Career and Technology Education Program Evaluation Report, 2000-2001
Austin Independent School District

Executive Summary

Career and Technology Education describes a system of integrated school-based and work-based learning that integrates academic and occupational learning. Students are trained through a series of organized educational programs. These programs offer a sequence of courses that are designed to prepare students for careers and postsecondary education and training. AISD offers programs in eight career clusters (a group of careers having similar characteristics and common skill requirements) designed around current and emerging occupational trends. Within the career clusters are 29 different pathways. While not all pathways are available on each secondary campus, students may choose to transfer to a different campus in order to pursue a career interest.

School to Career (STC), alternatively Career and Technology Education (CATE), students are grouped according to level of participation in vocational education programs into the following categories:

- **CATE Elective** - indicates a student completed an "incidental" (not part of a coherent sequence) CATE course. CATE Elective students may later increase their involvement in the CATE program, or may terminate their exploration with the single class. Some of these students may not be aware that the course pursued is part of CATE as the course may also fulfill a distribution requirement;
- **CATE Coherent** - reflects student completion of a coherent sequence of course work, which is focused on developing occupational knowledge and skills within a career pathway; and
- **Tech Prep** – reflects completion of a coherent sequence of course work within a pathway that also includes state-approved articulation agreement (college credit) courses.

These categories are coded as CATE code 1 through 3, respectively. An additional CATE code of 0 is used to describe students who are totally uninvolved with the CATE program. Together, all secondary students are represented.

EVALUATION PURPOSES AND METHODS

AISD's CATE program is at a crossroads where the locations, focus, and contents of programs are being reexamined. Within this context of program change, the evaluation seeks to examine who the program has served, how those students have been served, and the degree to which their participation has benefited them in school. The evaluation attempts to address these questions:

- What are the characteristics of students who have participated in CATE programming on each campus? How do program participant characteristics compare with those of students not in the CATE program?

- How well do CATE participants perform in school? To what extent are school attendance, TAAS results, retentions, and credit acquisition related to CATE participation?

To respond to these questions, several evaluation techniques were employed. Each data collection activity is used to inform the specified evaluation issues. Information was collected from many sources and was synthesized to better understand all aspects of the program process.

First, data analyses indicated which students participated in the program, what courses their academic programs contained, and the extent to which the program may have increased school involvement as compared with students outside the program. In particular, student level attendance, TAAS and course credit information are combined with CATE participation coding to consider how the program may contribute to success in school. Questions to teachers and administrators on the Employee Coordinated Survey are used to assess the perceptions these employees have concerning student readiness for post-secondary opportunities and understanding of career options. Pathway enrollment and Individual Academic Career Plan data are used to examine career interests and enrollment trends.

FINDINGS AND RECOMMENDATIONS

(1) The Career and Technology Education program serves about 60% of the high school population in some manner.

- For the most part, CATE students are similar in many ways to all students in AISD high schools. There are some differences, however, particularly when higher levels of CATE participation are examined.
- Students who are coded as CATE Coherent are slightly more likely to be female (50% versus 49% of the students as a whole) and more likely to be Hispanic (46% versus 42%).
- Tech Prep students are much more likely to be male (60% versus 51% of the high school population) and White (66%) than would be representative.
- Economically disadvantaged students are much less likely to participate in CATE than their numbers in the population would suggest. While over 27% of the high school students are classified as economically disadvantaged, only 9% of the Tech Prep students and 23% of the CATE Coherent are so classified.
- Students with limited English skills are also less likely to participate at high levels in CATE programming.

CATE programming availability and participation should reach all segments of the student population. The STC department should develop ways of increasing participation among economically disadvantaged and limited English speaking populations.

(2) There is evidence that participation in CATE is correlated with higher levels of attendance and TAAS performance.

- The greater a student's involvement in CATE, the more likely it is that student passed TAAS if he has attempted it. CATE Coherent students require more opportunities than other groups to take the test before passing all sections.

- Students coded as CATE Coherent have much lower average attendance than any other student group. At the same time, Tech Prep students present the highest average attendance.
- Students at all grade levels who are involved with CATE classes are more likely to gain sufficient credits to move to the next grade level. However, when ninth graders are examined separately, CATE Coherent students are much less likely than any other group to gain sufficient credits to be promoted to tenth grade.

CATE students at all levels achieve higher TAAS passing rates than students without any CATE instruction. Most CATE groups also gain credits towards graduation faster than students without CATE. Increasing CATE participation should continue to be a goal. Some activities that might contribute to that goal include:

- Consistent messages must be provided that all students (not only the non-college bound) need to be concerned about career readiness.
- Materials marketing the program need to offer a clear description of the range of career training available and how all students may benefit from participating.

(3) Problems with and differences between the ways schools code students for CATE make comparisons between groups problematic. It appears that fewer students are being identified as either CATE Coherent or Tech Prep than would be appropriate.
- While 4,073 students took CATE courses for which Tech Prep credit is available, only 357 students were coded as CATE 3 (Tech Prep).
- Of the students identified as Tech Prep, nearly all (85%) come from a single high school.

CATE identification continues to be problematic. The Department of School to Career should ensure that the exact criteria for coding students for school to career are well understood on the campuses. Specifically:

- The person responsible for coding students for school to career should be identified on each campus.
- The criteria for each CATE code should be written up in a clear schematic and campus personnel should be trained in their use.
- A CATE code field defined in SASi should be used by all schools.
- The IACP process needs to more clearly indicate student intent to pursue school to career. Students should select their classes from pull-down menus that make their choices more clear. The IACP should also include a check box that allows the student to describe their intentions.

