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ABSTRACT

When a discipline enters the lock-out mode in the San Jose/Evergreen Community College District, the computer prevents a student from registering in any course in that discipline unless he/she has completed all prerequisites for that course. To determine how this registration process affected enrollments, average daily attendance (ADA) figures were calculated for seven disciplines for the semesters before and after the disciplines entered the lock-out mode. The disciplines were Art, Computer Technology, Electronics, English, English as a Second Language (ESL), Laser, and Math. Study findings included the following: (1) Art ADA increased by 29.63% between fall 1986 and 1987; (2) Computer Technology, Laser, and Electronics entered the lock-out mode during a long-term decline in the local electronics industry, which may have been a contributing factor to the more than 25% declines in ADA in Computer Technology and Laser following lock-out; (3) during the first semester of lock-out, English experienced a decline of 7.62, paralleling the District's overall 7.91% ADA decline; (4) English and ESL recovered their drop in ADA during the second semester of lock out; (5) ESL decreased 15.32% from spring 1986 to spring 1987, during a complete revision of the ESL program in which class size was reduced and the number of units reduced for some courses; and (6) Math increased 6% in ADA from fall 1986 to fall 1987. The study suggested that it was possible to enforce prerequisites without major and permanent decline in ADA. Much of the data is presented in chart and graph form.  
 (AJL)

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THE IMPACT ON ADA ASSOCIATED  
WITH ENTERING THE LOCK-OUT MODE OF  
A COMPUTERIZED PREREQUISITE CHECKING SYSTEM

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Institutional Research Report #72

November 18, 1988

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Abstract

THE IMPACT ON ADA ASSOCIATED WITH ENTERING THE LOCK-OUT  
MODE OF A COMPUTERIZED PREREQUISITE CHECKING SYSTEM

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November 18, 1988

When a discipline enters a lock-out mode in the SJ/ECCD, the computer prevents registration in the classes of that discipline unless the computer can verify that the student has a prerequisite or the student sees a counselor and has prerequisites verified through information not available to the computer.

The ADA for the following seven disciplines was gathered for each semester before and after entering a lock-out mode: ART, COMPUTER TECHNOLOGY, ELECTRONICS, ENGLISH, ESL, LASER, and MATH.

The percentage change for the first and second semester in the lock-out mode was calculated in relationship to the like semesters (FALL to FALL) one year previous.

Discipline	DISCIPLINE ADA		DISTRICT ADA
	% Change in 1st Sem. of LO from 1 Yr. Previous	% Change in 2nd Sem. of LO from 1 Yr. Previous	% Change in 1st Sem. of LO from 1 Yr. Previous
ART	29.63	N/A	7.34
COMPUTER TECH	-27.33	N/A	7.34
ELECTRONICS	7.14	N/A	7.34
ENGLISH	-7.62	6.72	-7.91
ESL	-15.32	1.92	7.43
LASER	-25.83	N/A	7.34
MATH	6.00	N/A	7.34

ART increased in WSCH 29.63 from Fall '86-'87. The lock-out mode did not seem to hinder ART from a large increase in ADA. It should be noted that Art has many courses without prerequisites.

COMPUTER TECHNOLOGY, LASER, AND ELECTRONICS entered the lock-out mode together during the midst of a long term decline in the electronics industry in Silicon Valley. ADA before and after lock-out changed -27.33, -25.83, and 7.14, respectively. Having carefully enforced prerequisites even before the lock-out, it would appear that the long term decline associated with economic conditions was more of an influence than entering the lock-out mode.

The 7.14 increase in ELECTRONICS associated with entry into a lock-out mode was a temporary increase in ADA in the midst of a long term decline.

ENGLISH in the first semester of lock-out was down 7.62 from Fall '85-'86, paralleling a like decline in District ADA of 7.91. In the second semester of lock out, Spring '87, English was up 6.72% over Spring '86. These second semester increases were in spite of reductions in class size.

ESL decreased 15.32% from Spring '86-'87, but recovered with an increase of 1.92% during the second semester of the lock-out, from Fall '86-'87. This was in the midst of a time when the ESL program was completely revised, class size reduced in ESL 1A and 92, and the number of units reduced in some courses.

