

## **The Rate of Participation in Pre-collegiate Basic Skills Courses by Former Cabrillo Graduates (draft)**

Jing Luan  
Office of Institutional Research  
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### **Executive Summaries**

- 1. Up to a quarter of former graduates had to take at least one pre-collegiate basic skills course. The trend seems to be increasing.**
- 2. Of those who took pre-collegiate basic skills courses, 2/3 of them had to take more than one and 1/3 of them had to take at least three pre-collegiate basic skills courses.**
- 3. Graduates who took pre-collegiate basic skills courses had far better course success rates in pre-collegiate basic skills courses compared to students in general, which possibly means that should the college's pre-collegiate basic skills courses success rate increase, the number of graduates will increase as well.**
- 4. There were more female graduates than male graduates compared to the gender ratio of the college in general.**
- 5. More female graduates needed pre-collegiate basic skill Math courses and few needed pre-collegiate basic skills English and ESL courses. It was just the opposite for males.**
- 6. Those graduates originating from Watsonville High had more need for pre-collegiate basic skills courses than other local high schools. Graduates from high schools outside the county needed most of the pre-collegiate basic skills ESL courses.**
- 7. In general, AS degree holders had less need for pre-collegiate basic skills courses compared to AA and Certificate holders.**
- 8. In all years, enrollment in pre-collegiate basic skills Math courses had constantly been twice as high as that in English.**
- 9. Considerably more Asian and Hispanic graduates took pre-collegiate basic skills ESL courses than other graduates. Hispanic graduates seemed to have the highest needs in pre-collegiate basic skills overall.**
- 10. Younger graduates between the ages of 18–20 needed more basic Reading than other age groups. The next age group up (21-25) needed more ESL help than others.**

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## PURPOSE OF THE STUDY

OIR conducted a study of Basic Skills Students' Progress in Research Agenda Year 1996-1997, which examined the rates of students moving from basic Math, English, Reading, and ESL courses to higher level courses in sequence. As a timely and important study, one important question was not answered—that is the number of Cabrillo graduates who had taken some kind of pre-collegiate basic skill courses. The Matriculation Office and OIR worked together to design such a study. During its literature search, only one model from San Joaquin Delta College was found to be a good fit for designing this study.

## METHOD

In this study, a basic skills course is defined as a non-degree applicable, for credit, pre-collegiate basic skills course. The term basic skills or pre-collegiate basic skills may be used interchangeably in this report. The population studied was all the students who received either a degree or a certificate. This study chose to select all students who graduated in the academic years of 1994-1995, 1995-1996, 1996-1997. The selection resulted in a total of 1,941 graduates. The study examined as many factors associated with the patterns of taking basic skills courses as possible.

## FINDINGS

### A Glance at Basic Skills Course Enrollment:

From a total of 13,568 students enrolled in fall 97, 2,949 students took at least one pre-collegiate basic skills course after searching their course records dating back to summer 1992. In a total of four fall semesters, there were a total of 12,075 in the headcount who participated in pre-collegiate basic skills courses among a total of 51,291 students. Therefore, the rate of participating in pre-collegiate basic skills courses for the entire college was assumed to be at 23.5% (Table 1).

Table 1, the participation rate of taking basic skills courses by all students:

	Enrolled	Headcount in PBS	Total Enrolled in PBS	Rate
F94	12,771	2,891	9,542	22.6%
F95	12,146	3,026	10,514	24.9%
F96	12,776	3,060	10,913	24.0%
F97	13,598	3,098	10,451	22.8%
Total:	51,291	12,075	41,420	23.5%

For those who graduated in 1996-1997, the participation rate in basic skills courses was 23.1% (Table 2). For the 1,941 Cabrillo graduates in this study, a total of 356 graduates took at least one pre-collegiate basic skills course, which translated into a rate of 18.3%. This is slightly lower than that of the college in general. However, Table 2 showed that the rate of taking basic skills courses had been growing between 4 and 5 percentage points every year.