THE CAREER AND TECHNOLOGY EDUCATION PROGRAM IN AISD, 2000-2001

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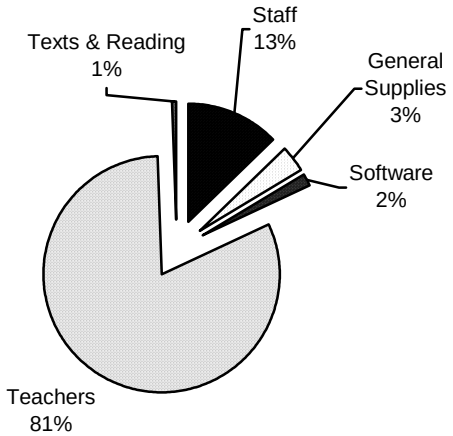
Career and Technology Education describes a system of integrated school-based and work-based learning that integrates academic and occupational learning. Students are trained through a series of organized educational programs. These programs offer a sequence of courses that are designed to prepare students for careers and postsecondary education and training. AISD offers programs in eight career clusters (a group of careers having similar characteristics and common skill requirements) designed around current and emerging occupational trends. Within the career clusters are 29 different pathways. While not all pathways are available on each secondary campus, students may choose to transfer to a different campus in order to pursue a career interest.

FUNDING

The school to career program at AISD is funded from both federal and local sources. The largest is local effort with a total of $1,444,690, representing 67 percent of the funding. Federal funds account for $723,375. Including teacher salaries, AISD budgeted $7,717,540 during 2000-01.

Figure 1: School to Career Departmental Budget, 2000-01



Source: Department of School to Career budget documents

The majority of funds for the Department of School to Career is spent for staffing, primarily for salaries and benefits. Non-teaching staff expenses account for $880,789, representing 13 percent of the total funding. General supplies account for $235,766; software, $114,928; and textbooks and other reading material, $38,540.

PROGRAMS

The AISD school to career program directly serves students in both middle and high schools in a variety of programs. All students in grades 5 – 12 are also indirectly served through the AISD Individual Academic and Career Planning (IACP) process that provides them with career guidance. This section briefly describes the AISD school to career programs.

CAREER GUIDANCE

Career guidance for AISD students is provided in part by school to career funding of a counseling program specialist. This position works with the Integrated Academic and Career Program (IACP) materials and procedures to help ensure that all AISD students in grades 5 -12 benefit from ongoing and supportive career counseling. The IACP provides structured activities that guide students toward setting career and educational goals. The career guidance portion of the STC program has been quite stable over the past few years.

MIDDLE SCHOOL PROGRAMS

Students in AISD middle schools are provided with a range of career exploration and initial career skills programs Five careers courses are offered in every middle school: Career Exploration; Keyboarding; Computer Technology; Life Skills; and Technology Education. In addition, Covington Middle School offers courses in the Agricultural Sciences. In the last few years, AISD has worked systematically, if slowly, to increase the number of technology and life skills laboratories for middle school students.

HIGH SCHOOL PROGRAMS

AISD operates an extensive series of STC programs for high school students. Individual STC classes offered at the high schools are generally organized into pathways. A pathway is a specific set of related courses leading the student to gain moderate to advanced skills in a particular career focus. There are often many courses within a pathway, but a coherent series of three classes is required to complete a pathway. A set of related pathways constitutes a career cluster.

The Texas Education Agency (TEA) recognizes seven career clusters:

- Agricultural Science and Technology Education;
- Business Education;
- Health Science Technology Education;
- Family and Consumer Sciences Education;
- Marketing Education;
- Trade & Industrial Education; and
- Technology/ Industrial Technology Education.

An additional Career Guidance and Counseling cluster is provided for career exploration courses. In 2000-2001, AISD recognized eight career clusters, with the AISD structure differing somewhat from the Texas structure. The AISD program combined several pathways into a Human Services cluster whereas the Texas structure puts these pathways into either Trade & Industrial or Family and Consumer Services Education. Beginning in fall 2001, AISD will be using the organizational structure adopted by the Texas Education Agency. For that reason, AISD offerings are described in Appendix A, using the TEA structure.

School-to-Career (STC) or Career and Technology Education (CATE) students are grouped according to level of participation in vocational education programs into the following categories:

- **CATE Elective** (CATE 1) - indicates a student is enrolled in an "incidental" (not part of a coherent sequence) CATE course. CATE Elective students may

later increase their involvement in the CATE program, or may terminate their exploration with the single class;

- **CATE Coherent** (CATE 2) - reflects student enrollment in a coherent sequence of course work, which is focused on developing occupational knowledge and skills within a career pathway; and
- **Tech Prep** (CATE 3) – reflects enrollment in a coherent sequence of course work within a pathway that also includes state-approved articulation agreement (college credit) courses.
- **Non-CATE** (CATE 0) – indicates a student who has not taken any courses offered within the CATE program.

When students file an educational plan with their schools, the courses on the plan determine CATE status. Students may move from one category of CATE participation to another at any time within their secondary educational career as their plans change. This can make determination of CATE category difficult and inexact. For example, many courses within the CATE program offer college credit for a single course only when all courses in the series are completed. The student may then be classified as a Tech Prep student only after the final course is completed. Students may also decide one class at a time to enroll in the pathway coursework required to be classified as CATE Coherent. That is, the student may take a single course as a ninth grader, take another class in eleventh grade and then decide to complete the pathway requirements during the senior year. That student could possibly be classified as a CATE Elective student until senior year. Students can also move to lower CATE classifications. For example, a student may file a graduation plan that includes a coherent sequence of courses and a Tech Prep class as a ninth grader. That student could be categorized as a Tech Prep student. He may later decide that he is no longer interested in the pathway, change his plan, and become a CATE Elective student or even a non-CATE student.

Unfortunately, AISD schools may not have had all the information needed to correctly categorize their students for CATE purposes. Based on corrected numbers for the 2001-02 school year, it appears that numbers of both CATE Coherent and Tech Prep students were substantially underestimated in 2000-01. Department of School to Career

staff believe that counselors asked students in a group setting to self-identify as either CATE coherent, Tech Prep, or as academic students. If this is indeed how the students were characterized, then the selection of students would not only be too low, but would also favor selection of lower-performing students into CATE. This report indicates student characteristics and progress by reported CATE codes and is accurate for those students as they were reported. However, the reader should be cautious in drawing broad conclusions about the effects of the CATE programs on student achievement.

