhaps best summarizes the objectives of all the colleges:

> "The primary role of developmental/remedial education is to be supportive of the open door policy of the college. The approach is student-centered, recognizing that among students there are different styles of learning, different rates of learning, and varying levels of readiness for the college experience."

Noncredit Courses

The continuing education divisions of the colleges have broader based objectives for their developmental/remedial courses to match the diverse populations they serve.[1] Howard Community College, for example, has found that continuing education students have different goals from students in the credit divisions. The continuing education student often is not seeking a college degree but is taking a specific course for life preparation or for a personal goal related to a job. The primary objective of Howard's continuing education courses in developmental/remedial education is to assist students in their personal development. Frederick Community College also has found that students are generally not taking the continuing education courses as preparation for an academic curriculum. Other colleges, such as Wor-Wic Tech, serve the more traditional developmental/remedial student in continuing education.

Catonsville Community College uses developmental/remedial education to help students "fill in the gaps." The continuing education courses are designed to "pick them up where they are and give them the skills needed to succeed at the next educational hurdle." Catonsville's courses also try to help students assess their own skill deficiencies. The college has found that students in continuing education often are seeking short-term courses because of time constraints due to family and work responsibilities.

Continuing education courses in the developmental/remedial area at Montgomery provide an opportunity for adults to build on basic skills or prepare for employment. Harford emphasizes basic academic and life skill development. Prince George's has continuing education courses that prepare students for college, for the General Educational Developmental (GED) test, for employment, and for occupational examinations. Garrett's developmental/remedial courses permit students to work at their own pace.

Many of the colleges also reported that continuing education developmental/remedial courses serve more handicapped students, senior citizens, and adults who do not have high school diplomas than the credit divisions.

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[1] Information in this section came from a survey of continuing education deans and directors.

Summary

Developmental education at community colleges means more than teaching basic skills to students who are unable to complete college level work. Maryland community colleges, as a whole, have identified the following objectives for developmental/remedial education:

- To assist students in improving basic skills necessary for college;
- To assist students in improving or reviewing prerequisite skills related to specific curriculums;
- To help students adjust to college;
- To assist students in developing increased self-confidence in academic activities;
- To assist students in realizing their potential in the academic environment and in setting appropriate life goals;
- To assist students in developing decision-making skills;
- To assist students in developing strategies for moving toward goals;
- To improve the potential of students to be successful in a field of employment with an opportunity to advance;
- To assist students in their personal development;
- To assist special students, such as the physically handicapped, in learning basic life skills.

Not every college has such a wide range of objectives for its developmental/remedial activities, nor is it necessary due to the diversity of the population each college serves. However, as colleges serve more nontraditional students, the need for broader developmental/remedial activities may become more apparent. These objectives are the foundation of developmental/remedial education, not only today, but also in the future.

DEVELOPMENTAL/REMEDIAL COURSES AND ACTIVITIES

Community colleges provide developmental/remedial opportunities through courses and support activities. In this study, course refers to any activity for which a student registers. The term course is not used to describe an instructional technique. For example, some colleges refer to the remedial level English offering as English Laboratory because of the individualized techniques used. However, the student still registers for three to five hours. For purposes of comparison, this lab experience will be considered a course.

Courses offered through the regular academic departments, but not given for credit, also are analyzed in the credit course section. (The term credit-equivalent is sometimes used in describing these courses.) Opening learning labs, specialized counseling, tutoring, and related services are referred to as support activities. Noncredit courses offered through continuing education are treated separately.

Credit Courses and Activities

To meet the many objectives for developmental/remedial education, Maryland community colleges offer a wide range of courses and activities. Each of the sixteen colleges offering credit developmental/remedial education has courses in remedial English and mathematics. Fifteen of the colleges also have courses in reading, study skills, or a combination of the two. In addition to the remedial reading and study skills courses, some colleges offer more advanced communication skills courses for all students. Essex, for example, has courses in vocabulary, memory and spelling development, critical reading, rapid reading, and flexible reading to help students working with a variety of materials. (Table 1.)

Many of the colleges also offer courses in science, business, English as a second language, and student development. Student development courses include career and life management skills to help students in goal setting, decision making, career search techniques, and improvement of self-concept and self-confidence. Some colleges also stress library skills, public speaking, and academic adjustment.

Support activities take on several forms at the different colleges depending on the type of student served. Many of the community colleges have reading, English and writing, mathematics, or comprehensive learning laboratories. Tutoring is available both on a peer basis and through paraprofessionals and faculty. Specialized counseling and advisement for developmental/remedial students is available at six of the colleges. In addition to these individual activities, several of the colleges offer comprehensive programs for special student populations. (Table 2.)

The Special Services Program at the Community College of Baltimore helps students with academic potential who lack proper academic preparation due to deprived educational, cultural, or economic backgrounds. The program also serves students with physical handicaps and those in need of bilingual education. The Advancement Studies Program at Catonsville is for a limited number of students who learn at different rates of speed, who require improvement in self-concept, and who have skill deficiencies. The Single Step Program at Dundalk helps handicapped students to compete successfully in the job market, to enter college level courses, to increase their independence, and to be more self-aware and self-confident. Prince George's also has a central testing center to support the developmental courses and to help students in course placement.

Table 1

DEVELOPMENTAL/REMEDIAL CREDIT COURSES OFFERED
AT MARYLAND COMMUNITY COLLEGES
FY 1978

College	English	Reading and Study Skills	Mathematics	Science	Student Development-Human Potential	Other
Allegany	✓	✓	✓		✓	
Anne Arundel	✓	✓	✓			
Baltimore	✓	✓	✓		✓	
Catonsville	✓	✓	✓		✓	✓[1]
Cecil	✓	✓	✓			
Charles	✓	✓	✓		✓	✓[1]
Chesapeake	✓	✓	✓		✓	
Dundalk	✓	✓	✓		✓	✓[2]
Essex	✓	✓	✓	✓	✓	
Frederick	✓		✓	✓	✓	
Garrett	✓	✓	✓			
Hagerstown	✓	✓	✓			
Harford	✓	✓	✓	✓	✓	✓[1]
Howard	✓	✓	✓		✓	
Montgomery	✓	✓	✓	✓		✓[1]
Prince George's	✓	✓	✓	✓		
Wor-Wic Tech						

[1] English as a second language
[2] Business

SOURCE: SBHE Survey of Developmental/Remedial Education
SBCC Developmental/Remedial Questionnaire
College Catalogues

Table 2

DEVELOPMENTAL/REMEDIAL ACTIVITIES
AT MARYLAND COMMUNITY COLLEGES
FY 1978

College	Reading Lab/ Center	English/ Writing Lab/ Center	Mathematics Lab/ Center	Learning Lab	Tutoring	Advisement/ Counseling	Other
Allegany	✓	✓	✓		✓		
Anne Arundel	✓	✓	✓			✓	
Baltimore	✓	✓	✓	✓	✓	✓	✓1,4
Catonsville	✓		✓		✓		✓2,5
Cecil	✓				✓		
Charles		✓			✓		
Chesapeake							
Dundalk	✓	✓	✓			✓	✓3
Essex	✓						
Frederick					✓		
Garrett	✓	✓					
Hagerstown						✓	
Harford	✓		✓			✓	
Howard			✓	✓		✓	
Montgomery		✓	✓				
Prince George's				✓	✓		✓4
Wor-Wic Tech							

1 Special Services Program
2 Advancement Studies Program
3 Single Step Program
4 Testing Center
5 Career Center

SOURCE: SBHE Survey of Developmental/Remedial Education
College Catalogues

Noncredit Courses

Developmental/remedial courses in continuing education include the traditional college remedial courses which prepare students for college level work and more nontraditional courses designed to meet other developmental needs of adults. These courses help adults prepare for the General Educational Developmental (GED) test and review skills for specific occupations. Courses in communication skills include reading, writing, and public speaking. Other courses in developmental/remedial education are English as a second language, consumer education, and self-help skills for handicapped students. Some of the colleges also provide training courses for those working with developmental/remedial students. (Table 3.)

Table 3

CONTINUING EDUCATION DEVELOPMENTAL/REMEDIAL COURSES
AT MARYLAND COMMUNITY COLLEGES
FY 1978

College	College Remedial	GED Related	Developmental Occupational	Developmental Communication Skills	English as a Second Language	Consumer Education	Self-Help Skills for Handicapped	Training of Tutors
Allegany			✓					
Anne Arundel				✓	✓			
Baltimore	✓	✓						
Catonsville	✓		✓	✓	✓	✓	✓	✓
Cecil		✓						
Charles	✓							✓
Chesapeake	✓			✓				
Dundalk	✓	✓	✓	✓			✓	✓
Essex								
Frederick	✓							
Garrett		✓					✓	
Hagerstown	✓	✓		✓				
Harford	✓	✓	✓	✓	✓	✓		
Howard	✓	✓		✓				
Montgomery	✓			✓				
Prince George's	✓	✓	✓	✓	✓			
Wor-Wic Tech	✓		✓					

SOURCE: SBCC Developmental/Remedial Questionnaire

STUDENT INFORMATION

One of the difficulties of reporting the number of students involved in developmental/remedial education in community colleges is the fact that some students may need help in several areas while others require only limited assistance.

In the State Board for Community Colleges evaluation study described in Part II, the average student enrolled in a remedial English course was also taking another course in mathematics, reading, or student development. Because students are often enrolled in two or more developmental/remedial courses simultaneously, course and activity enrollment alone does not gauge how many different students are using developmental/remedial opportunities. However, by calculating the number of full-time equivalent (FTE) students enrolled in developmental/remedial courses, an estimate can be made of the percentage of instruction that is developmental/remedial.

Another problem surfaces when the data are collected by course. The numbers reported in the credit section below come from the SBHE Survey of Developmental/Remedial Education and include only those courses and activities that fit the SBHE definition of remedial. Developmental courses which the community colleges offer for all students, therefore, are not included. Only a few colleges offer extensive developmental courses beyond what were reported to the State Board for Higher Education. Essex, for example, which enrolled 366 students in remedial reading in FY 1978, had another 789 students enrolled in developmental reading courses. Because the survey information already requested of the colleges was extensive, this study used only available data for estimated enrollments and costs. The information presented in the next two sections, however, gives a good picture of developmental/remedial activity at most community colleges.

Because student enrollment data in continuing education are available through the State Board for Community Colleges information system by course, the noncredit section includes all developmental/remedial courses.

Credit Courses and Activities

In FY 1978, enrollment in remedial courses at Maryland community colleges was almost 30,000. (Table 4.) Enrollments among the colleges ranged from 7,500 at the Community College of Baltimore to 117 at Chesapeake College. The remedial courses offered by the colleges in their academic departments and divisions can be divided into five broad categories: English, reading and study skills, mathematics, science, and student development. (Only student development courses the colleges identified as remedial for the SBHE survey are included in the last category.)

According to data submitted by the colleges, about the same number of men and women were served by remedial courses. (Table 4.) The only subject area that showed a significant difference by sex was science in which men outnumbered women 2 to 1. In absolute numbers, more white students were served

by remedial courses than minority students in FY 1978. However, as a proportion of the total minority enrollment, a greater percentage of minority students was enrolled in remedial courses. In the science area, however, significantly more white students were served than minority students. (Table 1, Appendix B.)

Table 4

TOTAL ENROLLMENT IN CREDIT REMEDIAL COURSES BY SEX AND RACE
AT MARYLAND COMMUNITY COLLEGES
FY 1978

College	Sex				Race				TOTAL
	Male		Female		Black/ Other		White		
	#	%	#	%	#	%	#	%	
Allegany	163	41	231	59	9	2	385	98	394
Anne Arundel	1,084	48	1,172	52	236	10	2,020	90	2,256
Baltimore	3,197	43	4,325	57	6,129	81	1,393	19	7,522
Catonsville	1,300	50	1,300	50	1,215	47	1,385	53	2,600
Cecil	224	43	302	57	39	7	487	53	526
Charles	267	59	184	41	90	20	361	80	451
Chesapeake	77	66	40	34	40	34	77	66	117
Dundalk	712	54	599	46	253	19	1,058	81	1,311
Essex	1,310	46	1,545	54	410	14	2,445	86	2,855
Frederick	91	51	89	49	26	14	154	86	180
Garrett	82	58	65	42	1	1	146	99	147
Hagerstown	364	60	247	40	136	22	475	78	611
Harford	576	49	594	51	164	14	1,006	86	1,170
Howard	168	47	190	53	140	39	218	61	358
Montgomery	1,829	52	1,696	48	893	25	2,632	75	3,525
Prince George's	2,753	48	2,974	52	3,755	66	1,972	34	5,727
Wor-Wic Tech	-		-		-		-		-
TOTALS	14,197	48	15,553	52	13,536	46	16,214	54	29,750

SOURCE: SBHE Survey of Developmental/Remedial Education

Often remedial students are thought to have characteristics of traditional students who are 18 and just entering college. However, Maryland community colleges reported that many of their developmental/remedial students had already taken some college courses and were 23 years of age or older. In the SBHE survey, community colleges indicated that 10 percent to 40 percent of the remedial students in FY 1978 were over 22 in over half of the remedial courses and activities. The average number of first-time freshmen in remedial courses ranged from 56 percent at Montgomery to 96 percent at Charles. (Table 3, Appendix B.)

Participation in developmental/remedial activities is usually reported by the number of student contacts as opposed to enrollment. For example, five contacts are recorded if a student visited a learning laboratory five times for assistance. Table 5 shows the number of contacts in remedial activities as reported by the colleges. The numbers for specific programs identified in the Other category, however, refers to specific students.

Table 5

REPORTED NUMBER OF CONTACTS IN REMEDIAL ACTIVITIES
AT MARYLAND COMMUNITY COLLEGES
FY 1978

College	English/ Writing Labs/ Centers	Reading Labs/ Centers	Comprehensive Learning Labs	Math Labs	Tutoring	Advisement/ Counseling	Other[5]
Allegany	5,000			400	253		
Anne Arundel	4,500	252					
Baltimore			4,157				284[1]
Catonsville							2,698[2]
Cecil					98		
Dundalk	457	85		650		1,504	53[3]
Frederick					13		
Garrett	209	38					
Hagerstown						624	
Harford		100				720	
Howard			50			200	
Prince George's			3,306	787			4,521[4]

1 Special Services Program
2 Advancement Studies Program
3 Single Step Program
4 Testing Center
5 Number of students served

SOURCE: SBHE Survey of Developmental Remedial Education

Another way of examining student data is by computing the number of full-time equivalent students generated by remedial courses. In FY 1978, the total number of credit hours in remedial courses was over 90,000, accounting for more than 3,000 full-time equivalent students. (Table 6.) Remedial courses accounted for slightly more than 6 percent of the total credit full-time equivalent students in Maryland community colleges in FY 1978.

Table 6

FULL-TIME EQUIVALENT STUDENTS AND CREDIT HOURS
ATTRIBUTED TO REMEDIAL COURSES
AT MARYLAND COMMUNITY COLLEGES
FY 1978

College	Remedial Credit Hours	% of Total Credit Hours	Remedial FTEs	% of Total Credit FTEs
Allegany	1,031[1]	2.3	34.4	2.5
Anne Arundel	7,418[1]	6.7	247.3	6.4
Baltimore	22,566	11.8	752.2	12.7
Catonsville	8,183	5.1	272.8	5.1
Cecil	1,578	7.7	52.6	7.7
Charles	1,565	2.8	52.2	2.8
Chesapeake	254	1.3	8.4	1.3
Dundalk	3,686	10.4	122.9	10.5
Essex	8,565[1]	5.8	285.5	5.8
Frederick	540[1]	1.8	18.0	1.8
Garrett	411	3.8	13.7	3.8
Hagerstown	1,637	3.9	54.6	4.3
Harford	3,510	5.8	117.0	5.9
Howard	1,112	3.3	37.1	3.3
Montgomery	11,119[1]	4.1	370.6	4.5
Prince George's	17,181[1]	7.1	572.7	7.4
Wor-Wic Tech	-	-	-	-
STATE	90,356	6.0	3,012.0	6.2

[1] Credit and credit equivalent

FTEs = full-time equivalent students

SOURCE: SBHE Survey of Developmental/Remedial Education
SBCC Enrollment Data

In calculating the percentage of total full-time equivalent students, continuing education FTEs were not included. The slight discrepancies between credit hour and FTE percentages are due to the inclusion of out-of-state students in the total number of credit hours taught at the colleges. Because the enrollment data for remedial courses do not distinguish between in-state and out-of-state students, the percentages for credit hours perhaps are more descriptive.

Noncredit Courses

Continuing education courses designed specifically to prepare students for college level work represent only about 35 percent of all noncredit developmental/remedial courses. Table 7 shows headcount and full-time equivalent

enrollment in FY 1978 for developmental/remedial courses in continuing education. The total enrollment for noncredit developmental courses reached almost 12,000 in FY 1978, accounting for over 1,500 full-time equivalent students. This represents about 23 percent of all continuing education FTEs. (See Tables 4 and 5, Appendix B for a breakdown of enrollment and full-time equivalent students by content area.)