For those who graduated in 1996-1997, almost a quarter of them took basic skills courses. In other words, if the trend holds, one in every four graduates will have to take at least one pre-collegiate basic skills course before starting collegiate level course work, which is counted toward graduation credits.

Table 2, the participation rate of taking basic skills courses by former graduates.

Acad. Years	Total Graduates	Headcount in PBS	Percent	Change from Previous Year
94-95	632	86	13.6%	—
95-96	645	116	17.9%	4.3%
96-97	664	154	23.1%	5.2%

Total 1,941 356 18.3% —

Further study was needed to understand why more and more graduates were taking basic skills courses.

The areas for inquiry included:

1. what kind of basic skills courses did former graduates take?
2. who were the ones that took the courses?
3. the success and retention rates for these courses?

From the Chart below, the study found that graduates had very high retention and success rates in basic skill courses. Almost nine out of every ten graduates were retained and at least eight of them were successful. This became even more striking when their rates were compared to the rates of the overall college's success and retention rate in basic skills courses (Table 3).

Table 3, Pre-collegiate Basic Skills Courses' Success and Retention Rates of Former Graduates and Students in General:

	Success			Retention		
	Graduates	College	Difference	Graduates	College	Difference
English	92%	53%	<b>+39%</b>	92%	66%	<b>+26%</b>
ESL	93%	73%	<b>+20%</b>	93%	79%	<b>+14%</b>
Math	84%	52%	<b>+32%</b>	92%	82%	<b>+10%</b>
Reading	75%	47%	<b>+28%</b>	86%	88%	<b>-2%</b>
Other	88%	n/a	n/a	91%	n/a	<b>n/a</b>

Note: data for graduates collapsed all basic skills courses taken by graduates, and data for college in general collapsed all basic skills courses taken by all students from Spring 1995 to Fall 1996.

It is true that in order to graduate, students had to be either well prepared or highly motivated. This helps to emphasize the importance of being well prepared in these courses. The data indicated a significant level of preparedness by the former graduates in English, Math, and Reading, compared to that of the students in general. Is it reasonable to assume that if more students are better prepared through their pre-collegiate basic skills courses, then more students will graduate, therefore, more will transfer and more will contribute to the economy?

What boosted the participation rate in pre-collegiate skills courses?

Chart Two above shows that ESL courses experienced a significant boost, at least rate-wise, in enrollment for those who graduated in 1996-1997. It was a 10-fold increase from the year before. The second increase that is noteworthy happened to Reading, which had a 3-fold increase compared to the year before. All other courses had double digit increases as well.

The following table (Table 4, which complements Chart 2) shows the change in basic skills courses enrollment among graduates as well. The percentages in this table demonstrate the distribution of the courses across all five categories. All categories experienced growth, but the growth rate was different for each category. Proportionally speaking, more 1996-97 graduates took ESL and Reading courses than Math and English courses.

In all years, enrollment in Math had constantly been twice as high as that in English.

Table 4, Distribution of Basic Skills Courses Taken by Graduates by Year

	1994-95		1995-96-		1996-97	
English	31	13%	36	12%	64	12%
ESL	7	3%	6	2%	69	13%
Math	78	33%	105	36%	134	25%
Reading	26	11%	24	8%	67	13%

All Other	95	40%	122	42%	199	37%
Total:	237		293		533	

Who contributed to the increase in ESL and Reading enrollment?

The following table showed that AA awards increased from 286 to 329 from 1995-96 to 1996-97, while AS awards decreased from 257 to 226 from 1995-96 to 1996-97. Did AA degree holders tend to enroll more in ESL and Reading courses than AS degree holders?

Table 5, Change in Degree and Certificate Awards by Type by Year.