PURPOSE AND EVALUATION METHODS

AISD students face several challenges in completing secondary education and moving on to post-secondary training and work. According to the Academic Excellence Indicator System (AEIS) reports generated by the Texas Education Agency for the 2000-2001 school year, several challenges potentially limit students' futures:

- Dropout Rates – 12.9% of high school senior class of 1999-2000 dropped out over four years (ie, grades 9-12).
- Economically Disadvantaged – 48% of students districtwide are classified as economically disadvantaged.
- Attendance – 87.1% high school attendance districtwide; individual school attendance as low as 83%.
- Graduation Rates – Only 71% of high school students in the class of 2000 graduated within 4 years.
- Academic Performance – Only 72.8% of students passed all parts of the exit TAAS. This rate compares with 80.4% statewide in Texas.

With these challenges, completing high school and going to college is only a dream for too many students. Many give up.

The CATE program is intended to prepare students for post-secondary opportunities by providing real world training and education, certification programs, and internships. It keeps students in school by increasing the connection between school and 'the real world.' The program provides a smaller community to encourage attendance and identify students who are foundering academically. The program also provides skills

that students can use while still in school to hold productive and more lucrative employment. In doing so, the CATE program may help students find relevance in their schooling and improve attendance, credit acquisition towards a high school diploma, grades in courses, and ability to meet all the requirements for graduation. Since the program goals include equitable provision of CATE services, a review of who is and is not participating in the program becomes important.

The evaluation of the CATE program examines how well the program meets these expectations through a review of student demographics, patterns of CATE participation, and student level results. Analysis of data on student levels of CATE participation and student academic outcomes forms much of the report. The evaluation analyzed pathway enrollment trends on each campus. These enrollment data are then compared to the career interests expressed by all students on the campus on their Individual Academic and Career Plan (IACP).

FINDINGS

PARTICIPANT DEMOGRAPHICS

Table 1: CATE Participation and Student Gender

	CATE Code								Total	
	0		1		2		3			
	#	%	#	%	#	%	#	%	##	%
Male #	4,391	40%	6,056	55%	323	3%	213	2%	10,983	100%
Percent	51%		51%		50%		60%		52%	
Female #	4,173	40%	5,716	55%	329	3%	144	2%	10,362	100%
Percent	49%		49%		51%		40%		49%	
TOTAL	8,564	40%	11,772	55%	652	3%	357	2%	21,345	100%
	100%		100%		100%		100%		100%	

Source: AISD MIS files

Table 2: CATE Participation and Student Ethnicity

	CATE Code								Total	
	0		1		2		3			
	#	%	#	%	#	%	#	%	#	%
American Indian	23	43%	29	55%	0	0%	1	2%	53	100%
	.2%		.2%		0%		.3%		.2%	
Asian	214	40%	297	55%	20	4%	5	1%	536	100%
	2%		3%		3%		1%		2%	
African American	1,333	38%	2,081	59%	102	3%	19	.5%	3,535	100%
	16%		18%		16%		5%		17%	
Hispanic	3,567	40%	4,964	56%	297	3%	97	1%	8,925	100%
	42%		42%		45%		27%		42%	
White	3427	41%	4,401	53%	233	3%	235	3%	8,296	100%
	40%		37%		36%		66%		39%	
TOTAL	8,564	40%	11,772	55%	652	3%	357	2%	21,345	100%
	100%		100%		100%		100%		100%	

Source: AISD MIS files

Table 3: CATE Participation and Student Income

	CATE Code								Total	
	0		1		2		3			
	#	%	#	%	#	%	#	%	#	%
Economically Disadvantaged	2,194	38%	3,450	59%	153	3%	32	.5%	5,829	100%
Percent	26%		29%		23%		9%			
Not Disadvantaged	6,370	41%	8,322	54%	499	3%	325	2%	15,516	100%
Percent	74%		71%		77%		91%			
TOTAL	8,564	40%	11,772	55%	652	3%	357	2%	21,345	100%
	100%		100%		100%		100%		100%	

Source: AISD MIS files

Table 4: CATE Participation and Student Language

	CATE Code								Total	
	0		1		2		3			
	#	%	#	%	#	%	#	%	#	%
LEP	463	43%	590	55%	23	2%	3	.3%	1,079	100%
Percent	5%		5%		4%		1%		5%	
Not LEP	8,101	40%	11,182	55%	629	3%	354	2%	20,266	100%
Percent	95%		95%		96%		99%		95%	
TOTAL	8,564	40%	11,772	55%	652	3%	357	2%	21,345	100%
	100%		100%		100%		100%		100%	

Source: AISD MIS files

Table 5: CATE Participation and Student Grade

	CATE Code								Total	
	0		1		2		3			
	#	%	#	%	#	%	#	%	#	%
Grade 9 #	3,579	49%	3,631	50%	60	1%	32	.4%	7,302	100%
Percent	42%		31%		9%		9%			
Grade 10 #	2,265	40%	3,236	57%	111	2%	48	1%	5,660	100%
Percent	26%		27%		17%		13%			
Grade 11 #	1,445	33%	2,668	61%	209	5%	85	2%	4,407	100%
Percent	17%		23%		32%		24%			
Grade 12 #	1,275	32%	2,237	56%	272	7%	192	5%	3,976	100%
Percent	15%		19%		42%		54%			
TOTAL	8,564	40%	11,772	55%	652	3%	357	2%	21,345	100%
	100%		100%		100%		100%		100%	

Source: AISD MIS files

Tables 1 to 5 describe AISD high school students and their STC course involvement in 2000-2001. During the 2000-2001 school year, the AISD school to career program served 12,781 high school students, or 60% of the AISD high school student body. For the most part, proportions of CATE students are very similar to those of all students in AISD high schools. There are some differences, however, particularly when higher levels of CATE participation are examined. Students who are coded CATE Coherent are slightly more likely to be female (50% versus 49% of the students as a whole) and much more likely to be Hispanic. Tech Prep students are much more likely to be male (60% versus 51% of the high school population) and White (66%) than would be representative.