Table 7

CONTINUING EDUCATION DEVELOPMENTAL/REMEDIAL COURSE ENROLLMENT
AND FULL-TIME EQUIVALENT STUDENTS
AT MARYLAND COMMUNITY COLLEGES
FY 1978

College	College Remedial		Developmental		TOTAL	
	Enrollment	FTEs	Enrollment	FTEs	Enrollment	FTEs
Allegany	-	-	9	.4	9	.4
Anne Arundel	-	-	65	3.5	65	3.5
Baltimore	1,161	279.5	387	43.0	1,548	322.5
Catonsville	79	3.4	1,945	86.9	2,024	90.3
Cecil	-	-	276	13.9	276	13.9
Charles	136	8.7	326	34.8	462	43.5
Chesapeake	2	.1	8	.3	10	.4
Dundalk	17	.7	418	25.0	435	25.7
Essex	-	-	-	-	-	-
Frederick	47	2.0	-	-	47	2.0
Garrett	-	-	243	26.9	243	26.9
Hagerstown	14	.6	90	6.3	104	6.9
Harford	1,472	71.3	1,343	75.5	2,815	146.8
Howard	232	6.6	306	34.9	538	41.5
Montgomery	304	14.1	210	9.7	514	23.8
Prince George's	501	78.0	2,027	689.0	2,528	767.0
Wor-Wic Tech	19	.8	12	.5	31	1.3
STATE	3,984	465.8	7,665	1,050.6	11,649	1,516.4

FTEs = full-time equivalent students

SOURCE: SBCC Survey of Developmental/Remedial Continuing Education
SBCC Continuing Education Enrollment Data

In a sample of continuing education students enrolled in developmental courses in Fall 1978, more women and fewer black students tended to be in noncredit courses in comparison to credit courses. The average age of continuing education students taking developmental courses was 30. (Table 8.)

Table 8

CONTINUING EDUCATION STUDENTS
ENROLLED IN DEVELOPMENTAL/REMEDIAL COURSES
AT MARYLAND COMMUNITY COLLEGES
FY 1978

	Number	Percent
Sex		
Male	311	38
Female	510	62
Race		
Black	197	23
White	620	72
Other	41	5
Age		
15-19	181	22
20-29	223	27
30-39	203	25
40-59	181	22
60 +	35	4
Mean = 32.3		
Median = 29.8		

SOURCE: SBCC Continuing Education Survey

Summary

Enrollment in developmental/remedial credit and noncredit courses at Maryland community colleges in FY 1978 was more than 40,000, accounting for over 4,500 full-time equivalent students. Table 9 summarizes the FTEs generated by both credit and noncredit college remedial courses. Over 6 percent of all full-time equivalent students generated by the seventeen community colleges was for courses preparing students for college level work. The percentage of full-time equivalent students ranges from over 16 percent at the Community College of Baltimore to less than 1 percent at Wor-Wic Tech Community College.

Table 9

TOTAL FULL-TIME EQUIVALENT STUDENTS
OF ALL COLLEGE REMEDIAL COURSES
AT MARYLAND COMMUNITY COLLEGES
FY 1978
(Summary)

College	Credit FTEs[1]	Continuing Education FTEs	Total FTEs	% of Total FTEs
Allegany	34.4	-	34.4	2.1
Anne Arundel	247.3	-	247.3	5.9
Baltimore	752.2	279.5	1,031.7	16.2
Catonsville	272.8	3.4	276.2	4.5
Cecil	52.6	-	52.6	7.5
Charles	52.2	8.7	60.9	3.0
Chesapeake	8.4	.1	8.5	1.1
Dundalk	122.9	.7	123.6	6.6
Essex	285.5	-	285.5	5.5
Frederick	18.0	2.0	20.0	1.8
Garrett	13.7	-	13.7	2.9
Hagerstown	54.6	.6	55.2	3.7
Harford	117.0	71.3	188.3	7.2
Howard	37.0	6.6	43.6	3.0
Montgomery	370.6	14.1	384.7	4.4
Prince George's	572.7	78.0	650.7	6.9
Wor-Wic Tech	-	.8	.8	.2
STATE	3,011.9	465.8	3,447.7	6.3%

[1] Includes credit equivalent

FTEs = full-time equivalent students

SOURCE: SBHE Survey of Developmental/Remedial Education for column 1
SBCC Survey of Developmental/Remedial Continuing Education for column 2
SBCC Enrollment Data for columns 2 and 4

COSTS AND REVENUES

The biggest cost in every developmental/remedial program is the compensation of faculty, counselors, and other support personnel. Often student-faculty ratios are reduced because of teaching methods used, and counseling is increased

to meet the special needs of developmental/remedial students.

In the credit section below, only direct costs of the remedial courses and activities described in the previous sections are measured. For example, the direct costs of teaching a remedial math course are primarily faculty and support salaries, supplies, and materials. The indirect costs, such as building maintenance and record keeping are not included. Direct cost of remedial education, however, can be compared to similar expenditures in a college's budget for a better picture of the college's remedial costs. In the noncredit section, costs by course were not available, but revenues generated through student tuition and State aid for developmental/remedial courses are described.

Credit Courses and Activities

Maryland community colleges spent a little less than $3.4 million in FY 1978 for direct costs of remedial courses and activities. (Table 10.)

Table 10

DIRECT COSTS OF REMEDIAL COURSES AND ACTIVITIES
AT MARYLAND COMMUNITY COLLEGES
FY 1978

College	General Funds: Remedial Courses	General Funds: Remedial Activities	Federal Funds	TOTAL
Allegany	$ 46,074	$ 794	$ 116,497	$ 163,365
Anne Arundel	237,183	4,966	9,406	251,555
Baltimore	554,965	133,433	115,720	804,118
Catonsville	270,300	11,960	70,040	362,300
Cecil	41,519	4,678	-	46,197
Charles	44,450	-	-	44,450
Chesapeake	11,450	-	-	11,450
Dundalk	141,850	125,820	44,500	312,170
Essex	296,924	-	-	296,924
Frederick	22,465	888	-	23,353
Garrett	14,566	10,200	8,444	33,210
Hagerstown	52,233	19,049	-	71,282
Harford	108,502	22,616	-	130,668
Howard	26,702	4,695	992	32,389
Montgomery	356,653	-	41,700	398,353
Prince George's	348,455	55,904	-	404,359
Wor-Wic Tech	-	-	-	-
TOTALS	$2,573,841	$ 395,003	$ 417,299	$3,386,143

SOURCE: SBHE Survey of Developmental/Remedial Education

This $3.4 million includes the cost of faculty and support salaries, supplies, and materials, as well as salaries for counselors and administrators directly involved in remedial activities. The colleges received almost a half million dollars in federal grants, about 12 percent of the total direct costs of developmental/remedial education. The percentage of remedial funding from outside grants in FY 1978 ranged from 71 percent at Allegany to zero at Cecil, Charles, Chesapeake, Essex, Frederick, Hagerstown, Harford, and Prince George's. (See Table 6, Appendix B for a breakdown of activity costs.)

Another way of examining costs is comparing the direct instructional costs of remedial courses and learning laboratories with the colleges' unrestricted instructional expenditures. To make the comparison valid, restricted funds, such as federal grants, are omitted. In addition, student affairs courses and activities, such as counseling and student development courses, are excluded since their costs are not included in the category of instructional expenditures.

Statewide, costs of remedial courses and activities accounted for about 4.7 percent of the unrestricted instruction expenditures in FY 1978. Among the colleges, the proportions ranged from 11.1 percent at the Community College of Baltimore to 1.5 percent at Chesapeake College. The percentage of unrestricted expenditures that was attributed to remedial courses and activities is less than the percentage of credit full-time equivalent students attributed to remedial courses. This was true for most of the colleges except Chesapeake, Dundalk, Essex, Frederick, and Garrett, an indication that most colleges spend less for remedial courses than other courses. Direct remedial instructional costs for the average remedial FTE Statewide was less than the instructional costs for the average credit FTE in FY 1978. This was also true for ten out of the sixteen colleges with credit programs in developmental/remedial education. (Table 11.)

Noncredit Courses

Direct costs for continuing education noncredit courses are not readily available. However, the amount of college revenue generated from noncredit developmental/remedial courses through State reimbursement and student tuition can be estimated. The revenue figures in this section should not be added to the costs in the credit section. State reimbursement is based on the cost of the average course, arrived at by adding high cost and low cost courses together and mathematically computing an average. Some of the developmental courses may cost more than the revenue figures indicate, while others may cost less. However, the revenues provide a rough estimate of monies being allocated for developmental/remedial courses in continuing education. (See Table 7, Appendix B for a breakdown of revenues by course type.)

Revenues in noncredit developmental/remedial education were about $2.1 million in FY 1978. Table 12 breaks down the noncredit course revenues by college remedial and other developmental courses. College remedial course revenues made up about a fourth of the total revenues from noncredit developmental/remedial courses. Statewide, revenues per developmental/remedial full-time equivalent student in continuing education were about $1,380.

Table 11

INSTRUCTIONAL COSTS OF REMEDIAL COURSES AND ACTIVITIES
AT MARYLAND COMMUNITY COLLEGES
FY 1978

College	Direct Costs of Remedial Instruction[1]	% of Unrestricted Instruction Expenditures[2]	% of Total Credit FTEs[3]	Direct Cost per Remedial FTEs[1]	Instructional Cost per Credit FTEs[2]
Allegany	$ 46,868	2.5%	2.5%	$1,362	$1,355
Anne Arundel	242,149	4.9	6.4	979	1,278
Baltimore	688,398	11.1	12.7	915	1,047
Catonsville	117,600	2.0	2.8	774*	1,080
Cecil	46,197	7.1	7.7	878	952
Charles	41,200	2.7	2.8	798	837
Chesapeake	11,450	1.5	1.3	1,363	1,181
Dundalk	167,170	10.4	8.0	1,848*	1,367
Essex	266,762	5.2	5.1	1,070*	1,048
Frederick	23,353	1.9	1.8	1,297	1,237
Garrett	24,766	4.3	3.8	1,807	1,589
Hagerstown	52,233	3.6	4.3	957	1,143
Harford	108,052	3.6	5.9	924	1,492
Howard	29,093	2.1	3.3	786	1,219
Montgomery	356,653	3.3	4.5	962	1,296
Prince George's	404,359	4.7	7.4	706	1,098
Wor-Wic Tech	-	-	-	-	-
STATE	$2,626,303	4.7%	5.9%	$ 931	$1,166

1 Does not include student affairs courses and activities or federal funds.
2 Does not include continuing education.
3 Does not include student affairs courses.

* Note: Because Catonsville, Dundalk, and Essex offer reading and study skills courses through student affairs, the direct cost per remedial FTE in the instructional category was different from other colleges. The direct costs per remedial FTE, including reading/study skills, was $1,021 at Catonsville, $1,900 at Dundalk, and $1,040 at Essex.

FTEs = full-time equivalent students

SOURCE: SBHE Survey of Developmental/Remedial Education
SBCC Financial Data

Table 12

STATE REVENUES AND STUDENT TUITION
GENERATED BY CONTINUING EDUCATION DEVELOPMENTAL/REMEDIAL COURSES
AT MARYLAND COMMUNITY COLLEGES
FY 1978

College	College Remedial Courses		Other Developmental Courses		TOTAL REVENUES
	State Reimbursement	Student Tuition	State Reimbursment	Student Tuition	
Allegany	$ -	$ -	$ 320	$ NA	$ 320
Anne Arundel	-	-	2,768	1,620	4,388
Baltimore	223,600	103,329	34,400	20,511	381,840
Catonsville	2,696	152	69,536	5,995	78,379
Cecil	-	-	11,136	NA	11,136
Charles	6,936	8,520	27,816	13,040	56,312
Chesapeake	104	NA	216	NA	320
Dundalk	544	119	19,984	1,620	22,267
Essex	-	-	-	-	-
Frederick	1,624	968	-	-	2,592
Garrett	-	-	21,512	31	21,543
Hagerstown	464	NA	5,072	NA	5,536
Harford	57,024	53,195	60,432	33,630	204,281
Howard	5,288	NA	27,880	NA	33,168
Montgomery	11,304	8,998	7,712	6,186	34,200
Prince George's	62,432	32,020	551,192	595,386	1,241,030
Wor-Wic Tech	608	320	408	240	1,576
TOTAL	$372,624	$207,621	$840,384	$678,259	$2,098,888

NA = Not available

SOURCE: SBCC Survey of Developmental/Remedial Continuing Education
for columns 2 and 4
SBCC Financial Data for columns 1 and 3

ADMINISTRATION AND ORGANIZATION

The administration and organizational structure of developmental/remedial courses and activities varies among the seventeen community colleges just as objectives and goals differ according to the type of student served. Some colleges have highly centralized programs and extensive course placement services. Other colleges, such as Anne Arundel and Dundalk, are experimenting with departmental activities directed by a central committee and a developmental/remedial coordinator. Funding also plays a part in the organization of developmental/remedial activities. At the Community College of Baltimore, the federal Special Services for Disadvantaged Students project funds many of the support activities offered through the Center for Educational Services. In addition, the type of student served may dictate the way faculty are selected to teach developmental/remedial courses. Finally, changes in student populations may increase the need for staff development in developmental/remedial education.

Credit Courses and Activities

In this section organizational patterns, current placement procedures, faculty selection, and staff development will be examined.

a) Organizational Patterns

Organizational patterns of developmental/remedial education at community colleges can be divided into three general categories: centralized, decentralized, or a combination of both. (Table 13.) Only two colleges have centralized developmental/remedial activities into one department; Chesapeake only recently moved in this direction while Prince George's has operated a developmental studies division for some time. Most developmental/remedial activities were created as specific needs arose. For example, as English 101 instructors realized some students required a review of basic skills, remedial English courses were developed. Often, reading and study skills courses also began in English departments. Similar needs in mathematics and science resulted in developmental mathematics and science courses. (See Table 8, Appendix B for length of time developmental/remedial courses have been available at the colleges.)

Because of these origins, many developmental/remedial courses and activities are still located in academic departments. Three of the colleges --the Community College of Baltimore, Catonsville Community College, and Montgomery Community College--have organizational structures somewhere between the two extremes.

Table 13

ORGANIZATIONAL PATTERNS
OF DEVELOPMENTAL/REMEDIAL COURSES AND ACTIVITIES
AT MARYLAND COMMUNITY COLLEGES
FY 1978

College	Centralized in One Department	Located in Different Departments	Mixture of Both
Allegany		✓	
Anne Arundel		✓	
Baltimore			✓
Catonsville			✓
Cecil		✓	
Charles		✓	
Chesapeake	✓		
Dundalk		✓	
Essex		✓	
Frederick		✓	
Garrett		✓	
Hagerstown		✓	
Harford		✓	
Howard		✓	
Montgomery			✓
Prince George's	✓		
Wor-Wic Tech			

SOURCE: SBHE Survey of Developmental/Remedial Education

b) Placement Procedures

Many of the colleges require nationally standardized aptitude tests, high school transcripts, or diagnostic tests for full-time students for placement purposes. However, part-time or special students, whose enrollment is increasing faster than full-time students, often are not required to submit test scores and receive only minimal counseling and advisement. Some colleges indicated that the current placement testing or skills assessment is adequate. The faculty at Dundalk feel that all students can benefit from skills assessments before enrolling at the college. However, they also indicated that

placement policies should be flexible. Several of the colleges, such as Montgomery and Baltimore, are now studying placement procedures. Developmental educators at two of the colleges, Chesapeake and Essex, do not believe that open admission institutions should require placement tests for all incoming students. Frederick finds that a shortage of personnel and funding for counseling and placement activities makes it difficult to adequately identify students with developmental needs.

c) Faculty Selection

One of the myths about developmental/remedial education is that junior members of the faculty are by default also the developmental/remedial instructors. This is not true at most of the community colleges today. At Dundalk, for example, every faculty member from physicist to sociologist is hired with the understanding he very likely will teach remedial courses or work with developmental students. Prior experience in developmental education is also a criterion in the selection process. In several of the colleges, a rotation system is used in assigning instructors to teach remedial courses (except in the reading and study skills area). Faculty representatives at Allegany preferred this system because it takes away the stigma sometimes attached to remedial courses and makes the faculty more aware of the special needs of the developmental student. Most of the colleges also indicated that an instructor's subject matter competency was a major criterion for selection.

Few faculty have full-time developmental/remedial responsibilities. Only three colleges reported a full-time instructor with only developmental/remedial courses in either the English or mathematics areas. However, eleven of the colleges have full-time instructors teaching only developmental/remedial courses in the reading and study skills area. This likely is due to the specialized nature of the reading area. For the most part, full-time faculty teach developmental/remedial courses at the colleges. Only four of the colleges have more part-time instructors teaching developmental English and mathematics than full-time faculty.

d) Staff Development

As colleges expand developmental/remedial courses and activities, staff training in developmental education often is needed. Six of the colleges indicated that no professional development opportunities were available in this area. Only two colleges, Allegany and Prince George's, have staff training in all areas of their developmental/remedial programs. The other eight colleges have provided staff training for instructors in some of the developmental/remedial areas, predominately reading and English. Staff training in remedial instruction was not available for mathematics instructors at fourteen of the sixteen colleges with credit developmental/remedial programs.

