

Career and Technology Education

Evaluation Report 2002-2003

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The Career and Technology Education (CATE) program integrates occupational learning into a curriculum of academic coursework. CATE staff collaborate with staff in the Guidance and Counseling Department to create curricula that match students' career interests and prepare them for careers that exist in the current job market.

CATE staff design a curriculum based largely on the eight career clusters outlined in the Individual Academic Career Plan (IACP) completed each year by students in grades five through eleven. The IACP includes a locally developed career interest inventory that helps students define their career interests in terms of current and emerging occupational trends in Austin.

DESCRIPTION

PROGRAM GOALS

For purposes of program planning and evaluation, the Director of the CATE department and the Deputy Superintendent for Accountability and Information Systems formulated the following goals for the CATE program in August 2001:

1. Equal opportunity: All CATE programs should provide equal opportunities to students of all races, genders, and economic situations.
2. Expansion of the population served: CATE should serve an increasing percentage of the student population. The expectation is that CATE should serve 25-30% of students by the 2007-08 school year.
3. Preparation for postsecondary options:
 - Every student should finish secondary education with at least 1 credit that is transferable to a post-secondary institution. CATE articulation agreements are only one way high school students can earn college credit. Others include Advanced Placement and International Baccalaureate.
 - CATE should prepare students for the workforce through work-based internships. Internships should be available to any students who want them.
 - CATE should prepare students for the workforce through certification programs in relevant careers. For any CATE programs that offer certifications, most students in the program should achieve them.

PROGRAM DESCRIPTION

Middle School Curriculum

The CATE curriculum begins in middle school. The CATE areas taught in middle school are Technology Education, Family and Consumer Sciences, and Business Education. In these areas, six courses are offered: Technology Education, Homemaking, Keyboarding, Computer Technology, Career Investigations, and Career Explorations.

High School Curriculum

In high school, the CATE program is organized into a set of pathways that are designed to prepare students for careers and postsecondary education and training. The pathways are designed by CATE staff within career clusters reflected in the IACP. Each pathway comprises a series of three related classes. Pathways are developed based on guidance from TEA to prepare students for jobs in specific career fields. During the 2002-03 school year, AISD offered 217 CATE classes, including 101 courses that were part of 18 career pathways and 116 elective courses that were not part of a career pathway. While not all pathways are available on each secondary campus, students could choose to transfer or travel to a different campus in order to pursue a career interest.

CATE Codes

Student participation in CATE is reported to PEIMS in terms of level of involvement in the program. Three levels are reported based on courses taken and students' self-reported intention to take further courses:

- **CATE Elective**-is the code for students who have completed a single CATE course but have not indicated an intention to pursue a career pathway. CATE Elective students may later increase their involvement in the CATE program, or may terminate their exploration with the single class:
- **CATE Coherent**-is the code for students who have expressed an intention to complete a coherent sequence of course work within a career pathway.
- **Tech Prep**-is the code for students who have expressed an intention to complete a coherent sequence of course work within a pathway that also includes a state-approved articulation agreement for college credit.

Pathways

Participation in CATE can be documented in terms of participation in CATE courses and pathways. As shown in Table 1, 217 CATE classes were held in 2002-03, serving 12,343 students. Of the CATE courses offered, 45, serving 6,084 students were first-level courses in a CATE pathway. At the next level, 35 classes were offered at the second-level of a pathway.

These courses served a total of 1,012 students. A total of 23 third-level CATE courses were offered during the 2002-03 school year. These courses served 396 students. In addition, AISD offered 116 CATE courses that were not part of any pathway. Non-pathway courses served a total of 7,351 students.

Table 1: CATE Courses Offered and Enrollment by Pathway Level and Campus

		Not in Pathway	Level 1	Level 2	Level 3	Total by campus
Akins	Courses	15	9	4	1	27
	Students	815 (57%)	813 (57%)	128 (9%)	63 (4%)	1,427
Anderson	Courses	20	6	3	1	29
	Students	1,044 (71%)	539 (36%)	60 (4%)	35 (2%)	1,477
Austin	Courses	16	5	8	3	28
	Students	721 (64%)	495 (44%)	150 (13%)	41 (4%)	1,129
Bowie	Courses	22	9	13	5	46
	Students	426 (43%)	533 (53%)	184 (18%)	48 (5%)	997
Crockett	Courses	23	16	6	4	45
	Students	572 (46%)	788 (63%)	103 (8%)	73 (6%)	1,248
Johnston	Courses	15	7	3	1	25
	Students	345 (57%)	334 (55%)	20 (3%)	10 (2%)	607
Lanier	Courses	20	12	6	1	36
	Students	943 (61%)	771 (50%)	188 (12%)	56 (4%)	1,546
LBJ	Courses	17	3	1	0	21
	Students	795 (82%)	267 (27%)	7 (1%)	0 (0%)	972
McCallum	Courses	17	6	1	5	27
	Students	575 (58%)	499 (51%)	11 (1%)	60 (6%)	984
Reagan	Courses	9	7	3	1	19
	Students	392 (55%)	421 (59%)	73 (10%)	5 (1%)	713
Travis	Courses	12	6	3	1	20
	Students	723 (58%)	623 (50%)	88 (7%)	5 (0%)	1,242
Total by level	Courses	116	45	35	23	217**
	Students	7,351 (60%)	6,083 (49%)	1,012 (8%)	396 (3%)	12,342**

Source: campus enrollment records.

* Because some courses are repeated at more than one campus and/ or at more than one level, totals do not reflect the sums of the rows or columns.