Low-income students are much less likely to participate in CATE than their numbers in the population would suggest. While over 27% of the high school students (and 47% overall) are classified as low-income, only 9% of the Tech Prep students and 23% of the CATE Coherent are so classified. Students with limited English skills are also less likely to participate at high levels in CATE programming. Overall, CATE students are much less likely to be freshmen as should be expected by the nature of the program. Students have more opportunities to take CATE classes as they progress through their high school years. Students coded CATE Coherent and Tech Prep are

generally juniors and seniors (73.8% and 76.6%, respectively), while those percentages for non-CATE and CATE Elective are much lower (31.8% and 41.7%).

STUDENT OUTCOMES

The CATE program provides sequences of courses that are designed to prepare students for careers and postsecondary education and training. It is anticipated that CATE programming will have a number of positive effects on students while they are in high school, as well as thereafter. The CATE programming might improve a student's motivation by increasing the connection between his high school program and his post-secondary life. Such students may then perform at higher levels within high school. They may pass more classes, perform better on standardized testing, have improved attendance and be retained less frequently than otherwise would have been the case. Students who are heavily involved with CATE programming might be expected to perform more strongly than students who are less involved.

Unfortunately, several features of CATE programming make it difficult to determine the extent to which these suppositions are borne out. First, students select themselves into CATE programming. Those who are interested in the program may have quite different characteristics than students who do not seek out CATE. Differences in gender, ethnicity, and impoverishment are observable (as noted previously); differences in attitude towards school far less so. Even though students self select into CATE, they do not necessarily declare their intentions about how dedicated to CATE they will become. Therefore, we may only know that a student will complete a coherent sequence, for example, when the sequence is nearing completion. There is no way to determine definitively that a student will become Tech Prep (CATE 3) before the student registers for that college-accredited class.

It may be possible that CATE Coherent and Tech Prep students differ from the student body as a whole and also from each other. For example, students coded as CATE Coherent are almost twice as likely as any other group to have been retained on grade level at some point in high school (31.7% have been retained as compared with 18.6% of the non-CATE students). Tech Prep students are the least likely group (12.0%) to have been retained. However, corroboration or refutation of the hypothesis that CATE Coherent students are different from other groups is not possible on a widespread basis.

School identification procedures for PEIMS reporting of CATE may not be consistent. School counselors are responsible for determining how each student should be coded for CATE purposes and may be unclear about when a student moves from one CATE category to the next. Some evidence that this problem is occurring is found in the Tech Prep reporting and completion rates of articulation-agreement classes. There are 357 Tech Prep students reported in PEIMS. Of these, 304 (85%) were on the Bowie campus. Five campuses reported no Tech Prep students. At the same time, more than 4,000 students completed over 4,600 courses for which Tech Prep college credit is available. While many of these students may never complete a coherent sequence of courses required to attain Tech Prep status, it seems likely that more than 9% of those who completed an articulated course should be so labeled.

Given these identification issues, it is difficult to determine whether the observed differences in achievement across CATE groups are due to inherent differences between the groups or result from program intervention. In either case, there are some interesting patterns of student achievement that differ across groups.

Credit Acquisition

Students with any involvement in CATE are more likely to be gaining credits at a higher rate than are students coded as non-CATE. However, when ninth graders are considered separately, some differences appear. CATE Elective students are slightly more likely to gain sufficient credits to be promoted. Tech Prep students at the ninth grade level are much more likely to earn sufficient credits. However, CATE Coherent ninth grade students are much less likely to gain sufficient credits for promotion.

Table 6: Credits Earned by High School Students in 2000-2001

CATE Code	Students Gaining 5 Credits or More in 2000-01		Ninth Graders Gaining 5 Credits or More in 2000-01		Average Gain in Credits	
	#	%	#	%	All	9th Grade
Non-CATE	5,027	59%	1,908	53%	4.5	4.1
CATE Elective	7,527	64%	2,002	55%	4.9	4.3
CATE Coherent	388	61%	16	27%	4.6	2.7
Tech Prep	299	84%	29	91%	5.9	6.5
TOTAL	13,241	62%	3,955	54%	4.7	4.2

Source: AISD MIS files

While the average increase in credits earned for non-CATE students is similar to those of students in CATE programming, the percentage of students earning sufficient credits to advance to the next grade is lower for non-CATE students than for students with any level of involvement in the CATE program. The average gain in each group results in part from the large numbers of students who did not gain any credits during the year.

TAAS Performance

The greater a student's involvement in CATE, the more likely it is that a student passed TAAS if he has attempted it. CATE Coherent students require more opportunities to take the test before passing all sections, but they continue to make the attempt and eventually are more successful than students without CATE involvement.

Students who are not in CATE (CATE 0) and those taking CATE only as an elective (CATE 1) are far more likely to be ninth graders and hence not to have taken the exit-level TAAS yet. Nearly 45% of the Non-CATE students and 33% of the CATE Elective students have not yet taken TAAS. In contrast, only around 7% of the CATE Elective students and 10% of the Tech Prep students haven't taken TAAS. Of those students who have taken the exit-level TAAS, however, more CATE-intensive students (CATE codes 2 and 3) have passed all sections than have non-CATE intensive students. On the other hand, non-CATE intensive students who passed TAAS needed fewer times to pass on average than CATE-intensive students.

Table 7: Exit Level TAAS Passing Rates by CATE Code

CATE Code	# Taken Exit TAAS	#Passed All Sections of TAAS	% Students Taking TAAS Who Have Passed all Sections	Average # Times TAAS Taken Before Passing All Sections
Non-CATE	4,723	3,267	69%	1.28
CATE Elective	7,896	5,874	74%	1.34
CATE Coherent	601	456	76%	1.59
Tech Prep	323	282	87%	1.42
TOTAL	13,543	9,879	73%	1.33

Source: AISD MIS files

Attendance

Student attendance is less directly related to CATE participation than the other measures selected for examination. The average attendance of all high-schoolers district-wide is 87.1%. Ninth and twelfth graders have lower than average attendance, while tenth and eleventh graders' attendance is somewhat higher. About 1.6 percentage points separate the lowest attending grade (9^{th} - 86.3%) from the highest (11^{th} – 87.9). However the differences in attendance by students with different CATE codes are far more striking.