	1994-95	1995-96	1996-97
AA.	272	286	329
AS	219	257	226
CERTIFICATE	141	102	109
Total	632	645	664

Table 6, Duplicated count of enrollment by pre-collegiate basic skills areas by degree award types:

	English		ESL		MATH		READING		OTHER		Total	
	#	%	#	%	#	%	#	%	#	%	#	%
AA	37	28%	34	41%	129	41%	48	41%	207	50%	455	43%
AS	35	27%	27	33%	67	21%	30	26%	93	22%	252	24%
Certificates	59	45%	21	26%	121	38%	39	33%	116	28%	356	33%
Total	131		82		317		117		416		1063	

According to Table 6 and Chart 3 from the previous page, AA degree holders had the highest need for basic skills courses of any kind, except for English. AA Degree holders took fewer classes in basic English (28%), but they had the highest need in ESL (41%). Certificate holders had the least need in ESL (26%), but highest in English (45%). Both AA and Certificate holders had a considerably high need in Math (79%), compared to AS holders. AS holders had a slightly higher need for ESL (33%) among all the basic skills needs they had. Both AS and Certificate holders had far fewer need in other basic skills services, compared to AA holders (50%). Across the board, AS degree holders took the least number of basic skills courses (24%). Is this re-enforcing the notion that science majors are better prepared? Can it be translated into the need for more academic support for AA and Certificate degree oriented students?

Table 7, Two Ways of Counting Former Graduates' Participation in Basic Skills Courses by Their High School Origin:

	Duplicated Counts by High School Origin							Unduplicated Counts by High School Origin	
	English	ESL	MATH	Reading	Other	Total			
Aptos High	7		13	5	15	40	3.8%	16	4.7%
Harbor Hign	2		3		13	18	1.7%	8	2.3%
Loma Prieta			2	1	6	9	0.8%	2	0.6%
Renaissance			4			4	0.4%	1	0.3%
Santa Cruz	8	3	25	12	42	90	8.5%	33	9.7%
SLV High	1		13	3	17	34	3.2%	15	4.4%
Soquel H	1		33	5	22	61	5.7%	24	7.0%
Watsonville	18		30	14	45	107	10.1%	29	8.5%
OUTSIDE	94	79	194	77	256	700	65.9%	213	62.5%
TOTAL	131	82	317	117	416	1063		341	

Keep in mind, these are two different ways of counting: headcount and enrollment counts. Enrollment counts are always duplicated, as opposed to unduplicated headcount. Both are effective measures, and they sometimes are used together to validate the findings.

According to Table 7 above, enrollment counts showed the proportion of pre-collegiate basic skills courses taken when examined by high school origin. Graduates originated from Watsonville High School stood out. Watsonville high school students needed most basic skills courses, in almost all categories. By relating to the unduplicated headcount of high school origin, Watsonville contributed 8.5% of the students, but had a need of 10.1% for basic skills, while most other high school students had the reverse percentage distribution. Students from high schools outside the county had almost all the need in ESL. Interestingly, more than half of the graduates (62.5%) came from high schools outside the county.

Table 8, Two Ways of Counting Former Graduates' Participation in Basic Skills Courses by Gender:

	English		ESL		MATH		Reading		Other		Total		Unduplicated Counts	
	Count	Col %	Count	Col %	Count	Col %	Count	Col %	Count	Col %	Count	Col %	Count	Col %
Unknown	5	3.8%	5	6.1%	1	.3%	9	2.6	3	2.6%	4	1.0%	9	2.6
F	90	68.7%	45	54.9%	255	80.4%	245	71.8	85	72.6%	309	74.3%	245	71.8
M	36	27.5%	32	39.0%	61	19.2%	87	25.5	29	24.8%	103	24.8%	87	25.5
Total:	131		82		317		341		117		416		341	100.0

According to Table 8, there were considerably more females (71.8%) than males who received degrees and certificates compared to the gender ratio of the college in general (58.0% females). They were taking a lot of basic Math classes (80.4%). They least needed English (27.5%). For males, they needed less basic Math (19.2%), but considerably more help in ESL (39.0%). It was clear that females were better with language skills and less prepared with Math skills, just the opposite of males.