Several of the colleges or departments within a college have regularly scheduled seminars in developmental education for new faculty or those teaching remedial courses for the first time. In addition, colleges using students as peer tutors usually require some training in tutoring techniques.

Training initiated by each college is about the only training opportunity now available to community college faculty and staff in Maryland. Universities and other higher education institutions in the State offer some courses in reading instruction, but they rarely are geared for the adult learner. Loyola College in Baltimore has offered a special course in developmental education for the college instructor, but this was an isolated incident. The Regional Educational Service Agency (RESA) works with three of the colleges in the Appalachia Region (Garrett, Allegany, and Hagerstown) in staff development programs, but these cover many areas outside developmental/remedial education. Affinity groups, such as the Maryland Community College Reading Association, also hold periodic donferences and seminars to exchange ideas and share new techniques.

Noncredit Courses

Noncredit developmental/remedial courses are offered through continuing education divisions of the colleges. Sometimes noncredit courses are coordinated closely with the credit program, such as the noncredit spelling course at Dundalk. For the most part, no special organizational pattern exists within the continuing education operation to coordinate developmental courses. Placement in noncredit courses is usually left up to the student, although the instructor may help students match need with available courses. In the GED courses students receive more direction in selecting an appropriate entry level. Almost all of the instructors teaching noncredit developmental courses are part-time. Often these instructors also teach in the credit divisions of the college or are from other educational institutions. Little staff development is currently available for those teaching noncredit developmental education courses.

PART II

IMPACTS OF DEVELOPMENTAL ENGLISH COURSES AT MARYLAND COMMUNITY COLLEGES

How successful are developmental/remedial students in college? Most developmental educators have a feel for the success of their students and the effectiveness of their courses and learning activities. According to a search of the literature, however, few colleges have put these intuitions to a formal test. (Appendix A.) In this evaluation section of the study, the question of student success in college is explored. Success is defined in terms of grades, length of time spent in college, and the ratio of hours completed to hours attempted.

An evaluation model was designed to measure the success of students taking a specific academic course. The next step was the selection of an academic area in which a sequence of similar college level courses could be measured. It was also important that developmental students in the academic area be representative of all developmental students. The English area was selected because subsequent success in upper level English courses could be tracked, and students in developmental English tended to be enrolled in more than one developmental course. These students, therefore, were more likely to have characteristics of developmental students as defined in the Review of the Literature (Appendix A).

The model developed for this study can be applied to any academic area. Not every measurement may apply, but colleges can select measures best suited to their needs. Data collection sheets, an instruction guide, and the computer program are available from the State Board for Community Colleges to replicate the study. The instruction guide explains how the data should be collected and submitted, and the computer program displays data on a Statewide or individual college basis.

METHODOLOGY

The experimental design used in this study is a static group comparison. (Campbell and Stanley, 1963) In this design a group receiving a treatment, in this case developmental English, is compared to a group which did not. The population of the treatment group included first-time students enrolled in a developmental English course in the Fall of 1976. The group not receiving the treatment included first-time students enrolled in English 101 (or its equivalent) the same semester.

The term developmental English is used to describe review courses in fundamental writing and composition. The courses are designed to prepare students

for college level English and usually emphasize sentence structure, organization, and grammar. Six colleges offer elective credit for developmental English which does not count toward English degree requirements, while seven colleges offer the course for no credit. Developmental English credits at Howard Community College count toward English degree requirements for occupational students but can only be used as electives for transfer students. Students enrolling for the five-credit developmental English course at Catonsville Community College can earn three hours of English 101 credit by completing certain requirements. Developmental English is not offered as a separate course at Harford Community College, but developmental students receive special help through an English laboratory. English 101 refers to the first English course that is accepted for transfer at a four-year college and counts toward English degree requirements. First-time students in both courses were selected to eliminate the influence of other college courses.

Eight colleges were selected to be in the study--Allegany, Baltimore, Catonsville, Cecil, Dundalk, Hagerstown, Howard, and Prince George's community colleges. Each participating college received a complete computer printout and summary analysis of its data. This report is a Statewide aggregate of individual college data.

Each of the eight colleges in the sample provided class lists for Fall 1976 for all students enrolled in developmental English and English 101. A sample of 50 developmental English and 50 English 101 students was selected at random at each college. Student records for each person in the sample were checked for the following items:

- Age;
- Race;
- Sex;
- Successful completion of developmental English;
- College level English courses attempted;
- College level English courses completed and English grade point average;
- Total hours attempted;
- Total hours completed;
- Cumulative grade point average;
- If available, ACT, SAT, or diagnostic test scores, and high school grade point averages.

Data collected from Fall 1976 through Spring 1978 included four academic semesters and one Summer session.

The term college level refers to courses that are transferable to other institutions and meet degree requirements in the area in which they are offered. Six of the eight colleges in the sample give credit for developmental English courses, but those courses cannot be counted for degree requirements in English. These courses are not considered college level for purposes of this study. (Only transfer students were included in the Howard sample.)

Statewide data concerning grades or grade point averages were separated into three categories to distinguish among grading systems. Grading System I reflects a traditional pattern of grades A through F and includes Allegany, Baltimore, Hagerstown, and Prince George's community colleges. The other two systems are nonpunitive in nature. Grading System II includes Catonsville and Cecil community colleges which give grades A through D. Grading System III includes Howard and Dundalk community colleges which give grades A through C. Grades of X, L, R, and T were not included when computing grade averages.

The population sizes of the different student groups from which the sample was drawn are indicated in Table 14.

Table 14

POPULATION SIZES

College	Developmental English	English 101
Allegany	64	598
Baltimore	1,063	990
Catonsville	630	3,250
Cecil	69	398
Dundalk	212	307
Hagerstown	68	392
Howard	163	180
Prince George's	570	1,980
TOTALS	2,839	8,095

In each college it is possible to be 95 percent sure that the true value of a yes-no variable is within ± 6 percent of the result. In other words, the chance of error due to sampling is fairly small.

LIMITATIONS

The results of the evaluation should be considered in light of the limitations of the study. Only quantifiable measures, such as grades, retention, and persistence were examined in the study. These traditional standards can explain only part of the dynamics of the interaction between student and teacher. Many of the goals and objectives of developmental/remedial education described in the

previous section deal with affective measures. Though difficult to quantify, they are as important as the cognitive skills that are measured. However, the traditional success measures do, perhaps, provide an indication of the effectiveness of students' affective development.

The use of grades in describing a student's success also has limitations. One of the success measures was grades in college level English courses. Because instructors of the same course may have different criteria for grades, the use of grades as a measure of success may not be reliable.

The analysis of the data provides descriptive information about the grades, retention and persistence rates of developmental students. The data does not lend itself to an analysis of the value added effect of the developmental courses. For example, the study shows that developmental students tended to leave college a little sooner than nondevelopmental students. However, it is not possible to estimate the role the developmental courses played in keeping the developmental student in college.

Caution must also be used in comparing developmental and nondevelopmental student success. The control group data should be viewed as a yardstick. The average student in this group had significantly higher high school grades and ability test scores than the average developmental student. It should not be too surprising if the control group, therefore, should achieve greater success than the developmental group. Knowing the success of nondevelopmental community college students allows more realistic expectations of developmental students.

Other limitations of the study are more technical. Because the sample included only first-time students, there tended to be an over-representation of younger students. More of the younger students tended to enroll in English courses their first semester than older students. However, the use of first-time students eliminates the influence of other college courses.

The inclusion of only half of the community colleges in the study is another limitation although the eight colleges are representative of the system as a whole. Rural, inner city, and suburban areas are represented along with different student populations. Developmental organizational structures within the colleges also range from highly centralized to decentralized by departments.

The data analysis does not indicate why a course is successful or unsuccessful. The analysis does flag strengths and weaknesses and raises questions to explore. For example, the numbers cannot tell a college why developmental students do not complete as many courses as the control group. At least the question is raised, however, and the college can begin examining the reasons.

RESULTS

The results describe the success of 387 developmental English students. (The first-time student restriction reduced the Allegany sample of developmental students to 37.) As a basis of comparison, the success of 400 English 101 students was also measured. A series of questions and answers explore eight

general areas: success in college level English, retention rates, persistence rates, cumulative grade point averages, ability measures, demographic variables, developmental/remedial courseloads, and use of placement tools.

Success in College Level English

Are students who take developmental English as successful in completing subsequent college level English courses as those who do not take the developmental course?

This question is examined from several different viewpoints as indicated below. One measure of success is the number of English courses as student completes with a passing grade. Success in a specific English course and overall grades in English also are examined.

a) Number of Courses Completed

Do developmental English students complete as many college level English courses as other students?

Developmental students tended to complete fewer college level English courses than students in the control group. This is not too surprising since in the two-year period of the study the control group had more opportunities to take college level English. The average number of English courses completed by developmental students was 1.5, while the control group average was 1.9.

Of the 387 students who successfully completed the developmental English course, 204 or 53 percent completed at least one college level English course with a passing grade. Another 32 students attempted a college level English course but received failing or continuing (X) grades. (Table 15.) About 85 percent of the developmental students who attempted at least one college level English course successfully completed it. This indicates the developmental course provided most students the skills needed to complete college level English.

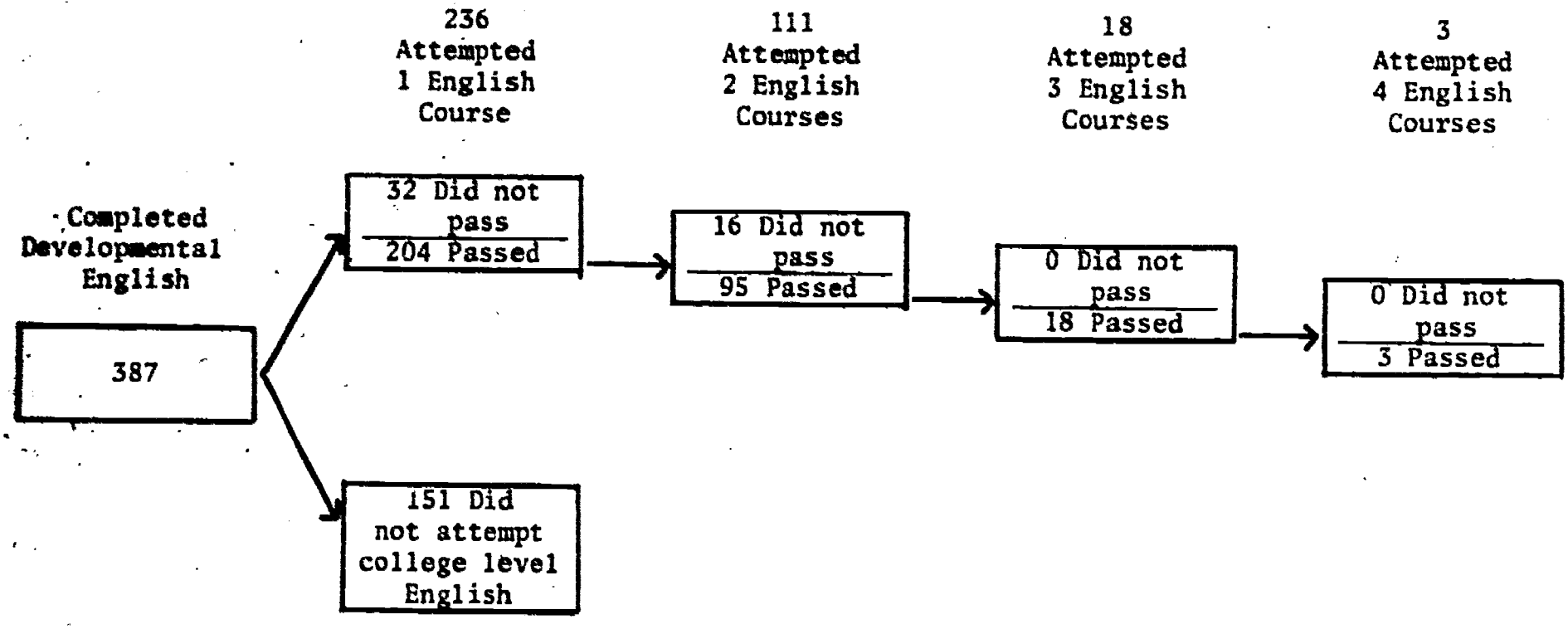
Colleges may want to explore the reasons why only a little more than half of the developmental students completed college level English courses. There could be a need for increased counseling or more emphasis on building self-confidence. Research in this area could include actual interviews with developmental students.

Another observation concerns the number of English courses students tended to take. Approximately 4 percent of the control group (less than 3 percent of the total sample) completed four courses in English, and only 10 percent of the total sample completed three or more. This could be related to increasing enrollment of occupational students and declining interest in liberal arts curricula.

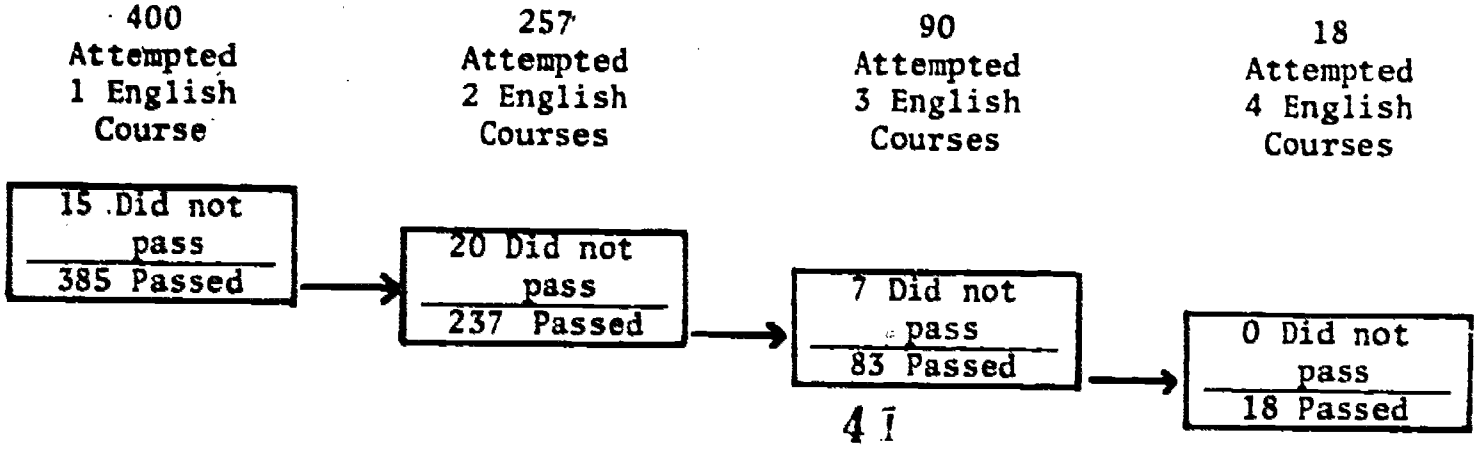
Table 15

COLLEGE LEVEL ENGLISH COURSES COMPLETED
BY DEVELOPMENTAL AND NONDEVELOPMENTAL STUDENTS

Developmental Group



Control Group



b) English 101 Grades

Do developmental English students make similar grades in English 101 as other students?

Developmental students tended to make more X grades and fewer A and B grades in English 101 than students in the control group. (Table 16) More than 85 percent of the developmental students, however, made passing grades in the initial college level English course. About 60 percent of the students who successfully completed the developmental English course attempted English 101. The percentage of developmental students attempting English 101 ranged from 34 to 76 percent among the eight colleges in the study. Colleges may want to determine the characteristics of developmental students who do not attempt English 101 or its equivalent. Knowing the characteristics could assist in the advisement and counseling of these students.

Table 16

COMPARISON OF ENGLISH 101 GRADES
OF DEVELOPMENTAL AND NONDEVELOPMENTAL COURSES

	English 101 Grade					
	F	D	C	B	A	X
Developmental	9(4)	23(10)	94(41)	59(26)	19(8)	23(10)
Nondevelopmental	4(1)	21(5)	117(29)	157(39)	90(23)	11(3)

c) English Grades

Do developmental English students make similar grade averages in all college level English courses as other students?

In six of the eight colleges, the control group tended to make higher English grades than the developmental group. Developmental students at the two colleges using a nonpunitive system with grade averages between 2.0 and 4.0 tended to make similar English grades as the control group. (Table 17) Over 90 percent of the developmental students at the four colleges using a traditional grading system made at least a 1.0 average in English. Almost 25 percent of the developmental students at these colleges made 3.0 or above in English; 20 percent of the developmental students in colleges using Grading System II made 3.0 or higher; 67 percent in Grading System III earned 3.0 or higher. Both the control and developmental groups in Grading System III made significantly higher grades than students in the other two systems, probably a result of the nonpunitive system. Even though the control groups

earned higher grades at six of the colleges, most developmental students made passing English grades.