Figure 2: Average Attendance Rate by CATE Involvement

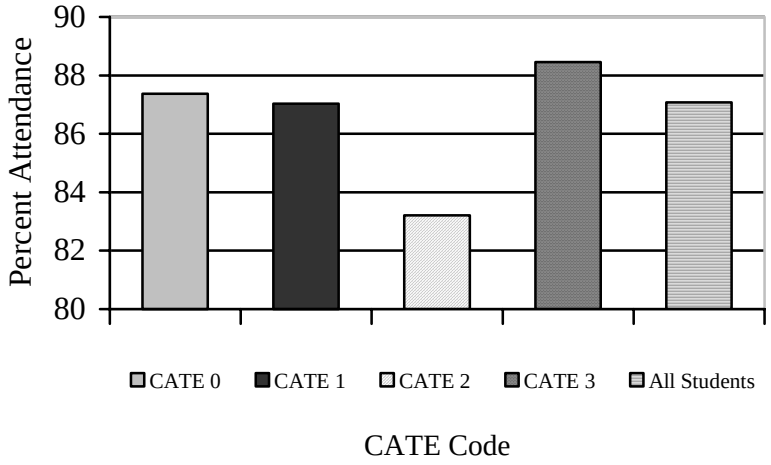


Figure 2 shows average attendance by CATE code for all high school students. While Non-CATE and CATE Elective students' attendance are very close to the average of all students, attendance rates for more CATE-involved students differ markedly. Students coded as CATE Coherent have much lower average attendance than any other student group. At the same time, Tech Prep students log the highest average attendance.

CAREER INTEREST AND ENROLLMENT PATTERNS

Examination of career interest patterns and the corresponding patterns of enrollment in advanced coursework provides information on the degree to which AISD CATE programs are meeting the articulated needs of students. In this study, student interest data are derived from two sources.

First, all secondary students complete an annual Individual Academic Career Plan (IACP). This document collects information on the students' current thinking on graduation plans they will pursue and on their career interests. The IACP examines career interests using the same names as are used for clusters in the CATE program. Students select career interest in the IACP without regard to whether or not that cluster is available through CATE programming at the school and without considering whether the student would consider a CATE course if one were available. Therefore, it cannot be assumed that career interest and potential CATE enrollment move together. At the same time, these data do provide a general indication of where student interests lie.

As evidenced by IACP selections summarized in Appendix C, in most schools the largest number of students are interested in pursuing careers in one of two career clusters. Careers in the Communications & Media Arts cluster are the most popular choice in 7 of 12 high school campuses. As many as 32% (and at least 12% per school) of the students select careers in this cluster. Careers in the Human Services cluster also attract substantial interest. For three schools (Lanier, Reagan, and Travis), careers in the Human Services cluster are chosen more often than any other. At least 11% of the students at each high school selected careers in this cluster. The remaining two schools (LBJ and Crockett) most often select careers in the High Tech and Military and Protective Services clusters, respectively.

More closely related to the CATE program are data on enrollments in the most advanced CATE courses – those that qualify a student for Tech Prep. Students enrolled in these advanced courses are eligible to receive college credit through articulation agreements between AISD and post-secondary institutions such as Austin Community College. While enrollment in articulated courses certainly correlates to CATE commitment, this measure only applies to students who are Tech Prep. Moreover, in some career clusters few articulated courses are available. Lack of enrollment in the one articulated Health Science course (for example) should not be interpreted as lack of interest in Health Science as a career or as a CATE programming option. Some pathways within career clusters include no articulated classes. Interest in these pathways will be underestimated by an examination of enrollment in articulated classes. At the same time, since only committed CATE students enroll in articulated courses, changes in these enrollments offer insight into how well each program is meeting CATE student needs.

Examination of enrollments in articulated classes in 1999-2000 and 2000-2001 school years tells a different story from the IACP data. Enrollment in articulated courses is increasing at about half the high schools (sometimes dramatically) but declining in the other half. Enrollment in clusters is similarly variable. Across the district, enrollment in High Tech and Applied Technology clusters increased especially rapidly. Smaller increases are found in Agriculture and in Business and Marketing. On the other hand, Communications & Media, Human Services, and Military & Protective Services all evidenced declining enrollments across the two years.

These data present a confusing picture of declining enrollment in advanced classes in the career clusters most popular with students in their planning. Reasons for these results are myriad and varied. The discrepancy may be partially explained simply by the inadequacies in the data sources – that is, pathways without articulated courses may be where student preferences most lie. A cluster could be new to a school and students there may not yet have completed the prerequisite studies needed to take the articulated courses. Articulated courses in a career cluster may not appeal to the broad needs of students in that cluster; for example, a student interested in secondary teaching may not see a need to take courses in early childhood development.

RECOMMENDATIONS

CATE identification continues to be problematic. Based on the numbers identified in 2001-02, there may have been four times as many CATE Coherent students and six times as many Tech Prep students as were identified in 2000-01. Correct identification of students will allow AISD to get all grant monies and monies from average daily attendance due it and also better track student performance. The Department of School to Career should take the lead to ensure that the criteria for coding students' interests in CATE are well understood on the campuses. Several specific steps should be taken in both the near term and to improve the system in the future.

First, the person responsible for the coding of students for school to career should be identified on each campus. That person must have adequate time and support to collect the student level data needed for correct classification. The criteria for each CATE code should be written up in a clear schematic and campus personnel should be trained in their use. A CATE code field is defined in SASi in the Texas module. Schools must begin filling this field with appropriate data.

In the longer term, the IACP process needs to more clearly indicate student intent to pursue school to career. As the IACP process becomes computerized, students should select their classes from pull-down menus that make their choices more clear. The student could then be prompted to take the next course in the CATE sequence.

The IACP should also include a check box that allows the students to describe their intentions. These check boxes must have descriptors in language that the students will easily understand. For example, one box could be labeled, "I plan to take at least three related courses in school to career." A student checking this box and who is enrolled in or completed at least one course could be labeled as CATE Coherent.