MATH increased 6% in ADA from Fall '86-'87, with District ADA going up 7.34%. The lock-out mode had little apparent impact on math.

**SUMMARY COMMENT:** Three disciplines increased ADA during the first semester of lock out, four went down. The two disciplines for which data was available went down the first semester and recovered the second. Economic conditions in three disciplines and severe program changes and class size reductions in another, along with entering a lock-out mode, were associated with declines. Our District has been above its ADA cap each year since the lock out was introduced. It appears at this point that it is possible to enforce prerequisites without major/permanent decline in ADA. A three-year phase in of the lock-out mode along with careful monitoring of the potential impact on programs and strong recruiting efforts by the District have all helped mitigate the impact of the lock-out mode on overall ADA.

THE IMPACT ON ADA ASSOCIATED  
WITH ENTERING THE LOCK-OUT MODE  
OF A COMPUTERIZED PREREQUISITE CHECKING SYSTEM

By Jon Alan Kangas, Ph.D.  
District Dean of Academic Standards

I. Background

When a discipline enters a lock-out mode in the San Jose/Evergreen Community College District, the computer prevents registration in the classes of that discipline unless it can find the prerequisite for the particular class. Disciplines were phased into the lock-out mode over three year, beginning Fall 1986.

This report indicates the actual ADA associated with the implementation of a lock-out mode for the first seven disciplines entering a lock-out mode from Fall '86 - Fall '87:

Art  
Computer Technology (CT)  
Electronics (Elect)  
English (Engl)  
English as a Second Language (ESL)  
Laser  
Math

II. Method

- A. The actual ADA generated for each discipline that has entered a lock-out mode was listed for each semester from Fall 1984 through the present. This was done for each college, the discipline as a whole, and the District total ADA. The District total ADA was divided by 10, 50 or 100 to provide numbers nearer those of the disciplines in order to make graphing easier.

The first semester that a course entered a lock-out mode was noted, as was the second and subsequent semesters.

- B. The percent increase for the discipline was noted for the first semester of lock out, compared to the semester one year previous, i.e., Fall semesters were compared to the previous Fall semesters and Spring semesters to Spring semesters.
- C. The data for A and B, above, were put into tables and graphs to show the percent impact in ADA after entering a lock-out mode.
- D. Comments follow indicating the meaning of the results and indicating other variables that may have interacted with the implementation of the lock-out mode. For example, reductions of class size in English and ESL happened at the same time that the lock-out mode began in these disciplines.

ART

ADA Before and After Lock Out

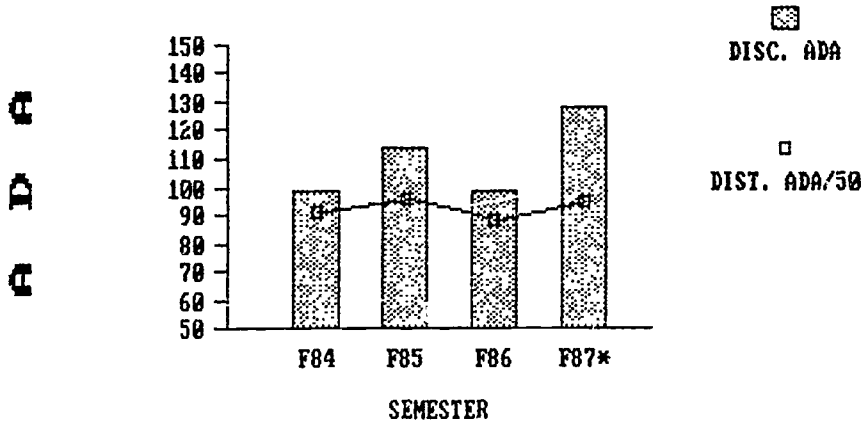
	F84	S85	F85	S86	F86	S87 :	F87*
EVC	44.21	42.56	37.91	42.24	40.35	48.56 :	42.61
SJCC	54.52	94.19	75.66	88.90	58.02	97.47 :	84.92
TOTAL	98.73	136.75	113.57	131.14	98.37	146.03 :	127.53
DIST/10	456.63	493.36	478.22	490.23	440.40	526.66 :	472.74

\* First semester in Lock-out mode

Percent Change in ADA Before and After Lock Out

	FALL 86-87*
EVC	5.59
SJCC	46.36
TOTAL	29.63
DIST	7.34

ART ADA BY FALL SEM



COMMENTS

- From Fall 1986 to Fall 1987, Art ADA increased 29.63% while District ADA increased 7.34%. When Fall 1987 is compared to Fall 1985, two semesters prior to lock out, there was a 12.29% increase in Art ADA compared to a District decline of 1.15.
- Summary Comment: Entering the lock-out mode did not prevent Art from increasing its ADA 29.63%, well beyond the 7.34 increase in District ADA.