Table 17

COMPARISONS OF ENGLISH GRADE AVERAGES
BY STUDENTS WITH AND WITHOUT DEVELOPMENTAL ENGLISH

	Grade Intervals						
	0-.99	1.0-1.99	2.0-2.49	2.5-2.99	3.0-3.49	3.5-4.0	MEAN
Grading System A-F							
With	9(8)	29(25)	37(32)	12(10)	20(17)	8(7)	2.02
Without	2(1)	23(12)	39(20)	32(17)	55(29)	42(22)	2.71
Grading System A-D							
With	-	16(28)	25(43)	6(10)	8(14)	3(5)	2.07
Without	-	11(12)	24(26)	16(17)	23(25)	18(20)	2.60
Grading System A-C							
With	-	-	11(28)	2(5)	19(47)	8(20)	2.88
Without	-	-	19(20)	8(8)	32(33)	37(39)	3.11

(Numbers in parentheses are row percentages.)

d) 100 Level English Grades

Do developmental English students make similar grades in 100 level English courses as other students?

Because many occupational students take only 100 level English courses to meet degree requirements, 200 level courses were eliminated to separate influences of transfer students. The deletion of 200 level courses had little impact on English grades at any of the colleges because only 21 students in the entire sample took 200 level courses. Control students in Grading System III, however, did tend to make higher English grades statistically than the developmental students, although the difference is slight and could be due to sampling error. Most developmental students attempting college level English were successful in terms of grades. (See Table 1, Appendix C for comparisons of students in 100 level English courses.)

Retention Rates

Will students who successfully complete developmental English remain in college as long as other students?

Retention in this study was defined as the length of time or number of semesters a student enrolls in college. Summer school semesters were not included in calculating retention rates so the maximum time a student could be enrolled was four semesters. Students in the control group tended to remain in college somewhat longer than students in the developmental group. (Table 18.) The difference between the groups, however, is slight and could be due to sampling error.

Table 18

RETENTION RATES

	Semesters Enrolled				MEAN
	1	2	3	4	
Developmental	60(16)	108(28)	59(15)	160(41)	2.82
Nondevelopmental	46(12)	102(26)	40(10)	212(53)	3.05

(Numbers in parentheses are row percentages.)

Developmental students at one college actually had higher retention rates than students in the control group. One reason for this may be the financial needs of academically disadvantaged students eligible for Basic Educational Opportunity Grants (BEOG). The grants may be as strong an incentive for student retention as the developmental program. However, a problem often cited in the literature is the difficulty of retaining developmental students who are often easily discouraged. The eight colleges seem to be doing a good job in keeping developmental students in school.

Persistence Rates

Will the ratio of courses completed to those attempted be similar for students who took developmental English and those who did not?

Persistence in this study has been definied as the ratio of hours a student completes to hours attempted. For example, a student completing nine hours with passing grades after enrolling for twelve hours would have a persistence rate of 75 percent. (Withdrawals initiated by the college or the students were not included in the computations.) The average persistence rate for developmental students was 76 percent compared to 90 percent for the control group. (Table 19.) Among the colleges, the average persistence rate ranged from 59 to 94 percent for developmental students and 72 to 96 percent for control group students. Much of the college-to-college disparity could be a result of different withdrawal procedures.

Table 19

PERSISTENCE RATES

	Persistence Interval						
	0-25%	26-50%	51-65%	66-80%	81-90%	91-100%	MEAN
Developmental	38(10)	15(9)	36(9)	51(13)	52(13)	175(45)	75.6%
Nondevelopmental	9(2)	19(5)	15(4)	32(8)	31(8)	294(74)	90.2%

(Numbers in parentheses are row percentages.)

Almost 75 percent of the students in the control group completed more than 90 percent of the hours attempted, compared to 45 percent of the developmental group. The high rates for the control group may not be representative of community college students in general. The lower rates in the developmental group may be due to the lack of developmental support services for students who have continuing counseling, tutoring, and skill needs beyond the initial courses. In addition, the nonpunitive systems at some of the colleges may inflate ratios for both groups. While "X" grades were counted as noncompletions, liberal withdrawal policies at several of the colleges allow students to drop courses through the last week of classes. Transcripts do not usually discriminate between early and late withdrawals.

Cumulative Grade Point Averages

Is the cumulative grade point average for developmental English students similar to other students?

Cumulative grade point average is another measurement of student achievement. It can be argued that the completion of one developmental English course should not be expected to have impacts on a student's final grades or his/her retention and persistence. However, a majority of the developmental group was simultaneously enrolled in one or two additional developmental courses and developmental courses comprised more than 25 percent of the course loads of 82 percent of the students. Therefore, the sample of developmental English students appears to be representative of developmental students in general.

Students in the control groups at six of the colleges were inclined to make higher grades than developmental students. (Table 20.) Developmental students at the two colleges using Grading System II, Catonsville and Cecil, tended to make similar grades as the control group. Average cumulative grades for developmental students at the eight colleges ranged from 1.66 to 2.91 and from 2.58 to 3.21 for control group students. The average cumulative grade score for developmental students at the four colleges using traditional grading methods (Grading System I) was less than 2.0 which is required for graduation.

This may be a problem that relates to the availability of additional help for developmental students in college level courses.

Table 20

COMPARISONS OF CUMULATIVE GRADE POINT AVERAGES
BY STUDENTS WITH AND WITHOUT DEVELOPMENTAL ENGLISH

	Cumulative Grade Intervals						
	0-.99	1.0-1.99	2.0-2.49	2.5-2.99	3.0-3.49	3.5-4.0	MEAN
Grading System A-F							
With	17(10)	54(30)	58(32)	28(16)	14(8)	8(4)	1.94
Without	5(3)	33(17)	26(13)	57(28)	52(26)	27(13)	2.66
Grading System A-D							
With	-	9(9)	34(34)	32(32)	13(13)	12(12)	2.50
Without	-	5(5)	25(25)	27(27)	23(23)	19(19)	2.78
Grading System A-C							
With	-	-	30(30)	33(33)	20(20)	17(17)	2.79
Without	-	-	11(11)	26(26)	35(35)	28(28)	3.15

(Numbers in parentheses are row percentages.)

Ability Measures

Were retention, persistence rates, and grade point averages of students with similar test scores comparable for those who took developmental English and those who did not?

Perhaps the comparison of students with similar abilities is the most important part of this study. The assumption is often made that students with low ability or skill deficiencies are more likely to fail if they do not receive special help. By controlling the success measures for ability, the effectiveness of developmental activities can be put to a more precise test. Three indicators of ability or skill level were used, including American College Testing (ACT) verbal scores, Scholastic Aptitude Test (SAT) verbal scores, and high school grade point averages. Student success was compared separately by each indicator.

Table 21 shows a marked difference between students in the developmental and control groups in the three ability measures used in the study. Because most colleges do a good job in screening developmental students, it sometimes was difficult to have enough cases for statistical comparison. Fewer low-ability students were in the control group, while fewer high scoring students

were in the developmental group. The use of different testing programs by the colleges also reduced the sample size. However, adjustments were made by combining certain categories and groups to meet the criteria for using inferential statistics.

Table 21

COMPARISONS OF ABILITY MEASURES

	Average	Number
SAT Verbal (All)	389	152
Developmental	338	51
Nondevelopmental	415	101
ACT Verbal (All)	14	199
Developmental	10	93
Nondevelopmental	17	106
High School GPA (All)	2.45	506
Developmental	2.13	234
Nondevelopmental	2.72	272

SAT = Scholastic Aptitude Test
ACT = American College Testing
GPA = grade point average

The SAT verbal scores illustrate the increased enrollment of students with developmental needs at Maryland community colleges. About 40 percent of all new community college students in 1976 who took the SAT verbal test scored 350 or below. (A score between 200 and 350 is usually an indication that remedial work is needed.) About 150 students out of the 787 in this study had SAT scores on file; 54 (36 percent) had scores between 200 and 350. Thirty-one of these students were in the developmental group and 23 were in the control group.

Almost 200 students in the study took the ACT tests. In 1976, 29 percent of all first-time Maryland community college students taking the ACT scored below 13 on the verbal portion, an indication that remedial help may be needed. Eighty-eight of the 200 students in this study scored less than 13 in the verbal part of the test; 14 of these were in the control group while 74 were in the developmental group. The small number in the control group is probably due to the use of the ACT as a placement tool at several of the colleges.

Over 500 students in the study had high school transcripts on file at the colleges. Forty-four had grade point averages between zero and 1.49; 91 earned grade averages from 1.5 to 1.9. Statistical tests were applied to both groups separately and combined. Ninety-seven students in the developmental group had high school grade point averages of less than 2.0; 38 in the control group had averages less than 2.0. Numbers of students in other categories are shown in Table 22.

In most cases no significant differences were found in the success of students with similar abilities. Control group students with ACT scores below 13 or with high school grade averages above 3.0 had higher persistence rates, while nondevelopmental students with ACT scores between 10 and 16 or high school grade averages above 2.0 had higher cumulative grade averages. (Table 22.) Except in these instances, differences in ability probably explain a significant portion of the differences in success found between the developmental and control groups.

If the assumption is true that low ability students are more likely to fail if they receive no remedial assistance, then the low ability students in the control group should have lower success scores than developmental students with similar ability. Low scoring students in the control group, however, tended to have similar persistence and retention rates and make similar grades as low scoring students in the developmental group. This was true for all three ability measures used. Even though averages in Table 22 are not identical, the differences were not statistically significant. The most obvious conclusion from this finding raises questions about the effectiveness of developmental/remedial education. Statistically, there is no evidence that developmental education makes a difference in the success of low ability students. The answer is not that simple, however. Several factors could have attributed to the results, including limitations of the research design or the students themselves.

The methodology used in designing the study could have affected the outcome. In a static group comparison, the placement of students into groups is not controlled by the research design. The placement process itself could affect the developmental student's self-image or motivation. Research in developmental education has shown these two factors to be critical for student success. (Appendix A.) Low scoring students who chose not to take developmental courses may have had more self-confidence and have been more motivated to overcome skill deficiencies. In addition, lowered self-esteem could be part of the reason developmental students who did well in high school did not achieve the same success in college as nondevelopmental students with similar high school backgrounds.

Because the analysis is descriptive, the results do not show value added effects. The statistics do not show that developmental education does not have an impact; they only indicate whether a significant difference between groups is detected.

The samples in several categories might not be representative of the actual population although all colleges had students with SAT scores and high

Table 22

AVERAGE STUDENT ACHIEVEMENT BY ABILITY SCORES

Ability Scores	Number		English Courses Completed		English GPA		Retention		Persistence Rate (%)		Cumulative GPA[1]	
	Dev.	Con.	Dev.	Con.	Dev.	Con.	Dev.	Con.	Dev.	Con.	Dev.	Con.
SAT (All)	51	101	1.6	2.0	2.06	2.81	3.0	3.3	89	94	2.27	2.80
200-349	31	23	1.5	1.9	1.85	2.25	3.1	3.3	90	93	2.11	2.09
350-449	12	39	1.8	2.3	2.35	2.91	3.1	3.5	88	97	2.61	2.91
450 +	8	39	1.5	1.8	2.33	2.98	2.8	3.1	86	91	3.00	3.18
ACT (All)	93	106	1.5	2.2	1.98	2.78	3.0	3.4	82	96	1.95	2.78
1-9	41	7	1.4	1.9	1.75	2.05	3.0	3.3	78	90	1.85	2.09
10-12	33	7	1.6	2.0	2.05	2.47	2.9	3.0	82	84	1.86	2.13
13-16	11	26	1.4	2.3	2.06	2.46	3.5	3.5	87	97	2.24	2.68
17 +	8	66	1.8	2.3	2.60	3.03	3.1	3.4	94	97	2.73	2.95
High School GPA	234	272	1.6	2.0	2.14	2.74	2.9	3.2	79	92	1.95	2.67
0-1.49	30	14	1.3	1.7	2.28	1.99	2.5	2.6	78	67	1.55	1.33
1.5-1.99	67	24	1.4	1.6	1.88	2.07	2.9	2.7	75	75	1.94	1.84
2.0-2.49	69	44	1.6	1.6	2.10	2.49	3.0	3.1	81	91	1.88	2.39
2.5-2.99	50	83	1.8	2.0	2.31	2.76	3.2	3.3	84	94	2.15	2.66
3.0-4.0	18	107	1.6	2.2	2.50	3.06	2.9	3.3	75	98	2.65	3.15
ALL STUDENTS			1.5	1.9	2.20	2.78	2.8	3.0	76	90	1.94	2.66

[1] Grading System A-F

Dev. = Developmental
Con. = Control
SAT = Scholastic Aptitude Test
ACT = American College Testing
GPA = grade point average

school grades, and six of the eight colleges had students with ACT scores. The use of the three placement scores to separate students by ability also has flaws since no test is completely accurate in determining a person's ability.

Another factor that could have contributed to the outcome is the perception of the faculty. Some faculty may be inclined to pre-judge the ability of developmental students, making it difficult for students to achieve success. On the other hand, some faculty may overcompensate for developmental students by easing course grade requirements.

The overriding conclusion from the ability data is the need for more discerning research. The basic design of this study and the statistical tools used in evaluating the data could be modified to assess the effectiveness of developmental education. The tracking method, for example, could be used in an experiemental design instead of a static comparison. The placement of a sample of students in developmental and control groups could be done randomly and the treatment standardized for students in the developmental group. Motivation and self-esteem could be measured in both groups to assess the impact of group placement. Even if random placement is not used, differences between the two groups in motivation could be examined. If a large enough sample is selected, the impacts of different elements in developmental education could be tested. For example, the effect of ongoing support from a writing laboratory could be compared to the impact of an initial developmental writing course.

When more research is available, educators need to take a hard look at their developmental education programs. Several questions should be explored: How effective is developmental education at this college? Do certain courses or activities seem to be more effective than others? Is the continuation or expansion of developmental education programs justified by the achievement of developmental students?

Demographic Variables

Were there significant differences between developmental English students and those not in developmental English by sex, race, or age?

Significant differences were found between developmental and control group students by sex, race, and age. The assumption that women have stronger verbal skills than men seems to be supported by the higher proportion of men enrolled in developmental English. (Table 23.) Women could have more confidence in their verbal skills or perhaps more ability in this area. The percentage of men enrolled in developmental English ranged from 40 to 88 percent at the colleges.

Table 23

COMPARISONS OF STUDENTS BY SEX

	Male	Female
Developmental	212(55)	175(45)
Nondevelopmental	150(37)	250(63)

(Numbers in parentheses are row percentages.)

Proportionately more minorities were enrolled in developmental English than in English 101. (Table 24.) The proportion, however, is not as great as the Statewide average calculated from the State Board for Higher Education survey data. Among the colleges, the proportion of minorities enrolled in developmental English ranged from 8 to 94, while the proportion in the control groups ranged from 0 to 58.

Table 24

COMPARISONS OF STUDENTS BY RACE

	Black	White	Other
Developmental	117(30)	259(67)	11(3)
Nondevelopmental	40(10)	355(89)	5(1)

(Numbers in parentheses are row percentages.)

One of the surprising findings was the difference in the average ages of the developmental and control groups. Thirty-five percent of the developmental students were 22 or older, compared to 27 percent for the control group. (Table 25.) It appears that developmental education does serve the older, nontraditional student. Part of this could be due to returning homemakers who want to review skills before taking college level courses. Age distributions at each of the colleges were similar to the Statewide breakdown.

Table 25

COMPARISONS OF STUDENTS BY AGE

	Age Intervals				MEAN	MEDIAN
	15-18	19-21	22-30	31+		
Developmental	144(37)	110(28)	92(24)	41(11)	22.2	18.7
Nondevelopmental	230(58)	62(15)	68(17)	40(10)	21.5	18.2

(Numbers in parentheses are row percentages.)

a) Demographic Controls

Were there any differences by sex, race, or age in the achievement scores of developmental and control group students?

Demographic comparisons can be made between the two groups of students or among the students within each group. In the first type of comparison, controls by sex, race, and age showed that in certain categories developmental students did as well as students in the control group. Older students taking developmental English, for example, did just as well as older students in the control group in the five measures listed in Table 26. Control group students overall tended to earn higher grades and have higher persistence and retention rates. In the number of English courses completed and in retention rates, differences between the developmental and control groups can be attributed primarily to the 15- to 18-year-old students. Differences between the two groups in cumulative grade point average and persistence are due primarily to students aged 15 to 21.

Black students in developmental English did as well as other black students in English grades, persistence, and cumulative grade averages. White students in the control group, on the other hand, tended to have higher achievement scores in every area than whites in the developmental group. (The number of other minority students was too small to analyze.) The finding of no significant difference in grade averages and persistence between black students in the two groups could be attributed to the effectiveness of the developmental courses or to the failure of meeting needs of black students not in developmental education.

Men in the control group tended to have higher achievement scores for every measure than men in the developmental group. The same was true for women.