United ISD in Laredo recently reported that they have instituted a process to correctly identify their CATE students. In doing so, United was able to identify 80% more students as receiving CATE services (3,624 in 2000 versus 6,531 in 2001). They reported gaining over $1 million in funding as a result. It may be useful for the AISD Department of School to Career to discuss what processes United employed to identify its CATE students.

CATE students at all levels appear to accumulate credits toward graduation and achieve higher TAAS passing rates than students without any CATE instruction. Increasing CATE participation should continue to be a goal. Some activities that might contribute to that goal include:

- Consistent messages must be provided that all students (not only the non-college bound) need to be concerned about career readiness.
- Materials marketing the program need to offer a clear description of the range of career training available and how all students may benefit from participating.

CATE programming availability and participation should reach all segments of the student population. The STC department should develop ways of increasing participation, especially among economically disadvantaged and limited English speaking populations.

APPENDIX A: CAREER CLUSTERS AND PATHWAYS AT AISD

AGRICULTURAL SCIENCE AND TECHNOLOGY EDUCATION

Agricultural Science and Technology Education is closely linked with careers in environmental science and natural resource management. The program is designed to develop competencies needed by high school students preparing to enter agricultural science and technology occupations. Agricultural employment includes all jobs that require agricultural competencies needed in producing, managing, processing, marketing, distributing, regulating, or protecting any of the renewable natural resources - about 20% of the Gross National Product (GNP). Pathways included in this cluster and the schools offering these pathways are:

- Agricultural Mechanics — Crockett
- Meat Processing — Bowie
- Animal and Veterinary Science — Bowie, Crockett
- Horticulture — Lanier

BUSINESS EDUCATION

Business Education includes a wide variety of skills related to marketing and merchandising, tracking funds and information, and managing people and processes. Careers in business are many and highly varied, but business skills benefit all students. Pathways included in this cluster and the schools offering these pathways are:

- Accounting/Financial Services — Akins, Anderson, Bowie, Crockett Lanier, LBJ, McCallum
- Business Services/ Management — All High Schools
- Office Administration Procedures — Anderson, Bowie, Crockett, Lanier, LBJ, Travis
- Food Merchandising/Distribution — Anderson, Bowie, Lanier McCallum, Reagan, Travis

HEALTH SCIENCE TECHNOLOGY EDUCATION

Health Science Technology Education is a comprehensive secondary education program for students who have an interest and desire to explore health careers. Students gain the knowledge and skills to make realistic health career choices. Students enhance their academic foundation through a strong science-based enrichment curriculum. Industry partnerships provide students with valuable hands-on experiences so students learn to deliver safe, effective, efficient, quality health care. Emphasis is placed on safety, communication skills, ethical and legal responsibilities, teaming, systems, and the technology utilized in health care. Pathways included in this cluster and the schools offering these pathways are:

- Health Science Professions — Akins, Austin, Crockett, Lanier, Reagan
- Intergenerational Professions — Akins

FAMILY AND CONSUMER SCIENCES EDUCATION

Family and Consumer Sciences Education prepares students for personal and family life across the life span as they manage the challenges of living and working in a diverse, global society. The program focus is on families, work, and their interrelationships. Family and Consumer Sciences Education prepares students for family life, work life, and career by providing opportunities to develop the knowledge, skills, attitudes, and behaviors needed for a successful life. Pathways included in this cluster and the schools offering these pathways are:

- Environmental Design — Anderson
- Early Childhood Education — Akins, Austin, Crockett, Reagan
- Teaching — All High Schools

MARKETING EDUCATION

Marketing Education is the study of how the marketing process seeks to determine and satisfy the needs and wants of people who buy goods, services, and ideas. Businesses of all types and sizes, including not-for-profit organizations, use marketing in their local, regional, national, and global operations to direct the flow of products from

the manufacturer to the ultimate consumer. Pathways included in this cluster and the schools offering these pathways are:

• Hotel Management	Austin, Bowie, Reagan
• Marketing/Merchandising	Anderson, Bowie, Lanier McCallum, Reagan, Travis

TECHNOLOGY/INDUSTRIAL TECHNOLOGY EDUCATION

Technology Education is an integrated, experience-based instructional program designed to prepare students to be knowledgeable about technology - its evolution, systems, technologies, utilization, and social and cultural significance. It results in the application of mathematics and science concepts to technological systems in areas such as, but not limited to: construction, manufacturing, communications, transportation, biotechnology, and energy, power and transportation systems. Students are challenged to discover, create, solve problems, and construct solutions by using a variety of tools, machines, computer systems, materials, processes and technological systems. Pathways included in this cluster and the schools offering these pathways are:

• Construction Technology	Lanier, Travis
• Engineering Design Graphics	All High Schools
• Media Technology	Austin, Johnston, Travis
• Computer Networking	Anderson, Austin, Bowie, Crockett, Lanier, LBJ, Reagan, Travis
• Computer Programming/Design	Akins, Anderson, Austin, Bowie, Crockett, Johnston, Lanier, LBJ, McCallum, Travis

TRADE AND INDUSTRIAL EDUCATION

The Trade and Industrial Education cluster provides instruction that develops manipulative skills, safety, judgment, technical knowledge, and related occupational information. These prepare persons for profitable employment in trade and industrial pursuits. Trade and Industrial Education trains students for a wide variety of occupations

in industrial areas through contextual instruction in the layout, design, production, processing, assembling, testing, diagnosing, and maintaining of industrial, commercial, and residential goods and services. Pathways included in this cluster and the schools offering these pathways are:

• Military	Akins, Bowie, Reagan, Travis
• Criminal Justice	Crockett, Lanier
• Cosmetology	Crockett, Johnston, Lanier
• Electronics/Semiconductor	Akins, Johnston
• Computer Fabrication/Maintenance	Austin, Crockett, LBJ
• Electrical Trades	Lanier, Travis
• Transportation Services	Crockett, Johnston, Reagan
• Culinary Arts	Austin, Bowie, Crockett, Johnston
• Commercial Photography	Austin, Bowie, Reagan
• Printing	Johnston