C T

**ADA Before and After Lock Out**

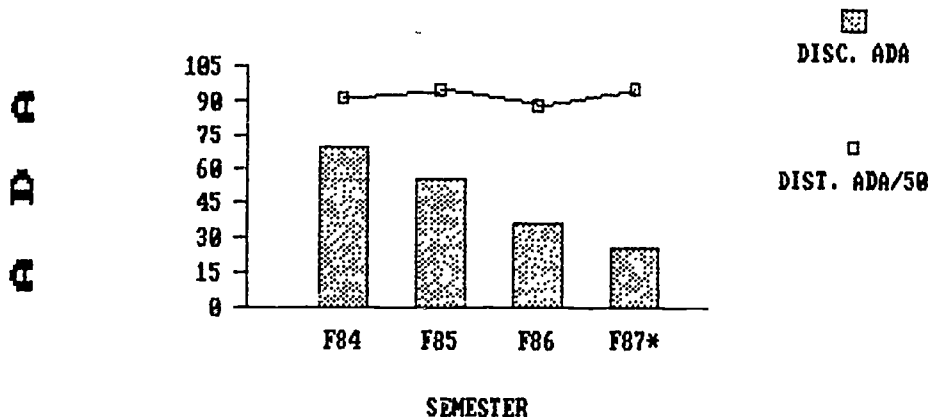
	F84	S85	F85	S86	F86	S87 :	F87*
EVC	7.78	17.06	11.90	11.91	5.41	6.48 :	2.28
SJCC	61.29	55.09	43.84	46.28	29.90	41.89 :	23.38
TOTAL	69.07	72.15	55.74	58.19	35.31	48.37 :	25.66
DIST/10	456.63	493.36	478.22	490.23	440.40	526.66 :	472.74

\* First semester in Lock-out mode

**Percent Change in ADA Before and After Lock Out**

	FALL 86-87*
EVC	-57.90
SJCC	-21.80
TOTAL	-27.33
DIST	7.34

**C T ADA BY FALL SEM**



**COMMENTS**

1. From Fall 1986 to Fall 1987, C T ADA decreased 27.33% while District ADA increased 7.34%. When Fall 1987 is compared to Fall 1985, two semesters prior to lock out, there was a 53.97% decrease in C T ADA.
2. The pattern of decline in C T ADA has continued since Fall 1984. The entry into a lock-out mode in Fall 1987 did not increase the rate of decline.
3. C T, like Laser and Electronics, has been strictly enforcing their prerequisites for several semesters before the lock-out mode so that a great impact was not expected due to lock out. The general slump in the electronics industry has had a major impact on C T, Laser, and Electronics.

**Summary Comment:** Although difficult to determine, it appears that the lock-out mode may have had little effect on C T, especially compared to the major impact of the economic conditions of the electronics industry.