In the second type of demographic analysis, success of students of different ages, race, and sex within each group was compared. Students

Table 26

AVERAGE STUDENT ACHIEVEMENT BY SEX, RACE, AND AGE

	Number		English Courses Completed		English GPA		Retention		Persistence Rate(%)		Cumulative GPA[1]	
	Dev.	Con.	Dev.	Con.	Dev.	Con.	Dev.	Con.	Dev.	Con.	Dev.	Con.
Sex												
Male	212	150	1.5	1.9	2.19	2.56	2.8	3.2	76	87	1.99	2.51
Female	175	250	1.5	1.9	2.20	2.91	2.9	3.0	76	92	1.87	2.75
Race												
Black	117	40	1.4	1.7	1.82	2.03	2.9	3.0	73	84	1.80	1.99
White	259	355	1.6	1.9	2.36	2.86	2.8	3.1	77	71	2.03	2.81
Age												
15-18	144	230	1.6	2.0	2.14	2.76	3.0	3.1	76	92	1.94	2.71
19-21	110	62	1.5	1.7	1.81	2.56	2.6	3.0	75	88	1.72	2.46
22-30	92	68	1.4	1.7	2.43	2.84	2.8	2.9	73	83	2.00	2.54
30 +	41	40	1.5	1.7	2.73	3.10	2.8	3.1	82	94	2.46	2.88
ALL STUDENTS			1.5	1.9	2.20	2.78	2.8	3.0	76	90	1.94	2.66

[1] Grading System A-F

Dev. = Developmental
Con. = Control
GPA = grade point average

over 30 tended to be more successful than younger students in both groups, while students 19 to 21 tended to make lower scores overall than the other age groups. The success of students over 30 probably can be attributed to greater motivation and self-discipline.

Women in the control group made higher English grades and had higher cumulative grade averages than men in the control group. Men and women in the developmental group had similar achievements in every test measure. The differences in the achievement of male and female students in the control group may indicate that more men need either to strengthen verbal skills through support activities or to enroll in developmental English. Because Allegany Community College has had problems in directing male students into developmental courses, the college has moved toward a mandatory placement policy. Other colleges may want to explore this issue further.

Black and white developmental students tended to complete the same number of English courses and have similar persistence and retention rates. White developmental students, however, were more likely to have higher English and cumulative grades. Black and white students in the control group also completed about the same number of English courses and stayed in college about the same length of time. White students in the control group tended to have higher grades and persistence rates than black students.

The comparisons between black students in the two groups and among black and white students within each group are an indication that minority students are less prepared to enter college than white students. The reasons for this can be traced to social and economic problems in society. Colleges must be particularly sensitive to the needs of black students if the open admission policy is to be meaningful.

Developmental/Remedial Course Loads

Were developmental English students taking a greater proportion of developmental/remedial courses as successful as those taking fewer?

The average developmental student in the study was enrolled in two developmental courses during his/her first semester in college. Over 40 percent of the developmental students were taking more than half of their course loads in developmental education during their first semester. (Table 27.) Recent research suggests that students who attempt college level courses while in a developmental curriculum are more likely to fail. (Roueche and Snow, 1977) If students need remedial work in writing, reading, and mathematics, it would seem logical that they cannot achieve success in college level courses until these skills are acquired. This reasoning does not apply to the student who may need only to review skills in one area.

Table 27 compares success scores of developmental students taking different proportions of developmental courses their first semester. Statistically, no significant differences were found among developmental students

taking different proportions of developmental courses except in the number of semesters completed. Those students taking a smaller proportion of developmental courses tended to remain in college longer than those taking a larger proportion. A statistically significant (.05 level) correlation, however, was found between proportion of developmental hours and cumulative grade point average. There was a slight tendency for those with higher proportions of developmental courses to earn higher overall grades. The results of this study do not support or refute research that developmental students should enroll only in developmental courses.

Table 27

AVERAGE SUCCESS RATES
OF DEVELOPMENTAL ENGLISH STUDENTS
BY PERCENT
OF DEVELOPMENTAL/REMEDIAL HOURS[1]

% of Developmental Hours	Persistence Rate Fall 1976	Grade Point Average Fall 1976	Cumulative Grade Point Average	Semesters Completed	Number of Students
0-24	80%	2.55	2.57	2.98	54(18)
25-49	84	2.57	2.47	2.87	113(38)
50-74	89	2.61	2.36	2.88	80(27)
75+	76	2.67	2.49	2.53	53(18)

[1] Does not include data from Allegany and Prince George's community colleges where credit is not awarded for certain developmental/remedial courses.

Use of Placement Tools

Did students who had at least one prediction score do better in college than those who had none?

Almost 80 percent of the students in the sample had some kind of placement tool on file, such as ACT, SAT, or diagnostic test scores, or a high school transcript. This is due in part to the younger age of the students in the sample. In addition, 23 percent of the developmental students had no prediction scores on file, an indication that informal counseling, advisement, and faculty referrals are effective. Developmental students without predictors tended to be as successful as those with some scores on file.

In the control group, however, students who had no placement tools on file were more likely to drop out of college after one or two semesters and had lower persistence rates than those with predictors. The statistics on

differences by grades were inconclusive. The colleges' placement processes may have missed students in the control group who needed remedial work which would explain the lower success of students with no predictors. Intervening variables, such as part-time status of students, also may be responsible for the differences detected by the statistics. In addition, there is no way to tell if a college uses placement tools in advising students.

a) Effectiveness of Placement Tools

Was any correlation found between placement scores and success measures of students in the developmental and control groups?

The two tools most commonly used by Maryland community colleges to place students in courses have been the ACT scores and the high school transcript. Two variables, the ACT verbal score and high school grade point average, were both found to be highly correlated with every success measure. (Table 28.) The SAT verbal scores, which were not required at any of the colleges, were correlated with both English and cumulative grades.

Table 28

CORRELATION COEFFICIENTS
OF PLACEMENT SCORES AND SUCCESS MEASURES

Scores	Cumulative Grade Point Average[1]	Persistence	Hours Completed	Semesters Completed	English Grade Average[1]
SAT Verbal	.6660*	.0402	.0687	.0350	.5276*
ACT Verbal	.5910*	.3865*	.3885*	.2372*	.4824*
High School GPA	.5987*	.3202*	.3449*	.2391*	.4664*

[1] Grading System A-F

* Significant t .01

SAT = Scholastic Aptitude Test
ACT = American College Testing
GPA = grade point average

Four of the colleges used other tests in placing students in courses. The verbal score of the standardized Comparative Guidance and Placement Test (CGPT) used at Prince George's Community College was correlated with English grades but not with the other factors. Of the three locally developed diagnostic tests, only one was somewhat correlated to English grades. While the

traditional standardized tests do have weaknesses, especially in convenience and availability, they seem to provide more clues about a student's future success. (See Table 2, Appendix C for a scattergram showing the correlation between ACT verbal scores and cumulative grade averages.)

According to statistics from a regression equation, the high school grade average was the most useful tool in predicting cumulative grade average in college. The high school grade and the ACT score together resulted in a multiple correlation coefficient of .70. This means that high school grades and ACT scores explain about 50 percent of the variation in college grade point average.

The statistics used in correlations, however, only describe a group. A high score on an ACT test does not insure a high grade average. (See Table 2, Appendix C.) Similarly, a student with a low ACT score may do well in college if highly motivated. The best use of these placement tools is probably in conjunction with counseling and assessments of student motivation and self-esteem. Colleges that use strict placement by test scores alone should compute the probability of how many talented students will be improperly placed in developmental courses.

PART III

IMPLICATIONS AND RECOMMENDATIONS

Developmental/remedial courses and activities at Maryland community colleges provide a major service to citizens in the State. Through the various activities students have the opportunity to learn basic skills necessary for college work, to gain self-confidence in their academic abilities, and to start moving toward their educational goals. Some students may discover that college is not suited to their personal goals or abilities, but the learning experience still may open new vistas. Older students also may uncover untapped skills.

In this section some of the implications of the numbers and the charts in Parts I and II will be discussed, along with issues raised by developmental educators in interviews and meetings. The six topics addressed here are: course placement, relationships of developmental/remedial education to the open admissions policy, faculty/staff developmenta, organizational structure, evaluation, and funding. Recommendations drawn from the discussions are in *italics*. Not every recommendation is applicable to every college; however, it is hoped that each college will review its developmental/remedial efforts in light of the recommendations.

COURSE PLACEMENT

Many community colleges expressed a need for better course placement procedures, especially for the part-time student. In the evaluation study, students not in developmental courses that had no prediction scores (ACT, SAT, diagnostic test, or high school transcript) tended to be less successful in college than those with predictors. This is indication that some of the non-developmental students indeed needed developmental coursework and could have been given special assistance if deficiences had been identified at entry. In the evaluation study, both the ACT verbal score and the high school grade point average were highly correlated with every success measure tested. The high school transcript is particularly useful because it provides a four-year mapping of a student's success, helpful not only in course placement but also in an instructor's better understanding of a student. Hagerstown Junior College aggressively requires students to submit high school transcripts (or GED certificates) and, therefore, has transcripts on a large percentage of the student body, including part-time students. There is no indication that this requirement has resulted in a loss of students. Exceptions may be necessary for older students, for those who never graduated from high school, or for those taking courses for personal enrichment. But additional information can be useful even in assisting these individuals. Therefore, it is recommended that:

To improve placement, community colleges require nationally standardized tests or skill assessment tests along with high school transcripts of all full-time students.

Part-time Students

Placing part-time students in the right course is a dilemma for most colleges. Many of these students take less than six hours and may be taking courses only for their own enrichment. Any assessment requirements must be flexible enough to adjust to these students. However, part-time students with developmental needs may never be discovered if no attempt is made to assess their skills. Howard Community College requires part-time students to take diagnostic tests in reading and writing after they have accumulated 12 hours, unless it is obvious the student is taking courses for personal reasons. Colleges could also have requirements for placement testing based on minimum grade point averages of part-time students. Therefore, it is recommended that:

Part-time students be required to take placement tests when their grade point averages fall below a minimum set by the college or after they complete a minimum number of hours determined by the college.

Developmental/Remedial Support Services

A problem identified by several developmental educators is serving not only the student with severe developmental needs but also the student with a specific skill need. Often a student with only minor skill problems, such as spelling or punctuation, is overlooked. This is especially true of the part-time or evening student. Short, noncredit courses could be offered concurrently with credit courses to improve specific skills of these students. Advantages of continuing education[1] courses are greater flexibility and low cost.

Support activities, such as learning laboratories and centers. also can serve skill needs of developmental and nondevelopmental students. Critics have faulted colleges for neglecting developmental students after providing one or two courses. Most instructors will agree that acquiring skills, such as writing, take practice and time. One college is experimenting with a new method of helping students beyond the initial developmental writing course. Instructors from different disciplines, such as sociology and history, identify students in their courses who have completed the basic writing course. Every writing assignment submitted by those students must be at the same level the students reached in the developmental course. If the assignment is substandard, the student must rework the assignment until the appropriate level is achieved. A writing lab, staffed with faculty and para-professionals, is available to assist the students. In addition, the centers and labs might help in the placement of students in noncredit courses. Therefore, it is recommended that:

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[1] Continuing education in Maryland is operationally defined as noncredit courses designed primarily for part-time and returning students.

Community colleges develop continuing education courses in specific skill areas that supplement the credit offerings.

Community colleges create or expand developmental support services to complement instruction in remedial and nonremedial courses.

Community colleges coordinate developmental activities of the continuing education and credit divisions.

RELATIONSHIPS OF DEVELOPMENTAL/REMEDIAL EDUCATION TO THE OPEN ADMISSIONS POLICY

One reason for establishing developmental/remedial programs in community colleges is to support the open admissions policy. The seventeen community colleges in Maryland serve all types of students: standardized test scores and motivations range from very low to very high; ages range from 16 to over 60; all races are represented. The willingness of community colleges to work with all students has resulted in increased higher education opportunities for many.

Black Students

Developmental education has been particularly important in serving the needs of black students. The enrollment data (Table 4) for remedial courses show that the majority of students served by the colleges was white in FY 1978. However, the proportion of black students served in developmental education was much greater than the proportion of black students in the total college population. This was also true in comparisons of developmental and nondevelopmental students in the evaluation study of eight colleges reported in Part II. The evaluation study showed that black and white developmental students tended to stay in college the same length of time and to have similar ratios of course completions. White developmental students, however, tended to make higher grades. Disparities also were found in grades earned by black and white students in the nondevelopmental group, indicating that some of the needs of nondevelopmental black students were not being met.

These findings indicate that black students are more likely to need developmental education and that any curtailment of developmental/remedial activities will have particular effects on blacks. Therefore, it is recommended that:

Impacts on black students be assessed before any developmental/remedial activities are curtailed.

Because black students were found to be less prepared for college, careful placement and follow-up procedures should be developed recognizing the academic needs and cultural differences of these students.

Intellectually Limited Students

Community colleges, through the open admissions policy, are serving more low-ability students than ever before. Some of these students can be helped by developmental/remedial education to reach the skill level needed for college

work. However, mentally handicapped or retarded students may need other types of learning experiences not found in the credit offerings. Attempts at college remedial work by these students often prove to be a frustrating experience not only for the student but also for the instructor.

The community colleges have developed many ways to serve students. The appropriate placement of intellectually limited or retarded students might be in continuing education courses geared to their particular needs. One of the colleges, for example, requires that credit students read at least at the fourth grade level. Students reading below this level are referred to the continuing education division. Intellectually limited students could be served by continuing education courses in self-help skills and in career preparation. The career courses could be linked to occupational programs offered at a college. Therefore, it is recommended that:

Community colleges develop literacy minimum standards for entry into the credit divisions.

Continuing education courses be developed for intellectually limited students in the basic skill areas of reading, writing, and mathematics and in career areas related to the occupational programs offered at the community colleges.

PROFESSIONAL DEVELOPMENT

The needs of remedial students today are perhaps more complex than the needs of remedial students ten years ago. Adjustments must be made in instructional techniques for special population groups, such as minority students or the returning homemaker. Professional development within a college can put the faculty in touch with these new student needs, while professional development on a regional or statewide basis allows a sharing of ideas. Since a majority of developmental faculty serves only part-time in this capacity, training opportunities are needed for everyone working in developmental/remedial education. Staff training is particularly needed in the developmental math area where little now occurs. In addition, training for all faculty and staff in the teaching of developmental education would increase sensitivity to and understanding of developmental students. Therefore, it is recommended that:

Community colleges offer workshops and seminars in the teaching of developmental education for all faculty and staff.

A Statewide association of community college developmental educators be established with regularly scheduled meetings to increase the sharing of information among colleges.

ORGANIZATIONAL STRUCTURE

Many educators (Appendix A) will argue that because developmental education must serve the whole student, a centralized organizational structure is best. The affective needs of the students are then combined with the teaching of cognitive skills under one umbrella. There is not sufficient evidence in this study

however that either centralized or decentralized systems are more effective. The argument that developmental educators should understand all student needs and should be aware of activities in other areas is valid. Two colleges found centralization to be the best way to accomplish this; several others have formed coordinating committees to serve this function. Therefore, it is recommended that:

Community colleges with decentralized developmental activities establish a committee to coordinate activities and to review and recommend policies concerning developmental education.

Uniform Course Standards

Developmental educators at some of the colleges have expressed concern about the lack of clear-cut entry and completion standards for college level courses. Without knowing the skills required for college level courses, developmental instructors have little guidance in structuring courses. Several reading faculty also expressed concern about the student who cannot meet the criteria for passing the developmental reading course and yet makes high grades in courses that require extensive reading. Problems in grading criteria could explain why students in the control group of the evaluation study with low ability tended to do as well as developmental students with low ability. Therefore, it is recommended that:

Community college faculty agree on basic entry and completion standards required for 100-level English and mathematics courses.

EVALUATION

In the discussion in Part II about the achievement of students with low ability or who lack basic skills, several possible flaws in the research design were highlighted. While the statistical tests used in the study do not prove the effectiveness or ineffectiveness of developmental courses, the numbers do raise important questions. The success of low-ability students who were not in developmental courses, for example, raises questions about the effects of developmental courses on student achievement. The need for more discerning research is a major conclusion in the evaluation study. The model developed for this study could be modified or used in conjunction with other research designs to explore further the effectiveness of developmental/remedial education. Therefore, it is recommended that:

Additional research be conducted by the community colleges to determine the effect of developmental/remedial courses and activities on grades, persistence, retention, and personal growth.

Community colleges evaluate the role of developmental/remedial courses and activities in light of additional research.

Affective Skills and Student Goals

While grades, retention, and persistence are important criteria for

success, achievement of affective skills is equally important. In personal development courses, instructors often use testing instruments to discover how students perceive themselves and how their perceptions change during a semester. However, little research has been done at Maryland's community colleges about the role of affective skills in the learning process. Another possible area of inquiry is goal achievement for developmental students. The biennial follow-up studies conducted by the colleges and the State Board for Community Colleges could be used to identify the goals of developmental students and their success in achieving their goals. Therefore, it is recommended that:

Community colleges evaluate student achievement in affective skill areas.

The State Board for Community Colleges and the community college researchers explore using the existing system of follow-up studies to learn more about goal achievement of developmental students.