APPENDIX B: PROGRAM ENROLLMENTS BY CAMPUS

Table B1: Akins High School CATE Enrollment

AKINS	CATE Code				Total
	0	1	2	3	
Male	119	512	0	0	631
Female	99	434	0	0	533
American Indian	0	5	0	0	5
Asian	2	14	0	0	16
African American	34	120	0	0	154
Hispanic	108	534	0	0	642
White	74	273	0	0	347
Economically Disadvantaged	51	315	0	0	366
Not Economically Disadvantaged	167	631	0	0	798
LEP	1	19	0	0	20
Not LEP	217	927	0	0	1,144
Grade 9	120	678	0	0	798
Grade 10	98	268	0	0	366
Grade 11	-	-			-
Grade 12	-	-			-
TOTAL	218	946	0	0	1,164

Table B2: Anderson High School CATE Enrollment

ANDERSON	CATE Code				Total
	0	1	2	3	
Male	232	652	31	0	915
Female	218	635	46	1	900
American Indian	3	4	0	0	7
Asian	35	57	2	0	94
African American	22	88	7	0	117
Hispanic	91	209	17	0	317
White	299	929	51	1	1,280
Economically Disadvantaged	36	104	4	0	144
Not Economically Disadvantaged	414	1183	73	1	1,671
LEP	1	2			3
Not LEP	449	1,285	77	1	1,812
Grade 9	51	494	10	0	555
Grade 10	198	294	8	0	500
Grade 11	112	286	23	0	421
Grade 12	89	213	36	1	339
TOTAL	450	1,287	77	1	1,815

Table B3: Austin High School CATE Enrollment

AUSTIN	CATE Code				Total
	0	1	2	3	
Male	464	640	3	0	1,107
Female	419	571	10	0	1,000
American Indian	1	1	0	0	1
Asian	20	19	1	0	40
African American	64	65	1	0	130
Hispanic	261	401	1	0	663
White	538	725	10	0	1,273
Economically Disadvantaged	149	205	0	0	354
Not Economically Disadvantaged	734	1,006	13	0	1,753
LEP	27	31	0	0	58
Not LEP	856	1,180	13	0	2,049
Grade 9	419	243	0	0	662
Grade 10	180	365	1	0	546
Grade 11	164	348	0	0	512
Grade 12	120	255	12	0	387
TOTAL	883	1,211	13	0	2,107

Table B4: Bowie High School CATE Enrollment

BOWIE	CATE Code				Total
	0	1	2	3	
Male	573	527	84	173	1,357
Female	662	486	57	131	1,336
American Indian	9	2	0	1	12
Asian	49	42	10	3	104
African American	40	56	4	16	116
Hispanic	263	228	40	61	592
White	874	685	87	223	1,869
Economically Disadvantaged	54	55	8	11	128
Not Economically Disadvantaged	1,181	958	133	293	2,565
LEP	4	13	7	2	26
Not LEP	1,231	1,000	134	302	2,667
Grade 9	457	155	4	30	646
Grade 10	243	343	32	39	657
Grade 11	266	278	58	64	666
Grade 12	269	237	47	171	724
TOTAL	1,235	1,013	141	304	2,693

Table B5: Crockett High School CATE Enrollment

CROCKETT	CATE Code				Total
	0	1	2	3	
Male	560	727	24	1	1,312
Female	526	650	22	0	1,199
American Indian	2	3	0	0	5
Asian	10	15	0	0	25
African American	104	142	1	0	247
Hispanic	545	713	27	1	1,286
White	425	504	18	1	948
Economically Disadvantaged	225	313	8	0	546
Not Economically Disadvantaged	861	1,064	38	2	1,965
LEP	31	9	0	0	40
Not LEP	1,055	1,368	46	2	2,471
Grade 9	407	316	1	0	724
Grade 10	338	392	6	1	737
Grade 11	198	364	19	0	581
Grade 12	143	305	20	1	469
TOTAL	1,086	1,377	46	2	2,511

Table B6: Johnston High School CATE Enrollment

JOHNSTON	CATE Code				Total
	0	1	2	3	
Male	414	307	60	0	781
Female	398	394	47	0	839
American Indian	0	1	0	0	1
Asian	7	5	0	0	12
African American	136	154	22	0	312
Hispanic	516	452	79	0	1,047
White	153	89	6	0	248
Economically Disadvantaged	313	299	40	0	652
Not Economically Disadvantaged	499	402	67	0	968
LEP	59	34	7	0	100
Not LEP	753	667	100	0	1,520
Grade 9	427	192	25	0	644
Grade 10	166	202	25	0	393
Grade 11	100	159	31	0	290
Grade 12	119	148	26	0	293
TOTAL	812	701	107	0	1,620

Table B7: Lanier High School CATE Enrollment

LANIER	CATE Code				Total
	0	1	2	3	
Male	397	619	12	4	1,032
Female	365	554	25	1	945
American Indian	5	4	0	0	9
Asian	30	61	2	0	93
African American	164	253	9	1	427
Hispanic	429	621	16	3	1,069
White	134	234	10	1	379
Economically Disadvantaged	308	510	13	3	834
Not Economically Disadvantaged	454	663	24	2	1,143
LEP	99	173	1	1	274
Not LEP	663	1,000	36	4	1,703
Grade 9	453	258	2	0	713
Grade 10	190	368	3	0	561
Grade 11	57	289	18	2	366
Grade 12	62	258	14	3	337
TOTAL	762	1,173	37	5	1,977

Table B8: LBJ High School CATE Enrollment

LBJ	CATE Code				Total
	0	1	2	3	
Male	339	575	5	0	919
Female	283	511	26	0	820
American Indian	0	0	0	0	0
Asian	39	57	2	0	98
African American	188	497	21	0	706
Hispanic	192	245	4	0	441
White	203	287	4	0	494
Economically Disadvantaged	175	333	9	0	517
Not Economically Disadvantaged	447	753	22	0	1,222
LEP	36	35	0	0	71
Not LEP	586	1,051	31	0	1,668
Grade 9	281	293	1	0	575
Grade 10	188	278	0	0	466
Grade 11	81	286	2	0	369
Grade 12	72	229	28	0	329
TOTAL	622	1,086	31	0	1,739