## ELECT

### ADA Before and After Lock Out

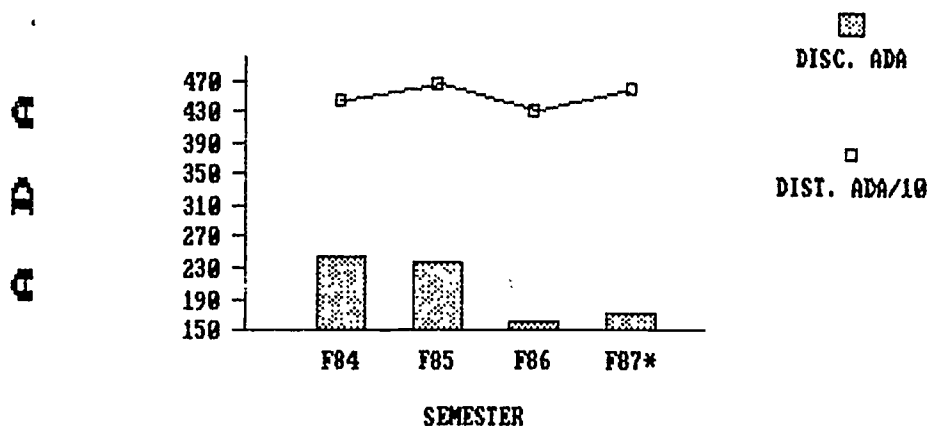
	F84	S85	F85	S86	F86	S87 :	F87*
EVC	44.20	55.55	46.73	34.06	21.95	31.09 :	20.63
SJCC	199.79	174.88	189.35	160.69	137.83	183.16 :	150.56
TOTAL	243.99	230.43	236.08	194.75	159.78	214.25 :	171.19
DIST/10	456.63	493.36	478.22	490.23	440.40	526.66 :	472.74

\* First semester in Lock-out mode

### Percent Change in ADA Before and After Lock Out

	FALL 86-87*
EVC	-5.99
SJCC	9.24
TOTAL	7.14
DIST	7.34

### ELECT ADA BY FALL SEM



#### COMMENTS

1. From Fall 1986 to Fall 1987, Electronics ADA increased 7.14% while District ADA increased 7.34%. When Fall 1987 is compared to Fall 1985, there was a 27.48% decline in Electronics ADA.
2. Although Electronics ADA increased slightly from Fall 1986 to 1987, there has been a long term decline in Electronics ADA associated with a general slump in the electronics industry.
3. Summary Comment: Electronics has been monitoring its prerequisites strictly for several semesters and the lock-out mode was not expected to have had a great impact on Electronics. The fact that ADA went up slightly with the introduction of the lock-out mode and in conjunction with a general downward trend suggests that the lock-out mode may not have had a significant impact on Electronics.

**ENGLISH**

**ADA Before and After Lock Out**

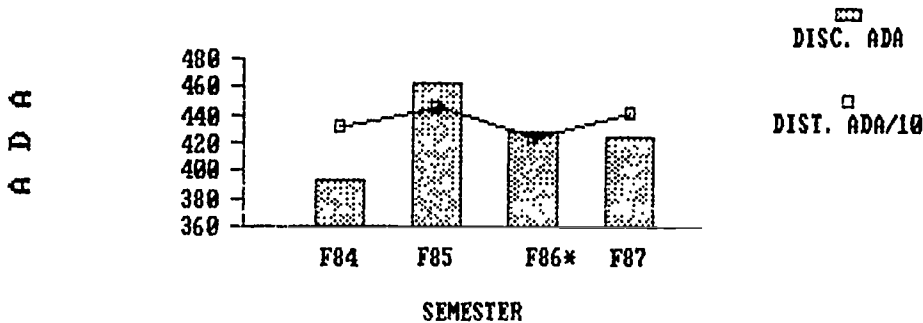
	F84	S85	F85	S86 :	F86*	S87**	F87***
EVC	208.36	203.76	242.84	213.76 :	228.56	226.88	235.17
SJCC	183.95	163.21	219.31	178.20 :	198.39	191.41	188.92
TOTAL	392.31	366.97	462.15	391.96 :	426.95	418.29	424.09
DIST/10	456.63	493.36	478.22	490.23 :	440.40	526.66	472.74

\* First semester in Lock-out mode  
 \*\* Second semester in Lock-out mode  
 \*\*\* Third semester in Lock-out mode

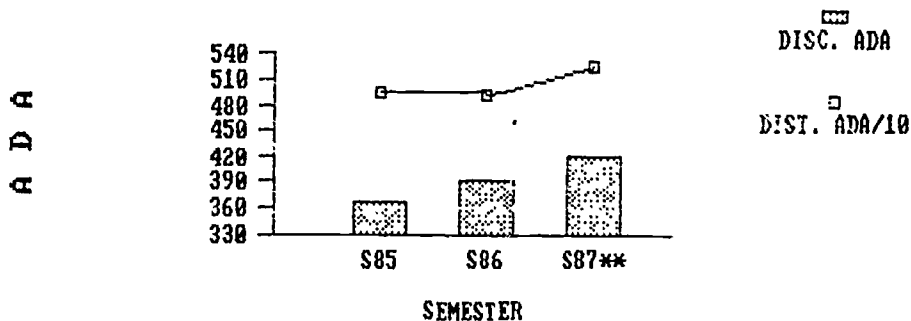
**Percent Change in ADA Before and After Lock Out**