FUNDING

Contrary to popular thought, developmental/remedial education at some Maryland community colleges was not expensive in comparison to other programs. Some colleges have kept down costs by increasing class size, hiring a large percentage of part-time faculty, or using short-term federal aid. Others have cut back on support activities, such as learning labs and counseling services, or transformed laboratory instruction into courses. Research has shown that successful developmental programs usually have small class sizes and extensive support services. Additional support services beyond the initial developmental courses could narrow the gap found between the success of developmental and nondevelopmental students in this study. The current funding formula which is based on student enrollment in courses encourages colleges to offer more courses and fewer support activities. Therefore, it is recommended that:

Each community college determine the priority of developmental/remedial education in relation to the total operation and allocate funds accordingly.

Coordination of Developmental/Remedial Activities

Earlier recommendations in this report have called for expanded research and staff development activities at the community colleges. Several colleges have indicated a willingness to evaluate developmental activities and expand staff training opportunities if funding were available. The sharing of research results and techniques and staff development projects among the colleges will be important in keeping down costs. Therefore, it is recommended that:

The State Board for Community Colleges assist community colleges in obtaining funding for additional research and professional development activities.

The Maryland Community College Research Group and the State Board for Community Colleges coordinate research activities in developmental/ remedial education.

The State Board for Higher Education provide Statewide professional development opportunities in developmental/remedial education for all faculty and staff.

Community colleges use the expertise of Maryland specialists in developmental/remedial education for in-house professional development.

SUMMARY
OF
MAJOR FINDINGS AND RECOMMENDATIONS

Developmental/remedial activities in Maryland higher education have been the center of controversy and debate during the past few years. Discussions have included philosophical questions, cost considerations, and impacts of the activities on colleges and students alike. This study has tried to answer basic questions about developmental/remedial education at the seventeen Maryland community colleges: What are the characteristics of developmental/remedial education at community colleges? How many students are involved and what are they like? How much does remedial education cost? How is developmental/remedial education organized within the colleges? How successful are developmental students?

Information used in answering these questions came from a State Board for Higher Education survey, a supplemental questionnaire from the State Board for Community Colleges, an evaluation study of developmental and nondevelopmental students, and interviews with faculty and administrators working in developmental education. Recommendations grew out of answers to the questionnaires and discussions with educators across the State.

What are the characteristics of developmental/remedial education at Maryland community colleges?

Each of the colleges offering developmental/remedial education in the credit area have courses in remedial English and mathematics. (Wor-Wic Tech Community College is the only college not offering remedial courses in the credit area.) Fifteen of the colleges also have courses in reading, study skills, or a combination of the two. Many of the colleges also offer courses in science, business, English as a second language, and student development. Activities to support these courses include reading, writing, mathematics, and comprehensive learning laboratories; tutoring, specialized counseling and advisement, and programs for special student populations.

Developmental/remedial education at community colleges goes beyond the teaching of basic skills to include noncredit courses designed to meet other developmental needs of adults, such as review skills for specific occupations and self-help skills for the handicapped. Maryland community colleges have identified the following objectives for developmental/remedial education.

- To assist students in improving basic skills necessary for college;
- To assist students in improving or reviewing prerequisite skills related to specific curriculums;

- To help students adjust to college;
- To assist students in developing increased self-confidence in academic activities;
- To assist students in realizing their potential in the academic environment and in setting appropriate life goals;
- To assist students in developing decision making skills;
- To assist students in developing strategies for moving toward goals;
- To improve the potential of students to be successful in a field of employment with an opportunity to advance;
- To assist students in their personal development;
- To assist special students, such as the physically handicapped, in learning basic life skills.

How many students were involved and what are they like?

Developmental students are representative of every type of student found at community colleges. In the credit area, about the same number of men and women were served by remedial courses. In absolute terms, more white students were served by remedial courses than minority students. However, as a proportion of total minority enrollment, a greater percentage of minority students was enrolled in remedial courses. The continuing education courses tended to serve more women and fewer black students than the credit courses. The average age of continuing education students taking developmental courses was 30.

Total enrollment in developmental/remedial credit and noncredit courses at Maryland community colleges in FY 1978 was more than 42,000--30,000 from credit courses and 12,000 in continuing education courses. These enrollments totaled approximately 4,500 full-time equivalent students, 8.3 percent of all full-time equivalent students generated by the seventeen community colleges.

How much does remedial education cost?

Maryland community colleges spent a little less than $3.4 million in FY 1978 for direct costs (faculty and staff salaries, supplies, and materials) of developmental/remedial credit courses and activities. Indirect costs, especially for support services, could be substantial, but these data were not readily available. The colleges received almost a half million dollars in federal grants, about 12 percent of the $3.4 million spent. Direct remedial instructional costs for each remedial full-time equivalent Statewide were $931, which was less than the instructional costs for the average credit full-time equivalent student.

Direct costs for continuing education noncredit courses were not readily available. However, it was possible to estimate the amount of revenues generated from noncredit developmental/remedial courses through State reimbursement and student tuition. Noncredit revenues in developmental education were about $2.1 million in FY 1978. Statewide, revenues per developmental/remedial full-time equivalent in continuing education were about $1,380.

How is developmental/remedial education organized within the colleges?

The organizational patterns of developmental/remedial education at the colleges can be divided into three general categories: centralized, decentralized, or a mixture of both. Only two colleges have centralized developmental/remedial activities into one department; several other colleges have central committees to oversee developmental operations.

For placement purposes, most of the colleges require nationally standardized aptitude tests, high school transcripts, or diagnostic tests for full-time students. However, part-time or special students, whose enrollment is increasing faster than the full-time student enrollment, often are not required to submit test scores and receive only minimal counseling and advisement.

Assignment of faculty to developmental/remedial courses varies among the colleges. Few faculty have full-time developmental responsibilities. Staff development for these faculty in FY 1978 did not exist at six of the colleges, and math instructors at fifteen colleges had no special training opportunities.

How successful are developmental students?

To answer this question, the success of a sample of students enrolled in a developmental English course at eight colleges (Allegany, Baltimore, Catonsville, Cecil, Dundalk, Howard, Hagerstown, and Prince George's) was measured against the success of a group of students enrolled in English 101. More men were enrolled in the basic English course than were enrolled in the English 101 course, and more minorities were in developmental English than in English 101. The average developmental student also tended to be older than the average student in English 101.

In the English area, developmental students tended to complete fewer college level English courses and to make lower grades than students in the control group (English 101). Of those developmental students attempting the initial college level course, more than 85 percent made passing grades. More importantly, perhaps, is that only about half of the developmental students completed a college level English course.

Because students in the developmental English course were representative of all developmental students at the colleges, success measures outside the English area were also analyzed. Students in both the developmental and control groups, for example, tended to stay in college about three semesters. In addition, the average developmental student in the study completed about 75 percent of the courses he/she began, compared to 90 percent for the average student in the control group. Students in the control groups at six of the colleges also were

inclined to make higher cumulative grade point averages than developmental students.

The comparison of students in the developmental and control groups who have similar ability is perhaps the most important part of the study. Standardized test scores (ACT and SAT verbal) and high school grade point averages were used to separate students of low, medium, and high ability. Low-ability students in the control group tended to complete as many courses as they started, to stay in college as long, and to make similar grades as low scoring students in the developmental group. In this study, there was no evidence that developmental education made a difference in the success of low-ability students. However, the design of the study could have affected the outcome, through factors such as sampling error and the use of inferential statistics. The major conclusion from the findings on ability was the need for more discerning research.

Students were also compared by demographic variables. Older students taking basic English, for example, did just as well as older students in the control group in every achievement measure tested. Students over 30 tended to be more successful than younger students within both groups as well. Black developmental students did as well as black students in the control group in English grades, the ratio of courses completed to those attempted, and cumulative grade averages. Black and white developmental students tended to complete the same number of English courses and stay in college the same length of time. White developmental students, however, were more likely to have higher English and cumulative grades than blacks. Black and white students in the control group also completed the same number of English courses and stayed in college the same length of time. White students in the control group tended to have higher grades than blacks. Few differences were noted by sex, although women in the control group made higher grades than men.

Almost 80 percent of the students in the sample had some kind of placement tool on file, either SAT, ACT, or diagnostic test scores or a high school transcript. Developmental students without predictors tended to be as successful as those with some scores on file. In the control group, however, students who had no placement scores on file were more likely to drop out of college after one or two semesters and completed fewer courses they attempted than those with predictors.

The ACT verbal score and high school grade point average were both found to be highly correlated with every success measure tested. The SAT verbal scores were correlated with both English and cumulative grades. Statistically, high school grade average was the most useful tool in predicting cumulative grade average in college.

RECOMMENDATIONS

Developmental/remedial courses and activities at Maryland community colleges provide a major service to citizens in Maryland. Through the various activities students have the opportunity to learn basic skills necessary for college work, to gain self-confidence in their academic abilities, and to start moving toward their educational goals.

There are still needs to be met and improvements to be made. The recommendations should provide a college another mechanism of reviewing developmental/remedial education. It is recommended that:

To improve placement, community colleges require nationally standardized tests or skill assessment tests along with high school transcripts of all full-time students;

Part-time students be required to take placement tests when their grade point averages fall below a minimum set by the college or after they complete a minimum number of hours determined by the college;

Community colleges develop continuing education courses in specific skill areas that supplement the credit offerings;

Community colleges create or expand developmental support services to complement instruction in remedial and nonremedial courses;

Community colleges coordinate developmental activities of the continuing education and credit divisions;

Impacts on black students be assessed before any developmental/remedial activities are curtailed;

Because black students were found to be less prepared for college, careful placement and follow-up procedures be developed recognizing the academic needs and cultural differences of these students;

Community colleges develop minimum literacy standards for entry into the credit divisions;

Continuing education courses be developed for intellectually limited students in the basic skill areas of reading, writing, and mathematics and in career areas related to the occupational programs offered at the community colleges;

Community colleges offer workshops and seminars in the teaching of developmental education for all faculty and staff;

A Statewide association of community college developmental educators be established with regularly scheduled meetings to increase the sharing of information among colleges;

Community colleges with decentralized developmental activities establish a committee to coordinate activities and to review and recommend policies concerning developmental education;

Community college faculty agree on basic entry and completion standards required for 100-level English and mathematics courses;

Additional research be conducted by the community colleges to determine the effect of developmental/remedial courses and activities on grades, persistence, and retention and personal growth;

Community colleges evaluate the role of developmental/remedial courses and activities in light of additional research;

Community colleges evaluate student achievement in affective skill areas;

The State Board for Community Colleges and the community college researchers explore using the existing system of follow-up studies to learn more about goal achievement of developmental students;

Each community college determine the priority of developmental/remedial education in relation to the total operation and allocate funds accordingly;

The State Board for Community Colleges assist community colleges in obtaining funding for additional research and professional development activities;

The Maryland Community College Research Group and the State Board for Community Colleges coordinate research activities in developmental/remedial education;

The State Board for Higher Education provide Statewide professional development opportunities in developmental/remedial education for all faculty and staff;

Community colleges use the expertise of Maryland specialists in developmental/remedial education for in-house professional development.

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REVIEW OF THE LITERATURE

The open admission policies of community colleges illustrate the commitment to provide higher education to all who can profit from instruction. The types of courses that are offered and the support services that are available reflect a college's commitment to this goal. Questions have been raised about the "open door" and how colleges deal with diverse student populations. Knoell (1968) points out that procedural barriers can render a college inaccessible to the poor, the educationally handicapped, and others unable to cope with the bureaucracy. Colleges may open their doors in the initial admission process only to close other doors through institutional policies or departmental procedure. (Moore, 1976) Most of the community colleges in Maryland, for example, use selective admission procedures for certain programs, such as nursing. Open admission policies also are valid only if students succeed in their educational endeavors. The colleges must respond to the 18-year-old as well as the 40-year-old, to the full-time student as well as the part-time student, to the low achiever as well as the high achiever.

Colleges' attempts to work with the low achiever have led to a growing expansion of programs in developmental/remedial education. Roueche (1978) claims that "practically every American institution is up to its elbows with thousands of students who don't read, write, speak, listen, study, or figure well enough to be in college." (p. 28) He adds that community colleges are recruiting and admitting more and more students who have "failure identities." Recent research has identified characteristics of students and programs that have been developed by colleges to meet new demands.

Characteristics of Developmental/Remedial Programs

As more nontraditional students entered community colleges during the rapid expansion period of the 1960s, remedial courses became commonplace. (Roueche, 1978) Historically, programs for underprepared students included one or more courses run by different academic departments. Faculty did not expect much from these students and regarded them, at best, as generators of needed full-time equivalent students (FTEs). (Spann, 1977) The most common courses offered were remedial English, remedial reading, and remedial math. Roueche (1978) says, "The courses rarely fulfilled their function because most students never completed them. The courses were poorly conceived, poorly planned, poorly implemented, and almost never evaluated. Worse yet, few colleges had any clear vision of what they were hoping to accomplish." (p. 28)

Since the late 1960s many colleges have tried to reevaluate developmental/remedial programs to better meet student needs. Program goals and objectives have been broadened, although most generally fall into one of two categories:

"1) Improvement of cognitive skills to the extent that students can progress into credit courses in either the academic or vocational areas, and

2) Effective development to improve the self-concept of students, providing a sense of motivation for self-improvement, and provide successful experiences in an educational environment to reduce drop-out and attrition rates."

(*Compensatory/Developmental Programs*, 1975, p. 2)

In a recent survey of Texas community colleges certain characteristics of developmental/remedial programs were identified. They are:

"1) Small classes to encourage closer individual assistance to students.

2) Innovative instructional methodology, including
   a. pre-testing for placement at appropriate levels,
   b. individualized instructional materials methods,
   c. extenstive use of audio visual support,
   d. flexible entry and exit (self-pacing),
   e. use of paraprofessionals,
   f. use of peer tutors.

3) A redefinition of the roles of instructors and counselors. More than 30 percent of institutions having developmental courses stated that counseling was part of the teaching process or that counselors taught some courses. Twenty-seven of the 47 institutions showed counseling as a major component of their developmental programs. The majority of these 27 utilized a combination of professional and peer counselors to aid their developmental studies." (*Compensatory/Developmental Programs*, 1975, p. 4)

A recent survey of Maryland community college developmental/remedial programs compiled by Burnham (1977) shows similar characteristics. Busky (1971) also found that all the community colleges in Maryland at the time of his study offered some developmental programs in English composition, reading, and/or mathematics. A few also included science, multi-level courses, study skills, and combinations of these. Most of the developmental activities were not offered for credit but required the same tuition fee similar to credit courses. Busky found the tuition requirement to be the most common source of criticism. Roueche's results from 1977 suggest that colleges providing credit for remedial courses, either institutional or degree, retain high risk students more often than colleges that do not provide credit. (Roueche, 1978)

While it is common for a college to offer a series of remedial courses in language arts and mathematics, Moore (1971) advocates a complete, well-designed

program for high risk students. Roueche (1977) strongly suggests colleges organize eclectic or holistic programs that focus on the student's growth and development beyond the temporary improvement of basic skill areas. Experiences indicate the more successful efforts bring a total environmental press to bear on the student's development. (Spann, 1977) In addition, because community college students learn in different ways and at varying rates of speed, instruction should allow continuous progress and student control of the learning environment.

Learning activities also must take into account the range of abilities found in community college students. (Roueche, 1973) Available research, for example, shows little correlation between traditional instructional methods and student learning. Methods and materials should be constructed to take into account a student's linguistic limitations but still capture his interest. (Roueche, 1968)

Roueche (1968) says experimentation is needed in program planning and in determining the place and value of class size, team teaching, lay assistance, technology, and programmed instruction. Rather than accommodating the mythical remedial student, college teaching should incorporate the knowledge the student brings to the classroom.

Characteristics of Developmental/Remedial Students

Understanding the characteristics of developmental/remedial students is the key to building a successful curriculum. (Ellsworth, 1968) A Texas survey of students in developmental/remedial programs found students to be characterized by one or more of the following:

> "1. History of low achievement in prior educational experiences,
>
> 2. Learning disability,
>
> 3. Veteran,
>
> 4. Adults returning to college after a long absence from school,
>
> 5. Adults desiring updating of skills for job maintenance or advancement,
>
> 6. Economically disadvantaged students."
>
> (*Compensatory/Developmental Programs*, 1975)

An analysis of high risk students at Cleveland State Community College in Tennessee showed them to be largely male, young, Caucasian, non-veteran, undecided and unrealistic about career plans, and poorly prepared in mathematics

and social studies. In addition, they had the least success in mathematics and natural sciences and were not likely to take advantage of available remedial courses. The high risk students also had a high attrition rate and rarely completed graduation requirements. (Martin, 1972)

Roueche (1968), through a review of the literature, generalized that students in remedial education courses in community colleges are severely deficient in basic skills in language and mathematics and have poor study habits. These students also are often weakly motivated, lack home encouragement, and have unrealistic or ill-defined goals. In addition, students have been found to come from homes with minimum cultural advantage and minimum standards of living, and they are the first of their family to attend college. (*Compensatory/Developmental Programs 1975*; Martin, 1972; Farrell, 1973) However, other studies have shown that there are disadvantaged students who are not high risk and high risk students who are not disadvantaged.