Table B9: McCallum High School CATE Enrollment

McCALLUM	CATE Code				Total
	0	1	2	3	
Male	418	378	44	0	840
Female	404	425	43	0	872
American Indian	1	3	0	0	4
Asian	7	14	3	0	24
African American	132	151	18	0	301
Hispanic	196	204	37	0	437
White	486	431	29	0	946
Economically Disadvantaged	164	163	23	0	350
Not Economically Disadvantaged	658	640	64	0	1,362
LEP	24	22	3	0	49
Not LEP	798	781	84	0	1,663
Grade 9	396	181	11	0	588
Grade 10	220	221	16	0	457
Grade 11	119	233	23	0	375
Grade 12	87	168	37	0	292
TOTAL	822	803	87	0	1,712

Table B10: Reagan High School CATE Enrollment

REAGAN	CATE Code				Total
	0	1	2	3	
Male	371	443	6	1	821
Female	299	422	7	0	728
American Indian	2	1	0	0	3
Asian	6	1	0	0	7
African American	311	390	7	0	708
Hispanic	310	432	6	1	749
White	41	41	0	0	82
Economically Disadvantaged	289	516	7	1	813
Not Economically Disadvantaged	381	349	6	0	736
LEP	90	135	3	0	228
Not LEP	580	730	10	1	1,321
Grade 9	324	318	1	1	644
Grade 10	158	234	3	0	395
Grade 11	100	170	5	0	275
Grade 12	88	143	4	0	235
TOTAL	670	865	13	1	1,549

Table B11: Travis High School CATE Enrollment

TRAVIS	CATE Code				Total
	0	1	2	3	
Male	368	596	47	30	1,041
Female	342	549	31	10	932
American Indian	1	3	0	0	4
Asian	5	11	0	2	18
African American	83	134	11	2	230
Hispanic	528	862	56	28	1,474
White	93	135	11	8	247
Economically Disadvantaged	354	577	33	16	980
Not Economically Disadvantaged	356	568	45	24	993
LEP	88	111	2	0	201
Not LEP	622	1,034	76	40	1,772
Grade 9	239	503	5	1	748
Grade 10	262	255	17	7	541
Grade 11	124	181	21	17	343
Grade 12	85	206	35	15	341
TOTAL	710	1,145	78	40	1,973

Table B12: Enrollment in Articulated Courses by School

School / Course	Akins	Anderson	Austin	Bowie	Crockett	Johnston	Lanier	LBJ	McCallum	Reagan	Travis	Garza	TOTAL
Human Services													
Nutrition	0	61	0	21	0	0	0	0	69	0	0	0	151
Food Sci & Tech	0	31	55	0	41	52	0	62	0	26	0	0	267
Early Childhood I	0	0	8	0	16	0	0	0	0	11	0	0	35
Early Childhood II	0	0	3	0	3	0	0	0	0	0	0	0	6
Food Product Manag	0	0	0	8	3	0	0	0	0	2	0	0	13
Communications													
Communicat Graph I	0	0	4	0	0	0	0	0	0	0	0	0	4
Communicat Graph II	0	79	16	9	0	0	0	0	0	35	0	0	139
Communica Graph III	0	0	6	0	0	0	0	0	0	0	0	0	6
Desktop Publish I	0	0	0	0	0	7	0	0	0	0	4	0	11
Desktop Publish II	10	0	0	0	0	3	0	0	0	0	0	0	13
Desktop Publish III	8	29	20	0	6	11	6	0	55	1	0	0	136
Applied Tech													
Building Trades	0	0	0	0	0	0	7	0	0	0	0	0	7
Building Trades II	0	0	0	0	0	0	9	0	0	0	0	0	9
Trade/Ind Care Prep I	0	0	0	0	0	33	0	0	21	0	0	0	54
Trade/Ind Cre Prep II	0	0	0	0	0	0	0	0	1	0	0	0	1
Computer Maint I	0	0	0	0	50	0	64	1	0	0	0	0	115
Auto Special Steering	0	0	0	0	0	12	0	0	0	0	0	0	12
Auto Special Brakes	0	0	0	0	0	0	0	0	0	4	0	0	4
Milita & Protect													
Criminal Just Precep	0	0	0	0	25	0	23	0	0	0	0	0	48
Crime in America	0	0	0	0	0	0	14	0	0	0	0	0	14
Criminal Procedures	0	0	0	0	0	0	14	0	0	0	0	0	14
Bus & Market													
Princip of Marketing	0	1	0	0	0	0	0	0	0	0	0	0	1
Marketing Dyn Co-op	0	30	0	0	0	0	65	0	45	0	42	0	182
Mktg Dyn Non Co-op	0	0	0	76	0	0	0	0	0	0	5	0	81
Mktg Management I	0	0	0	0	0	0	0	0	0	0	1	0	1
Mktg Management II	0	0	0	0	0	0	4	0	0	0	0	0	4
Mktg Management III	0	0	0	8	0	0	0	0	3	0	0	0	11
Admin Procedures	0	9	0	0	0	0	0	24	0	8	0	7	48
BCIS I	119	182	338	247	351	245	142	32	230	183	49	23	2,141
BCIS II	0	0	0	0	1	5	0	0	0	0	0	0	6
High Tech													
Ind Electronics I	0	0	0	0	0	8	0	0	0	0	10	0	18
Compute Application	52	0	0	365	1	0	0	195	0	41	299	0	953
Health Sciences													
Health Sci Tech II	0	0	0	0	5	0	10	0	0	0	0	0	15
Agriculture													
Horticultural Science	0	1	1	0	2	4	5	0	2	3	4	6	28
Ag Mechanics I	0	0	0	7	9	0	11	0	0	0	0	0	27
Meat Processing I	0	0	0	7	0	0	0	0	0	0	0	0	7
Meat Processing II	0	0	0	4	0	0	0	0	0	0	0	0	4
TOTAL	189	423	451	752	513	380	374	314	426	314	414	36	4,586