	FALL 85-86*	SP 86-87**	FALL 85-87***
EVC	-5.88	6.14	10.02
SJCC	-9.54	7.42	6.02
TOTAL	-7.62	6.72	1.15
DIST	-7.91	7.43	-3.57

**ENGL ADA BY FALL SEM**



**ENGLISH ADA BY SPRING SEM**



**COMMENTS**

- From Fall 1985 to Fall 1986, English ADA dropped 7.62% while District ADA dropped 7.91%. If the District decline is subtracted from the discipline decline, the first semester summary impact was +.69% for English.
- From Spring 1986 to Spring 1987, English ADA increased 6.72% while District ADA increased 7.43%. For the second semester the summary impact was -.71%.
- From Fall 1985 to Fall 1987, English ADA increased 1.15% while the District ADA decreased 3.57%.
- The seatcount for English 92 and 1A changed from 40 to 35 in Spring 1987.
- Summary Comment: Despite entering the lock-out mode and reducing seatcounts in some English courses, the ADA in English recovered from an initial 7.62 decrease in ADA and was up in the following two semesters, 6.72% and 1.15%.



# ESL

## ADA Before and After Lock Out

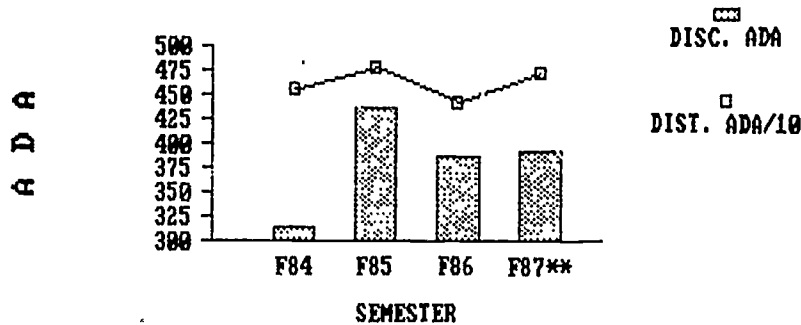
	F84	S85	F85	S86	F86	S87*	F87**
EVC	79.64	97.52	176.57	185.72	170.72	160.34	159.49
SJCC	234.41	273.46	259.74	265.66	214.65	221.89	233.29
TOTAL	314.05	370.98	436.31	451.38	385.37	382.23	392.78
DIST/10	456.63	493.36	478.22	490.23	440.40	526.66	472.74

\* First semester in Lock-out mode  
 \*\* Second semester in Lock-out mode

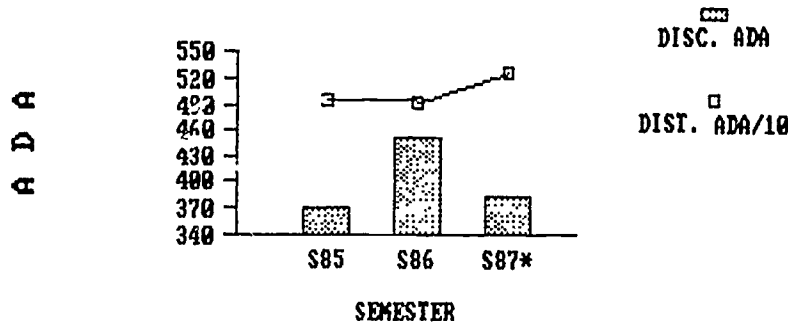
## Percent Change in ADA Before and After Lock Out

	Spring 86-87*	Fall 86-87**
EVC	-13.67	-6.58
SJCC	-16.48	8.69
TOTAL	-15.32	1.92
DIST	7.43	7.34