S. Roueche (1977) points out that a "new" student is joining the traditional developmental student in support courses. Courses and programs now must be able to deal with the traditional remedial student who has never been successful in school and the new student who has been labeled successful by virtue of grades and graduation. A new dimension is added by the new students who are alarmed at having to learn skills they thought they already had. The new student attitude, according to Cross (1973), is not to try rather than risk failure. Students will take on easy tasks where success is almost certain or very difficult tasks where failure is assured. Traditional students are more willing to undertake tasks where the chance of success might be 50-50, but new students are less likely to even attempt such risks.

The open admissions policy of community colleges has changed not only the number of high risk or developmental students being served but also the type of students entering the regular or traditional curriculum. Roueche (1973) points out that the aptitude, achievement, socio-economic background, and motivational attitudes of community college students are the most diverse of any American educational setting. In one of his studies, Roueche (1968) found the reading ability levels in transfer English courses ranged from grade 4 to grade 14. The mean for the reading ability test was grade 10. He also established that 20 to 35 percent of all entering community college students are functionally illiterate (reading below the 4th grade level).

In summary, whether students are called disadvantaged, remedial, low achievers, developmental, new, nontraditional, marginal, or special, they have one thing in common--they do not fit the mold labeled "traditional college student." (Roueche, 1973)

Organizational Structure

Remedial programs in most colleges usually begin as one or more independent courses offered by various academic departments. Some colleges still use this basic structure while others have arranged developmental/remedial activities in

a number of ways. From the Texas survey (1975), four basic patterns are used to describe the organizational structure of developmental/remedial activities:

> "1. Adding compensatory courses to discipline curricula, for example adding developmental reading to the list of English courses.
>
> 2. Working with an interdisciplinary group of instructors who remain attached to their discipline organizationally but who coordinate with instructors from other disciplines and with counselors assigned to developmental students.
>
> 3. Establishing a division or department of developmental studies which plans, coordinates, and allocates funds for instructors, counseling, and other support services.
>
> 4. Establishing learning centers which contain full-time administrators, instructional staff, tutors, counselors, and support staff. These are usually open for use by all students and have flexible hours."

(*Compensatory/Developmental Programs*, 1975)

Studies show that total integrated programs, such as Pattern 3 described above, yield better results than isolated courses. (Roueche and Snow, 1977) Colleges with learning centers also reported that more students persist and complete their courses than students without these centers. A combination of full-time instructors and part-time tutors was found to be most prevalent and the most effective form of staffing. (Roueche and Snow, 1977)

Spann (1977) argues that the most effective structure has total systems compatability with instruction, counseling, and other services that are student-centered and goal-oriented. The various components of a developmental studies curriculum, which are usually scattered among departments, operate best under one umbrella. This creates a more supportive environment for students and brings together faculty and staff with common interests in underprepared students.

> "Because these faculty persons share common purposes, morale is likely to be high and the program more potent. Administrators who pull these various components out of their traditional homes should expect resistance; faculty-centered administrators will leave well enough alone, but student-centered administrators are likely to move toward the integrated model." (Spann, 1977, p. 33)

An alternative is the joint appointment of faculty members to the developmental studies division and the department of their academic discipline.

Organizational structure alone does not necessarily insure an environment condusive to learning. Board members and administrators also must take seriously the fact that community colleges exist to facilitate learning. Roueche and Snow (1977) found, for example, that if the president supports the college's efforts to serve high risk students, successful programs will likely be developed.

> "Administrators who are ambivalent about their commitment to developmental programs place the faculty and staff of these programs under a great deal of stress. The energy needed for the rough task of teaching for mastery and for action counseling is easily drained away from the students when support from 'above' is perceived as weak or uncertain." (Spann, 1977, p. 28)

Spann (1977) also notes the importance of the dean or person directly responsible for the overall supervision of the developmental student's effort, as well as the program administrators. The success of a developmental studies program depends in part on the student's sense that the faculty and the administration are committed to their learning and development.

Placement of Students

The way colleges place their students in developmental/remedial activities and courses varies although some similarities can be found. Most community colleges use standard testing as a tool for counseling students, and in many instances an ACT score of 12 or below is a signal that a person could benefit from developmental/remedial coursework. (*Compensatory/Developmental Programs*, 1975) Abel (1970) found the ACT to be the best predictor of academic achievement as opposed to other nationally normed tests.

Many colleges also use counselors in conjunction with the registration process to help students identify their needs for developmental/remedial work. Roueche and Snow (1977) say public relations and recruitment are essential activities and registration and orientation must be simple and meaningful. Other colleges have open access laboratories or centers to which students can be referred throughout the academic year. Faculty, counselors, peer, and self-referral are all used. (*Compensatory/Developmental Programs*, 1975)

The most common criteria for placing students in developmental/remedial programs are test scores. There is evidence, however, that little, if any, correlation is found between these scores and later success in developmental/remedial programs. Usually test scores are most successful when used in conjunction with other predictors, such as high school grade point averages and non-intellective factors. (Roueche, 1968)

Only a few community colleges require developmental/remedial courses because this practice is seen as discriminatory. Roueche and Snow (1977) argue that data support a mandatory program. Allowing a student who has demonstrated his inability to succeed in regular school settings to go undirected is communicating a lack of concern. Roueche (1978) also discourages the simultaneous

enrollment of students in an "intensive-care unit" and the regular curriculum. He suggests that students need to read at least at the 10th grade level, have solid study skills, and good motivation in order to succeed in college.

Developmental/Remedial Faculty

Competent faculty and staff with positive attitudes and behavior are critical for a successful developmental/remedial program. Spann (1977) believes a developmental studies program should be staffed with developmental specialists although this is difficult because few formal training programs are available. Since most professionals in this field have learned from experience, he suggests several characteristics to look for in a developmental specialist:

> "1. A commitment to the integrity of the student;
>
> 2. A belief that the student can and will learn when the learning is perceived as relevant to his needs and objectives;
>
> 3. Skill at utilizing mastery learning strategies appropriate to the student's needs and objectives;
>
> 4. The ability to use specific help skills to aid the student in mastering the learning environment and in taking responsibility for her own learning."
> (Spann, 1977, p. 31)

Roueche and Snow (1977) found the three ingredients for successful college programs for students with learning problems were the teacher's belief in a student's ability to learn, the teacher's acceptance of some of the responsibility for increasing a student's desire to learn, and finally the teacher's openness to his/her own growth and development.

One of the obstacles of maintaining a well-rounded staff is the question of status and prestige. Because community colleges are institutions of higher education, the pecking order of preferred teaching assignments is a reality that cannot be ignored. However, if the lives of students are important, all teaching assignments should be valued equally. Yet Roueche (1968) points out that the inexperienced teacher is most often found in a remedial classroom. If subject specialists do not want to teach remedial classes, other competent teachers must be found. Roueche says, "Remedial education is fast becoming the largest instructional endeavor of two-year colleges, and instructors in these institutions can no longer avoid the issue. The problems are real and the students are real." (p. 51)

Innovative teaching is the key to successful developmental programs according to Moore (1976). "It does not require much sophistication to see that the teacher's instructional techniques need to be as nontypical as his students . . . The two-year college teacher also needs specific preparation and training in

the art and science of teaching his subject." (p. 30) Few instructors, from Moore's (1976) perspective, not only lack training in instructional methodology but also lack the expertise to diagnose learning problems. Community colleges claim they have something for everyone. Yet many do not have the means, both human and institutional, to prescribe what is necessary to improve a student academically.

One of the reasons for these deficiencies is the failure of colleges and universities to provide training to deal with the high risk student. Moore (1968) says the development of teacher training programs in colleges always seems to be bogged down in institutional politics. To overcome the lack of formal programs in the universities, Roueche (1968) suggests community colleges develop in-service training programs. Instructors in remedial programs must become specialists in learning to keep the admissions door open.

Evaluation

An evaluation system can identify the value of programs for the high risk student and provide information for decisions about the program. Spann (1977) argues that evaluation cannot be effective if it is treated as an afterthought; instead, evaluation procedures must be designed into the system from the beginning. Evaluation can take two forms: formative evaluation dealing with how well the processes of the program worked in bringing about the desired results and summative evaluation which focuses on what happens. Usually summative evaluators want to know how well a student performed as compared to a pre-set standard or in relation to a peer group. The formative evaluator looks at how the results are achieved.

A common complaint has been the lack of evaluation of community college developmental/remedial programs. Roueche (1973) notes in his study that only 20 out of 800 colleges surveyed had written objectives explaining the process of their programs, and only five out of 800 had ever conducted any kind of evaluation of program effectiveness. In a more recent study, Roueche and Snow (1977) still found that more than half the colleges surveyed were unable to supply follow-up information on their students. Moore (1976) says, "Whether or not the community college is really able to define or cure academic deficiencies has not been confirmed with hard, unequivocal evidence." (p. 1) The Carnegie Commission on Higher Education (1970) also has encouraged continual study and evaluation of remedial education in community colleges. Critics have charged that administrators are afraid to evaluate developmental/remedial programs because of the disastrous results they expect.

The most commonly used evaluation procedures measure the effectiveness of programs on the basis of academic success and persistence in school. In spite of the emphasis at community colleges to serve a variety of student needs and behavioral objectives, credit hours completed and grade point averages still remain the criteria for success. The questions Roueche (1973) asked in his 1973 study are, for the most part, those used by evaluators today:

> "How long did students stay in the community college; that is, how long did they persist? Second, how well did they achieve? And third, what was their attitude toward the programs and instruction in the community college?" (p. 26)

In comparing a group of remedial students with other students who had similar kinds of educational deficiencies but who chose not to enroll in developmental/remedial courses, Roueche found remedial programs to be twice as effective in retaining students. Over 80 percent of those students completing a developmental program achieved a C average or better, and almost all found the program to be meaningful. He also discovered in his survey that the most offered developmental course in American community colleges was likely to be a remedial English course followed by remedial reading and remedial math.

The survey of Texas community colleges (*Compensatory/Developmental Programs*, 1975) showed that most of the colleges that responded to the survey had evaluation and follow-up procedures although only five had established control group experiments. Some colleges maintain follow-up records, others monitor attrition/retention rates, while others evaluate improvement in grade point averages. Nineteen of the colleges measured noncognitive behavioral change.

Bronx (New York) Community College, selected as having an exemplary open door program, measures program success in terms of graduation and retention rates and student satisfaction with the college program and its objectives. The People Center at Staten Island Community College, also with an exemplary program, has shown through evaluations that retention rates are increasing and grade point averages are improving. (Colston, 1976)

Ravekes (1966) in a longitudinal study of low achieving high school graduates used grade point averages and retention data to show the salvage role as assigned to the community colleges of the California system of higher education failed to be working. In assessing the effectiveness of a developmental/remedial curriculum at a community college, Farrell (1973) looked at grade point averages, persistence, and retention data of high risk students and a control group. He found that students enrolled in the developmental program had greater success than the students in the control group in only one of the ten variables studied. However, no significant differences were found on any measures of mean grade point averages.

In a study at Anne Arundel Community College, Capshaw found a positive relationship between enrollment in basic studies courses in persistence and in grade point averages. By using evaluation as a tool, the Kansas City, Kansas Community College was able to substantially reduce failure rates for students in vocational education. (Huhn, 1976)

Evaluation should provide the information needed for planned change which brings about an improved learning program.

"Thus, program evaluation is clearly a means to an end, not an end in itself. Certainly a well-designed and manageable evaluation program is one of the major building blocks, if not the cornerstone, in the design of an effective developmental education program capable of continued improvement." (Spann, 1977)

ENROLLMENT DATA FOR REMEDIAL COURSES BY SUBJECT AREA AT MARYLAND COMMUNITY COLLEGES FY 1978

College	English					Reading and Study Skills					Math					Science				
	Sex		Race			Sex		Race			Sex		Race			Sex		Race		
	M	F	B&O	W	TOTAL	M	F	B&O	W	TOTAL	M	F	B&O	W	TOTAL	M	F	B&O	W	TOTAL
Allegany	49	48	4	93	97	56	95	4	147	151	58	88	1	145	146	-	-	-	-	-
Anne Arundel	460	496	100	856	956	312	338	68	582	650	312	338	68	582	650	-	-	-	-	-
Baltimore[1]	1,170	1,898	2,480	588	3,068	843	1,371	1,789	425	2,214	1,184	1,056	1,860	380	2,240	-	-	-	-	-
Catonsville	319	319	262	376	638	553	552	553	552	1,105	273	274	273	274	547	-	-	-	-	-
Cecil	84	140	9	215	224	45	67	8	104	112	95	95	22	168	190	-	-	-	-	-
Charles	48	43	11	80	91	49	45	33	61	94	160	88	38	210	248	-	-	-	-	-
Chesapeake	23	15	18	20	38	6	3	6	3	9	48	22	16	54	70	-	-	-	-	-
Dundalk	165	165	7	323	330	226	177	113	290	403	296	211	127	380	507[2]	-	-	-	-	-
Essex	388	387	155	620	775	168	198	33	333	366	615	752	205	1,162	1,367	139	208	17	330	347
Frederick	21	19	13	27	40	-	-	-	-	-	60	60	13	107	120	10	10	0	20	20
Garrett	35	23	1	57	58	23	15	0	38	38	24	27	0	51	51	-	-	-	-	-
Hagerstown	92	31	18	105	123	76	19	20	75	75	196	197	98	295	393	-	-	-	-	-
Harford	123	100	53	170	223	98	66	33	131	164	300	300	60	540	600	55	128	18	165	183
Howard	50	40	31	59	90	60	80	63	77	140	58	70	46	82	128	-	-	-	-	-
Montgomery[1]	375	333	138	570	708	94	114	62	146	208	1,218	918	433	1,703	2,136	142	331	260	213	473
Prince George's	720	881	1,153	448	1,601	573	308	687	194	881	1,460	1,785	1,915	1,330	3,245	-	-	-	-	-
Wor-Wic Tech	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	4,122	4,938	4,453	4,607	9,060	3,182	3,448	3,472	3,158	6,630	6,357	6,281	5,175	7,463	12,638	546	677	295	728	1,023

College	Student Development				
	Sex		Race		
	M	F	B&O	W	TOTAL
Catonsville	155	155	127	183	310
Charles	10	8	8	10	18
Dundalk	25	46	6	65	71
TOTAL	190	209	141	258	399

1 All campuses
2 Includes Business 100

M = Male
F = Female
B&O = Black and Other
W = White

SOURCE: SBHE Survey of Developmental/Remedial Education

REMEDIAL FULL-TIME EQUIVALENT STUDENTS AND CREDIT HOURS BY SUBJECT AT MARYLAND COMMUNITY COLLEGES FY 1978

College	English		Reading and Study Skills		Math		Science		Student Development		TOTAL	
	Credit Hours	FTEs	Credit Hours	FTEs	Credit Hours	FTEs	Credit Hours	FTEs	Credit Hours	FTEs	Credit Hours	FTEs
Allegany	291	9.7	302	10.1	438	14.6	-	-	-	--	1,031	34.4
Anne Arundel	2,868[1]	95.6	1,950[1]	65.0	2,600[1]	86.7	-	-	-	-	7,418	247.3
Baltimore	9,204	306.8	6,642	221.4	6,720[1]	224.0	-	-	-	-	22,566	752.2
Catonsville	3,190[1]	106.3	3,315	110.5	1,368	45.6	-	-	310	10.3	8,183	272.7
Cecil	672	22.4	336	11.2	570	19.0	-	-	-	-	1,578	52.6
Charles	273	9.1	282	9.4	992	33.1	-	-	18	.6	1,565	52.2
Chesapeake	61	2.0	18	.6	175	5.8	-	-	-	-	254	8.4
Dundalk	990	33.0	1,033	34.4	1,521	50.7[2]	-	-	142	4.7	3,686	122.8
Essex	2,325[1]	77.5	1,098[1]	36.6	4,101[1]	136.7	1,041	34.7	-	-	8,565	285.5
Frederick	120[1]	4.0	-	-	360[1]	12.0	60[1]	2.0	-	-	540	18.0
Garrett	174	5.8	114	3.8	123	4.1	-	-	-	-	411	13.7
Hagerstown	369	12.3	285	9.5	983	32.8	-	-	-	-	1,637	54.6
Harford	669	22.3	492[1]	16.4	1,800	60.0	549	18.3	-	-	3,510	117.0
Howard	270	9.0	490	16.3	352	11.7	-	-	-	-	1,112	37.1
Montgomery	3,330[1]	111.0	208	6.9	6,162	205.4	1,419	47.3	-	-	11,119	370.6
Prince George's	4,807[1]	160.1	2,643[1]	88.1	9,735[1]	324.5	-	-	-	-	17,181	572.7
Wor-Wic Tech	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	29,609	987[3]	18,208	640[3]	38,000	1,267[3]	3,069	102[3]	470	16[3]	90,356	3,012[3]