Table 9, Two Ways of Counting Former Graduates' Participation in Basic Skills Courses by Ethnicity:

	English		ESL		MATH		Reading		Other		Total		Unduplicated Counts	
	Count	Col %	Count	Col %	Count	Col %	Count	Col %	Count	Col %	Count	Col %	Count	Col %
AA					6	1.9%	3	2.6%	4	1.0%	13	1.2%	6	1.8
AI	2	1.5%			6	1.9%	2	1.7%	19	4.6%	29	2.7%	6	1.8
ASIAN	27	20.6%	37	45.1%	19	6.0%	23	19.7%	16	3.8%	122	11.5%	37	10.9
HISPANIC	63	48.1%	37	45.1%	90	28.4%	48	41.0%	123	29.6%	361	34.0%	84	24.6
OTHER					2	.6%	2	1.7%	3	.7%	7	.7%	2	.6
UNKNOWN	5	3.8%	5	6.1%	1	.3%	3	2.6%	4	1.0%	18	1.7%	9	2.6
WHITE	34	26.0%	3	3.7%	193	60.9%	36	30.8%	247	59.4%	513	48.3%	197	57.8
TOTAL	131	100.0%	82	100.0%	317	100.0%	341	100.0%	117	100.0%	416	100.0%	341	100.0
1063	100.0%		341							100.0				

According to Table 9, considerably more Asian (45.1%) and Hispanic (45.1%) graduates took pre-collegiate basic skill ESL courses than other graduates. Hispanic graduates had the highest needs in English (48.1%) and Reading (41.0%) as well as compared to the distribution of Hispanic headcount in the far right column.

Table 10, Two Ways of Counting Former Graduates' Participation in Basic Skills Courses by Age:

	English		ESL		MATH		Reading		Other		Total		Unduplicated Counts	
	Count	Col %	Count	Col %	Count	Col %	Count	Col %	Count	Col %	Count	Col %	Count	Col %
14-17	2	1.5%			8	2.5%			1	.2%	11	1.0%	4	1.2
18-20	24	18.3%	10	12.2%	45	14.2%	30	25.6%	39	9.4%	148	13.9%	51	15.0
21-25	31	23.7%	31	37.8%	44	13.9%	31	26.5%	88	21.2%	225	21.2%	89	26.1

26-30	17	13.0%	7	8.5%	38	12.0%	17	14.5%	67	16.1%	146	13.7%	40	11.7
31-40	34	26.0%	12	14.6%	86	27.1%	19	16.2%	118	28.4%	269	25.3%	76	22.3
41-50	16	12.2%	14	17.1%	79	24.9%	16	13.7%	77	18.5%	202	19.0%	59	17.3
51-60	2	1.5%	3	3.7%	16	5.0%	1	.9%	13	3.1%	35	3.3%	12	3.5
61+	5	3.8%	5	6.1%	1	.3%	3	2.6%	13	3.1%	27	2.5%	10	2.9
TOTAL	131	100.0%		82	100.0%		317	100.0%		117	100.0%		416	100.0%
	1063	100.0%	341							100.0				

Table 10 shows that younger graduates between the ages of 18–20 needed more basic Reading courses (25.6%) than other age groups. The needs became less as age went up. The age group above 20 needed more help in ESL (37.8%), and the needs dropped as age went up. There were slightly more older students who needed basic English (26.0%). The unduplicated counts of graduates' age revealed that fewer graduates between the ages of 26 and 31 had needs in basic skills.

### NUMBER ENROLLED IN MORE THAN ONE BASIC SKILLS COURSE

According to Table 11, close to 2/3 of the graduates (64.5%) took more than one pre-collegiate basic skills course during their study at Cabrillo. A third (37.8%) took more than two pre-collegiate basic skills courses. This means that at least half of the graduates started out college with two or possibly three weak areas in basic skills. Assume that the average units needed for graduation is 60, up to 1/6 of their study had to do with preparing themselves before they were ready for graduation study.