ESL ADA BY FALL SEM



ESL ADA BY SPRING SEM



### COMMENTS

1. From Spring 1986 to Spring 1987, ESL ADA decreased 15.32% while district ADA increased 7.43%.
2. From Fall 1986 to Fall 1987, ESL ADA increased 1.92% while district ADA increased 7.34%.
3. When Spring 1987 is compared to Spring 1985, however, there was a 3% increase in ESL ADA. A large increase in ESL enrollment for Spring 1987 makes interpretation of the data difficult.
4. Many variables impacted ESL after Fall 1986, in addition to entering the lock-out mode. The seatcount for ESL 92 and 1A was changed from 40 to 35 in Spring 1987. Unlike ENGLISH, the curriculum was revised on both campuses. Scheduling changes, changes in numbers of ESL applicants, and program management varied differently for both campuses.
5. Summary Comments: Although ESL ADA dropped 15.32 the first semester of lock out, from Spring '86-'87, in combination with the above variables, it was still up 3% from two semesters previous. The second semester of lock out was up 1.92 from Fall '86-'87.

## LASER

### ADA Before and After Lock Out

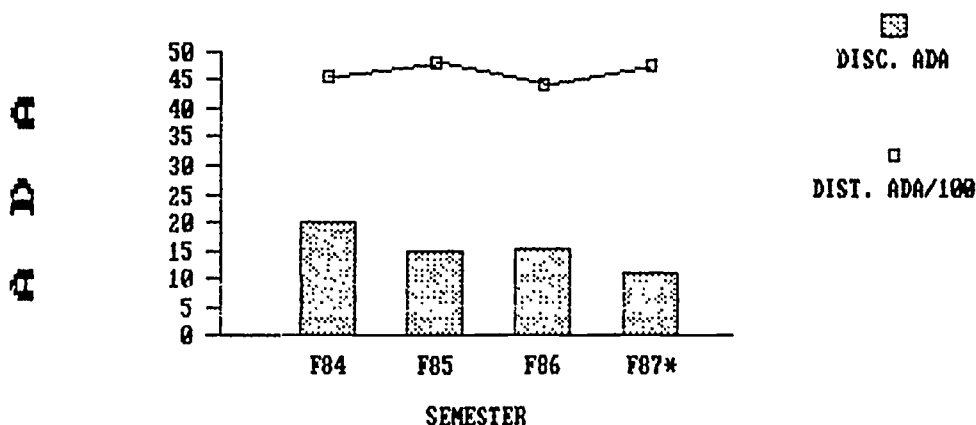
	F84	S85	F85	S86	F86	S87 :	F87*
EVC	0	0	0	0	0	0 :	0
SJCC	19.87	15.27	14.96	13.07	15.17	9.32 :	11.25
TOTAL	19.87	15.27	14.96	13.07	15.17	9.32 :	11.25
DIST/10	456.63	493.36	478.22	490.23	440.40	526.66 :	472.74

\* First semester in Lock-out mode

### Percent Change in ADA Before and After Lock Out

	FALL 86-87*
EVC	0
SJCC	-25.83
TOTAL	-25.83
DIST	7.34

### LASER ADA BY FALL SEM



#### COMMENTS

1. From Fall 1986 to Fall 1987, Laser ADA decreased 25.83% while District ADA increased 7.34%. When Fall 1987 is compared to Fall 1985, two semesters prior to lock out, there was a 24.79% decline in Laser ADA.
2. Summary Comment: Again, the general slump in the electronics industry has had a major impact on Laser ADA over several years. In Fall 1985, e.g., Laser ADA was going down while general enrollment was going up. Variables other than enrollment were operating. Like Computer Technology and Electronics, prerequisites in Laser have been strictly enforced for several semesters so that they were not expecting a major impact when the computer switched to a lock-out mode.