[1] Credit equivalent
[2] Includes Business 100
[3] Rounded

FTEs = Full-time equivalent students

SOURCE: SBCC Enrollment Data

AVERAGE STATUS OF STUDENTS PARTICIPATING IN REMEDIAL ACTIVITIES AND COURSES
AT MARYLAND COMMUNITY COLLEGES
FY 1978

College	First-Time Freshmen	Continuing Students from Same College	Community College Transfers	Other Transfers
Allegany	81%	19%	-%	-%
Anne Arundel	54	45	-	1
Baltimore	70	28	1	1
Catonsville	90	5	2	3
Cecil	78	21	1	-
Charles	96	4	-	-
Chesapeake	73	23	1	3
Dundalk	66	31	1	2
Essex	65	30	4	1
Frederick	61	39	-	-
Garrett	67	21	6	6
Hagerstown	94	6	-	-
Harford	65	35	-	-
Howard	79	21	-	-
Montgomery	56	41	1	2
Prince George's	76	24	-	-
Wor-Wic Tech	-	-	-	-

SOURCE: SBHE Survey of Developmental/Remedial Education

Appendix B
Table 4

ENROLLMENT IN CONTINUING EDUCATION COLLEGE REMEDIAL COURSES
AT MARYLAND COMMUNITY COLLEGES
FY 1978

College	Language Arts		Reading and Study Skills		Math		TOTAL	
	Enrollment	FTEs	Enrollment	FTEs	Enrollment	FTEs	Enrollment	FTEs
Baltimore	387	96.8	387	96.8	387	86.0	1,161	279.6
Catonsville	64	2.7	15	.6	-	-	79	3.3
Charles	-	-	100	3.6	36	5.1	136	8.7
Chesapeake	-	-	2	.1	-	-	2	.1
Dundalk	17	.7	-	-	-	-	17	.7
Frederick	7	.4	40	1.7	-	-	47	2.1
Hagerstown	14	.6	-	-	-	-	14	.6
Harford	473	23.6	194	9.5	805	38.2	1,472	71.3
Howard	49	1.8	183	4.8	-	-	232	6.6
Montgomery	81	4.3	223	9.8	-	-	304	14.1
Prince George's	203	26.8	106	21.5	192	29.7	501	78.0
Wor-Wic Tech	4	.2	15	.6	-	-	19	.8
TOTAL	1,299	157.9	1,265	149.0	1,420	159.0	3,984	465.9

FTEs = Full-time equivalent students

SOURCE: SBCC Enrollment Data

HEADCOUNT AND FULL-TIME EQUIVALENT ENROLLMENT IN ALL CONTINUING EDUCATION DEVELOPMENTAL/REMEDIAL COURSES BY AREA AT MARYLAND COMMUNITY COLLEGES
FY 1978

College	College Remedial		GED Related		Developmntl/ Occupational		Developmntal Comm. Skills		English as a 2nd Language		Consumer Education		Self-Help Skill/Hndcpd		Tutor Training		TOTAL	
	Head-count	FTEs	Head-count	FTEs	Head-count	FTEs	Head-count	FTEs	Head-count	FTEs	Head-count	FTEs	Head-count	FTEs	Head-count	FTEs	Head-count	FTEs
Allegany					9	.4											9	.4
Anne Arundel							50	2.5	15	1.0							65	3.5
Baltimore	1,161	279.5					387	43.0									1,548	322.5
Catonsville	79	3.4			335	22.4	427	17.3	15	.8	336	4.6	832	41.8			2,024	90.3
Cecil			276	13.9													276	13.9
Charles	136	8.7													326	34.8	462	43.5
Chesapeake	2	.1					8	.3									10	.4
Dundalk	17	.7	39	1.8	16	.7	232	11.7					74	8.3	57	2.4	435	25.6
Frederick	47	2.0															47	2.0
Garrett			212	23.2									31	3.7			243	26.9
Hagerstown	14	.6	33	2.9			57	3.4									104	6.9
Harford	1,472	71.3	1,107	61.0	29	1.8	39	2.6	144	9.6	24	.6					2,815	146.9
Howard	232	6.6	233	32.5			7[illegible]	2.4									538	41.5
Montgomery	304	14.1					210	9.6									514	23.7
Prince George's	501	78.0	1,671	654.2	7	1	297	16.8	52	17.9							2,528	767.0
Wor-Wic Tech	19	.8			12	.5											31	1.3
TOTAL	3,984	465.8	3,571	789.5	408	25.9	1,780	109.6	226	29.3	360	5.2	937	53.8	383	37.2	11,649	1,516.3

FTEs = Full-time equivalent students

SOURCE: SBCC Survey of Developmental/Remedial Continuing Education
SBCC Enrollment Data

COSTS OF REMEDIAL ACTIVITIES AT MARYLAND COMMUNITY COLLEGES FY 1978[1]

College	English/ Writing Lab	Reading Lab	Math Lab	Learning Lab	Tutoring	Other	Advisement and Counseling	TOTAL
Allegany	$ 20,060	$ 2,940	$ 1,000	$	$ 93,291	$	$	$117,291
Anne Arundel	13,872	500						14,372
Baltimore				187,633		61,520[2]		249,153
Catonsville						92,000[3]		92,000
Cecil					4,678			4,678
Dundalk	27,000	6,000	12,200			89,000[4]	36,120	170,320
Frederick					888			888
Garrett	10,200							10,200
Hagerstown							19,049	19,049
Harford		NA					22,616	22,616
Howard				1,400			2,304	3,704
Montgomery			41,700					41,700
Prince George's				21,264	16,740	17,900[5]		55,904
Wor-Wic Tech								-
TOTAL	$ 71,132	$ 9,440	$54,900	$210,297	$115,597	$260,420	$ 80,089	$801,875

1 All monies
2 Special Services Program
3 Advancement Studies Program
4 Single Step Program
5 Testing Center

SOURCE: SBHE Survey of Developmental/Remedial Education

STATE REVENUE AND STUDENT TUITION GENERATED BY CONTINUING EDUCATION DEVELOPMENTAL COURSES BY SUBJECT MATTER AT MARYLAND COMMUNITY COLLEGES FY 1978

Appendix B
Table 7

College	College Remedial		GED Related		Developmental/ Occupational		Communications Skills		English as a Second Language	
	State Revenue	Student Tuition	State Revenue	Student Tuition	State Revenue	Student Tuition	State Revenue	Student Tuition	State Revenue	Student Tuition
Allegany	$	$	$	$	$ 320	$ NA	$	$	$	$
Anne Arundel							2,000	1,170	768	450
Baltimore	223,600	103,329					34,400	20,511		
Catonsville	2,696	152			17,936	5,124	13,864	NC	640	NC
Cecil			11,136	NA						
Charles	6,936	8,520								
Chesapeake	104	NA					216	NA		
Dundalk	544	119	1,464	40	544	128	9.384	768		
Frederick	1,624	968								
Garrett			18,536	NC				NA		
Hagerstown	464	NA	2,320	NA			2,752	NA		
Harford	57,024	53,195	48,800	27,215	1,456	1,079	2,056	1,400	7,672	3,744
Howard	5,288	NA	26,000	NA			1,880	NA		
Montgomery	11,304	8,998					7,712	6,186		
Prince George's	62,432	32,020	523,352	583,351	56	105	13,472	6,730	14,312	5,200
Wor-Wic Tech	608	320			408	240				
TOTAL	$372,624	$207,621	$631,608	$610,606	$20,720	$6,676	$87,736	$36,765	$23,392	$9,394

NA = Not Available
NC = No Charge

SOURCE: SBCC Continuing Education Survey of Developmental/Remedial Education
SBCC Enrollment Data

STATE REVENUE AND STUDENT TUITION GENERATED BY CONTINUING EDUCATION DEVELOPMENTAL COURSES BY SUBJECT MATTER AT MARYLAND COMMUNITY COLLEGES FY 1978

College	Consumer Education		Self-Help Skills for Handicapped		Tutor Training		TOTAL	
	State Revenue	Student Tuition	State Revenue	Student Tuition	State Revenue	Student Tuition	State Revenue	Student Tuition
Allegany	$	$	$	$	$	$	$ 320	$ NA
Anne Arundel							2,768	1,620
Baltimore							258,000	123,840
Catonsville	3,672	NC	33,424	871			72,232	6,147
Cecil							11,136	NA
Charles					27,816	13,040	34,752	21,560
Chesapeake							320	NA
Dundalk			6,672	12	1,920	672	20,528	1,739
Frederick							1,624	968
Garrett			2,976	31			21,512	31
Hagerstown							5,536	NA
Harford	448	192					117,456	86,825
Howard							33,168	NA
Montgomery							19,016	15,184
Prince George's							613,624	627,406
Wor-Wic Tech							1,016	560
TOTAL	$ 4,120	$ 192	$ 43,072	$ 914	$ 29,736	$ 13,712	$1,213,008	$885,880

NA = Not Available
NC = No Charge

SOURCE: SBCC Continuing Education Survey of Developmental/Remedial Education
SBCC Enrollment Data

Appendix B
Table 8

LENGTH OF TIME REMEDIAL ACTIVITIES HAVE BEEN AVAILABLE
AT MARYLAND COMMUNITY COLLEGES
FY 1978

College	No. Years College in Operation	Math	English	Reading/ Study Skills	Labs	Counseling/ Tutoring
Allegany	17	10	3	4	1	3
Anne Arundel	17	17	17	10	4	-
Baltimore	32	20	11	9	3	5
Catonsville	22	15	6	12	-	-
Cecil	10	9	5	3	-	2
Charles	20	8	6	6	-	-
Chesapeake	11	11	11	8	-	-
Dundalk	7	4	7	7	5	2.5
Essex	21	8	9	5	-	-
Frederick	21	8	6	-	-	.5
Garrett	7	6	7	4	3	-
Hagerstown	32	10	10	10	-	10
Harford	21	21	21	21	6	10
Howard	8	7	8	8	7	6
Montgomery	32	25	23	23	1.5	-
Prince George's	20	9	9	10	8	3
Wor-Wic Tech	2	-	-	-	-	-

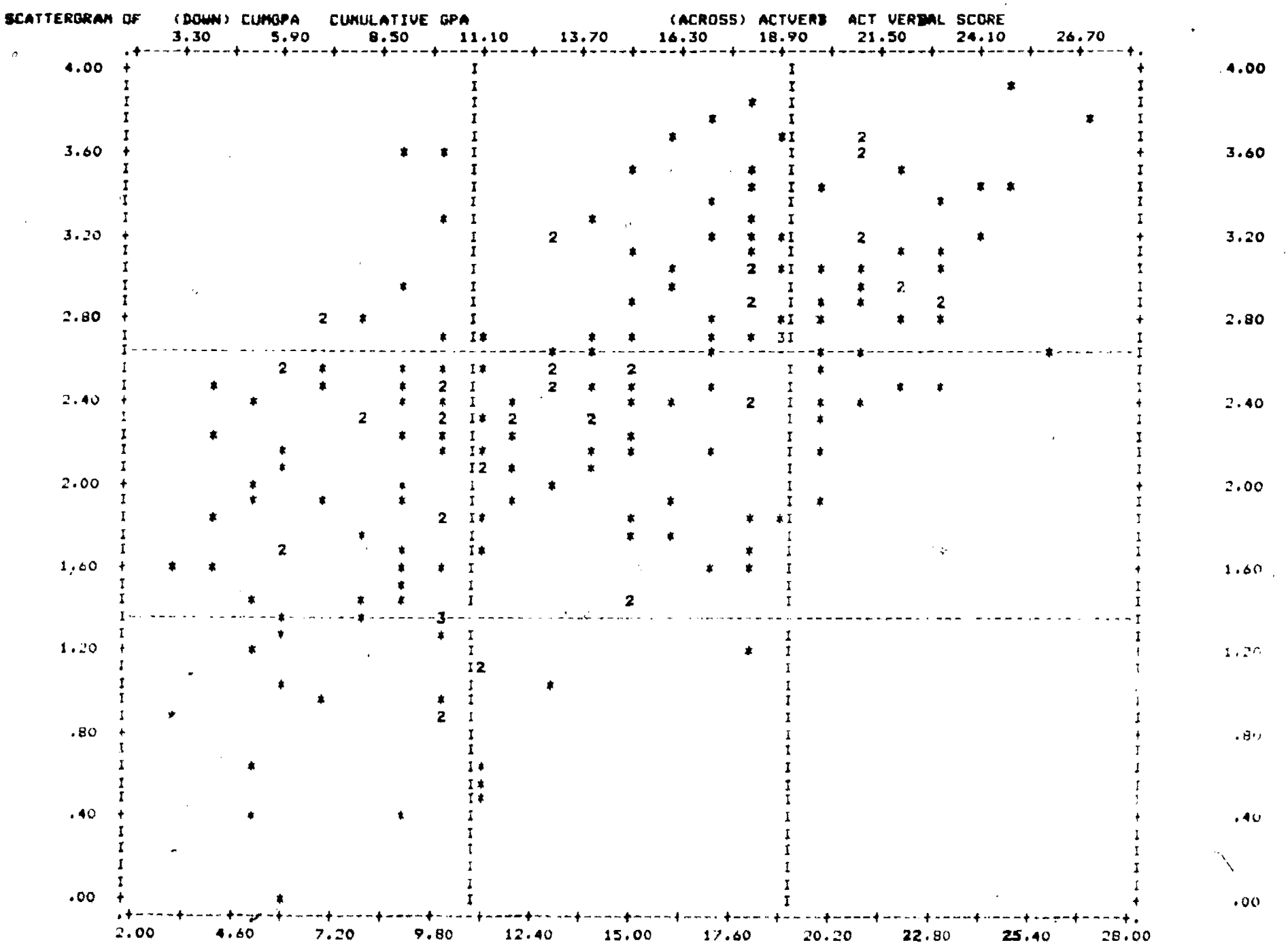
SOURCE: SBHE Survey of Developmental/Remedial Education
College Catalogues

COMPARISONS OF 100 LEVEL ENGLISH GRADE AVERAGES
BY DEVELOPMENTAL AND NONDEVELOPMENTAL STUDENTS

Group	Grade Intervals						Mean
	0-.99	1.0-1.99	2.0-2.49	2.5-2.99	3.0-3.49	3.5-4.0	
Grading System A-F							
Developmental	9(8)	26(23)	39(34)	13(11)	20(17)	8(7)	2.04
Nondevelopmental	0(0)	19(10)	37(20)	30(16)	59(32)	39(21)	2.73
Grading System A-D							
Developmental	-	16(28)	23(41)	6(10)	9(16)	3(5)	2.09
Nondevelopmental	-	11(12)	23(26)	15(17)	23(26)	18(20)	2.60
Grading System A-C							
Developmental	-	-	11(28)	3(7)	19(48)	7(17)	2.85
Nondevelopmental	-	-	17(18)	10(11)	29(31)	38(40)	3.10

NOTE: Numbers in parentheses are row percentages.

COMPARISON OF ACT VERBAL SCORES AND CUMULATIVE GRADE POINT AVERAGES OF SELECTED STUDENTS AT MARYLAND COMMUNITY COLLEGES



STATISTICS..

CORRELATION (R)-	.58771	R SQUARED -	.34541	SIGNIFICANCE -	.00001
RR OF EST -	.63809	INTERCEPT (A) -	1.27174	SLOPE (B) -	.08155
ED VALUES -	199	EXCLUDED VALUES-	0	MISSING VALUES -	488

GLOSSARY

Affective - Pertaining to feeling or emotion. *Affective* skills deal with values, attitudes, goals and life style.

Cognitive - Pertaining to learning, coming to knowledge. *Cognitive* skills refer to intellectual abilities in reading, writing, computation, analytical skills, etc. not associated with feeling or emotion.

College level - Refers to courses that are transferable to four-year institutions and meet degree requirements in the area in which they are offered.

Continuing education - Noncredit courses designed primarily for part-time and returning students. Some noncredit courses are self-supported and some are State assisted.

Credit courses - Any course or activity for which a student registers that is offered through the academic divisions of the college.

Developmental education - Courses and activities designed to help persons become more successful students through a focus on both academic skills and personal issues. Developmental education usually involves a team of professionals who assume that students have a broad range of strengths and who help students explore attitudes about themselves and the learning process.

Diagnostic test - An analysis of a student's strengths and weaknesses in an area to suggest causes of difficulties. These tests often are developed by faculty and staff at a college to meet local needs.

Intellectually limited - Retarded intellectual ability.

Low ability - Lacking basic learning skills.

Nationally standardized tests - A measurement of intellectual aptitude normed on a national sample useful in predicting college success. Some tests also measure level of basic skills.

Noncredit courses - Courses offered through the continuing education divisions that do not carry college credit.

Persistence - Ratio of hours a student completes to hours attempted.

Prediction scores - Any student measurement used in predicting college success, such as ACT, SAT and diagnostic test scores and high school grade point averages.

Professional development - Workshops, seminars, and coursework designed to improve the effectiveness of faculty and staff in working with students.

Remedial education - Courses and services designed to remedy deficiencies in preparation for college level work, especially in reading, writing, and mathematics.

Retention - Length of time or number of semesters a student enrolls in college.

Skill assessment test - A measurement of a student's level of skills; diagnostic in nature. Usually does not indicate level of intelligence.

Support services - Auxilliary services offered by a college in support of classroom teaching, such as learning laboratories, tutoring, counseling, and advisement.