Table 11, Percentage Distribution of the Frequency of Enrollment in Pre-collegiate Basic Skills Courses by Graduates:

	Frequency	Percent
1	121	35.5
2	91	26.7
3	36	10.6
4	31	9.1
5	18	5.3
6	9	2.6
7	6	1.8
8	4	1.2
9	9	2.6
10	5	1.5
11	2	.6
12	3	.9
14	1	.3
16	1	.3
17	1	.3
24	2	.6
26	1	.3
Total	341	100.0

For further information, please contact OIR at 831/479-5719.

### Attachment I

#### Detailed Data on Basic Skills Enrollment by Year.

	94-95		95-96		96-97		
CG201			1	.3%	1		.2%
CG205	11	4.6%	18	6.1%	33		6.2%
CG205L	22	9.3%	25	8.5%	45		8.4%
DS280W			4	1.4%	5		.9%

DS282					4						.8%
DS282L					4						.8%
DS284	3	1.3%	2	.7%	9						1.7%
DS284L	2	.8%	11	3.8%	16						3.0%
DS285			1	.3%	1						.2%
ENGL250	10	4.2%	18	6.1%	29						5.4%
ENGL251	7	3.0%	1	.3%	6						1.1%
ENGL255	14	5.9%	17	5.8%	29						5.4%
ESL200					3						.6%
ESL250B					1						.2%
ESL253A			1	.3%	4						.8%
ESL253B					5						.9%
ESL253C	3	1.3%	1	.3%	15						2.8%
ESL270L	3	1.3%	4	1.4%	34						6.4%
ESL270P	1	.4%			5						.9%
ESL271L					2						.4%
LS254	27	11.4%	25	8.5%	47						8.8%
LS255	20	8.4%	24	8.2%	13						2.4%
LS264	5	2.1%	5	1.7%	5						.9%
LS265	4	1.7%	2	.7%	4						.8%
LS281	1	.4%	3	1.0%	3						.6%
MATH255	24	10.1%	34	11.6%	40						7.5%
MATH255S	10	4.2%	10	3.4%	13						2.4%
MATH256	32	13.5%	45	15.4%	63						11.8%
MATH256S	12	5.1%	16	5.5%	18						3.4%
READ205	5	2.1%	7	2.4%	11						2.1%
READ206	6	2.5%	2	.7%	12						2.3%
READ206S	1	.4%	1	.3%	6						1.1%
READ210A	6	2.5%	3	1.0%	10						1.9%
READ210B	2	.8%	5	1.7%	13						2.4%
READ255	6	2.5%	6	2.0%	15						2.8%
SPCOM200			1	.3%	9						1.7%
Total:	237		293		533						

## Attachment II

### Grades Distribution by Courses

CRS_TITL	A		B		CR		IF		NC		W		Row %
	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %	
CG201					1	100.0%							
CG205					56	93.30%					4		6.7%
CG205L					76	87.40%					11		12.6%
DS280W					5	62.50%					3		37.5%
DS282					3	100.0%							
DS282L					3	75.0%	1	25.0%					
DS284	6	54.50%	1	9.10%	4	36.40%							
DS284L	8	28.60%	1	3.60%	17	60.70%					2		7.1%
DS285					2	100.0%							
ENGL250					44	83.0%	1	1.90%			8		15.1%
ENGL251					13	100.0%							
ENGL255	4	6.90%	2	3.40%	47	81.0%	1	1.70%			2		3.4%
ESL200	2	100.0%											
ESL253A	2	50.0%	2	50.0%									
ESL253B	2	50.0%	2	50.0%									
ESL253C	14	82.40%	1	5.90%	2	11.80%							