## MATH

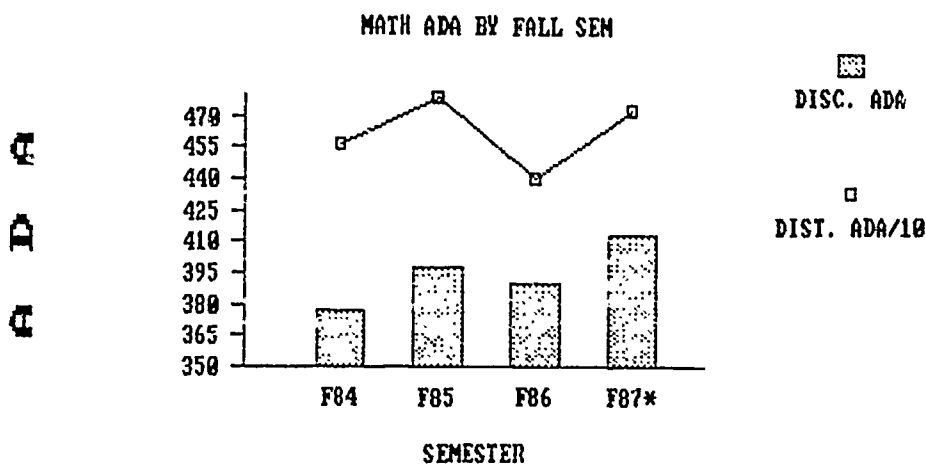
### ADA Before and After Lock Out

	F84	S85	F85	S86	F86	S87 :	F87*
EVC	196.22	189.23	200.07	207.13	199.00	204.95 :	207.99
SJCC	180.85	183.82	197.58	178.43	190.57	197.35 :	204.94
TOTAL	377.07	373.05	397.65	385.56	389.57	402.30 :	412.93
DIST/10	456.63	493.36	478.22	490.23	440.40	526.66 :	472.74

\* First semester in Lock-out mode

### Percent Change in ADA Before and After Lock Out

	FALL 86-87*
EVC	4.52
SJCC	7.54
TOTAL	6.00
DIST	7.34



#### COMMENTS

- From Fall 1986 to Fall 1987, Math ADA increased 6.00% while District ADA increased 7.34%. When Fall 1987 is compared to Fall 1985, two semesters prior to the lock-out mode, there was a 3.84% increase in Math ADA while District ADA went down 1.15%.
- Math is a fairly stable discipline whose ADA has paralleled the general changes in total enrollment in the District. Other variables such as economic conditions in a related industry and curriculum changes have not been present to obscure the impact of entry into a lock-out mode.
- Summary Comment: Math was up in ADA from Fall 1986 to 1987 and from Fall 1985 to Fall 1987. Although it did not quite keep up with the District ADA increase for Fall 1986, it exceeded the change in District ADA from two semesters prior by 3.8% to -1.15%. As an overall statement, the lock-out mode has had little apparent impact on math.

### III. Summary and Comments

ART increased in WSCH 29.63 from Fall '86-'87. The lock-out mode did not seem to hinder ART from a large increase in ADA. It should be noted that Art has many courses without prerequisites.

COMPUTER TECHNOLOGY, LASER, AND ELECTRONICS entered the lock out mode together during the midst of a long term decline in the electronics industry in Silicon Valley. ADA before and after lock out changed -27.33, -25.83, and 7.14, respectively. Having carefully enforced prerequisites even before lock out, it would appear that the long term decline associated with economic conditions was more of an influence than entering the lock-out mode.

The 7.14 increase in ELECTRONICS associated with entry into a lock-out mode was a temporary increase in ADA in the midst of a long term decline.

ENGLISH in the first semester of lock out was down 7.62 from Fall '85-'86, paralleling a like decline in District ADA of 7.91. In the second semester of lock out, Spring '87, English was up 6.72% over Spring '86. These second semester increases were in spite of reductions in class size.

ESL decreased 15.32% from Spring '86-'87, but recovered with an increase of 1.92% during the second semester of the lock out, from Fall '86-'87. This was in the midst of a time when the ESL program was completely revised, class size reduced in ESL 1A and 92, and the number of units reduced in some courses.

MATH increased 6% in ADA from Fall '86-'87, with District ADA going up 7.34%. The lock-out mode had little apparent impact on math.

Summary Comment: Three disciplines increased ADA during the first semester of lock out, four went down. The two disciplines for which data was available went down the first semester and recovered the second. Economic conditions in three disciplines and severe program changes and class size reductions in another, along with entering a lock-out mode, were associated with declines. Our District has been above its ADA cap each year since the lock out was introduced. It appears at this point that it is possible to enforce prerequisites without major/permanent decline in ADA. A three-year phase in of the lock-out mode along with careful monitoring of the potential impact on programs and strong recruiting efforts by the District have all helped mitigate the impact of the lock-out mode on overall ADA.