ESL270L				28	75.70%4	10.80%		5		13.5%	
ESL270P				6	100.0%						
ESL271L				2	100.0%						
LS254				77	77.80%18	18.20%3	3.0%	1		1.0%	
LS255				31	58.50%5	9.40%6	11.30%	11		20.8%	
LS264	7	70.0%	1	10.0%				2		20.0%	
LS265				5	100.0%						
LS281	3	42.90%4	57.10%								
MATH255				74	80.40%	2	2.20%	9	9.80%	7	7.6%
MATH255S				30	93.80%	1	3.10%			1	3.1%
MATH256				100	77.50%	7	5.40%	12	9.30%	10	7.8%
MATH256S				37	86.0%		2	4.70%	4		9.3%
READ205				18	90.0%				2		10.0%
READ206				11	78.60%			1	7.10%	2	14.3%
READ206S				3	37.50%			3	37.50%	2	25.0%
READ210A				8	53.30%	1	6.70%	1	6.70%	5	33.3%
READ210B				10	52.60%			6	31.60%	3	15.8%
READ255				26	100.0%						
SPCOM200	7	77.80%	2	22.20%							

Analysis  
Recommendations  
Data selection procedures

Purpose  
To Identify a group of Graduates

Program Used/Procedures

File Names

DW: progawrd:  
970, 960, 950  
all awards, plus program id,  
Awrdr3yr.dbf

N= 1941

To compare college bs rates and graduate bs rate  
unduplicated count (include grades and course names)

DW: enroll: fall 97

DW: enroll :: course with crscredit=C, bskstatu=P (include grades and course names). This is all pre-c ever taken by those who were enrolled in F97.

DW: pbskill :: undup977 to get those who enrolled in 977 and ever took a pre-c basic skill course. If grouping ssn, n = 2,949. Undup977.dbf

n = 13,568

pbskill.dbf

n=

f97pbskl.dbf

n=9,428

To Extract Info. Of the BS Courses Taken

DW: awrdr3yr.dbf :: enroll :: course

Enroll: course title, grades

Course: crscredit=C, bskstatu=P

SPSS: trim coursetitle to dept and code dept to four basic skills areas

SPSS: awd&bsk1 — aggregate by ssn

Awd&bskl.dbf

N=1063

(duplicated)

Aggr.sav

N=341

Aggrterm.sav  
N=356

To Compare to the General S&R rates of the college Foxpro: DW: extracted  
grades from 967,963,957, and 953 of A, B, C, CR, D, F, NC, and W. The courses are:  
ENGL255,ENGL251,ENSL250,READ255,READ206,MATH255,MATH256,ESL253,ESL270,ESL250,READ210  
All\_bskl.dbf

N=4,720

Demographic analysis DW: to pull out  
unduplicated ssns with ed\_stat and high school codes. Awd\_bskl.dbf used to match against edst\_tmp.dbf to  
create file "awddemog.dbf".

Foxpro used to match "awddemog.dbf" to "stds\_sra.dbf" to pull in sex, gender, race info. File saved as  
"awddemog2.dbf".

Upgraded program to SPSS8.0 and found out that sps files generated by 6.1 will have to be dumped in Word as  
unformatted text and delete all useless characters and dump into a syntax file in 8.0 and save it. The saved 8.0  
sps files are the same except at the end of the file name I added the digit "8".

Still need to compile a similar file that has all award holders in file "awrd3yr.dbf" who did not take pbs courses.

Edst\_tmp.dbf

N=61xxx

Awddemog2.dbf

N=1063

To Extract Info. On their time-to-degree

Run some figures for Fall 96, such as total enrollment vs. bs enrollment

shortage)

Foxtemp2.dbf

DW: pull out 967 enroll.dbf and 967 course.dbf separately (due to computer memory

Foxtemp1.dbf

To calculate the bs enroll rate of students enrolled in a semester and all bs courses they ever took DW:  
pulled out every pbs course taken by students by term-id. File saved: pbs\_all.dbf.

DW: compared to pbs\_all file with ssn from enroll with term-id filtered by individual term. Files were created to  
contain duplicated counts of all pbs courses taken by students enrolled in point of time in a given semester.  
Such as pbs\_f74.dbf. FoxPro used to undup each semester file to get Headcounts in PBS.

Pbs\_all.dbf

N = 23,593

Pbs\_fxx.dbf