** Unduplicated total number of CATE courses and students

Care must be taken in interpreting these results. First, the number of CATE courses in each pathway does not sum to the total number of CATE courses because two courses (Business Law and Animal Science) are counted at different levels in different pathways. For the same reason, the number of students in each level does not sum to the total unduplicated count of students. Additionally, these figures have limited utility as measures of students' progress through the pathways. Many upper-level courses have no prerequisites, so courses can be taken

in any order. Also, a number of the courses at each level can be taken individually, either as electives, or in satisfaction of non-CATE graduation requirements. Some of the students in these courses may not have been aware that they were in CATE classes. It would be easier to interpret these data at the student level, (i.e., the number of pathway courses that each student has taken) rather than at the course level. This information is collected by counselors for each student in the course planning process, but those student data are not summed or made available to central administration staff. An on-line version of the IACP will premier in 2003-04, which may make these data more readily available.

Guidance and Counseling Liaison

The CATE department plans the curriculum. Assistance for students in choosing courses comes from guidance counselors. During the 2002-03 school year, CATE and Guidance and Counseling departments appointed a liaison team that met monthly to exchange information between the departments. Areas of confusion for guidance counselors that were addressed in these meetings included: requirements for pathways, certifications, and articulation agreements; logistics of transportation between campuses; and ways other than as electives that CATE courses can be put into student schedules.

CATE staff also developed a notebook for guidance counselors to address their most pressing questions about helping CATE students make their graduation plans. The notebooks contained charts showing full CATE graduation plans, including both academic and occupational courses; lists of campus contacts for arranging transportation between campuses; and lists of CATE courses that can be counted for physical education credit. These notebooks were very popular among guidance counselors, and the registrars have requested copies.

EVALUATION OF GOALS

EQUAL OPPORTUNITY

As shown in Table 2, student demographics by CATE code are very similar to those in 2001-02. Female students comprise 48% of the CATE student population, largely unchanged from 49% in 2001-02. Hispanic students are still slightly overrepresented, comprising 47% of CATE students versus 44% of non-CATE students.

The only large change in demographics between the two years is that in 2002-03 the CATE student population is fairly evenly distributed across grades. In 2001-02 the population was skewed toward ninth graders.

Table 3 shows the numbers of students actually enrolled in CATE courses in 2002-03. Of those, 49% were in Level 1 courses within a pathway, 8% were in Level 2 courses within a pathway, 3% were in Level 3 courses within a pathway, and 60% were in courses that were not within a pathway. Contrary to self-report, in which CATE participation is evenly distributed across grade levels, student enrollment shows that the CATE student population is skewed toward the ninth grade, mostly in non pathway and 1st level classes. This is more representative of district enrollment, and may indicate that self-report measures did not adequately capture the CATE Elective group.

Table 4 shows that at traditional campuses, self-identified CATE status ranges between 19% and 67% of the campus population. Non-traditional campuses such as Garza, the Alternative Learning Center, and the Juvenile Justice Alternative Learning Program offer few CATE courses and therefore have very low levels of CATE membership.

Table 2: Comparison of Demographic Percentages by CATE Code, 2001-02 and 2002-03

		Non CATE (N = 10,515)		All CATE (N = 8,996)		CATE Elective (N = 7,052)		CATE Coherent (N = 1,382)		Tech Prep (N = 562)	
		2001-02	2002-03	2001-02	2002-03	2001-02	2002-03	2001-02	2002-03	2001-02	2002-03
Grade in school	9th	32	39	30	26	43	33	10	2	1	*
	10th	26	26	22	23	22	27	35	12	7	3
	11th	23	17	25	25	19	22	36	39	34	15
	12th	20	18	23	26	16	17	19	47	58	82
Gender	Female	49	50	49	48	49	49	48	47	49	50
	Male	51	50	51	52	51	51	52	53	51	50
Ethnicity	Native American	*	*	*	*	*	*	*	*	*	*
	Asian/Pacific	2	2	2	3	2	3	1	1	5	4
	African American	15	15	15	14	16	14	12	12	15	15
	Hispanic	43	41	45	47	47	48	45	43	37	43
	Anglo	39	41	37	37	34	35	41	43	43	39
Income level	Low SES	32	34	32	38	34	40	29	32	26	30
	Not Low SES	68	66	68	62	66	60	71	68	74	70
English	LEP	10	8	8	8	9	9	6	5	5	6

* Fewer than 1% of students

Sources: AISD student attendance records and TEA standard reports

Table 3: Characteristics of CATE Student Population by Level within a Pathway, 2002-03

		AISD		Non Pathway		Level 1		Level 2		Level 3		Unduplicated CATE	
		#	%	#	%	#	%	#	%	#	%	#	%
Grade in school	9 th	6,671	34	2,295	19	1,314	11	147	1	*	*	3,862	31
	10 th	5,052	25	1,639	13	1,920	16	249	2	*	*	3,139	25
	11 th	4,234	21	1,408	11	1,563	13	322	3	131	1	2,750	22
	12 th	3,950	20	1,378	11	1,287	10	294	2	200	2	2,591	21
Gender	Female	9,916	49	3,258	26	2,939	24	513	4	179	1	5,705	46
	Male	10,365	51	4,093	33	3,145	25	499	4	217	2	6,638	54
Ethnicity	Nat. Amer.	43	*	*	*	*	*	*	*	*	*	*	*
	Asian/Pac.	505	3	213	2	*	*	*	*	*	*	307	2
	Af. Amer.	2,915	15	1,270	10	998	8	124	1	70	1	2,009	16
	Hispanic	8,857	44	3,340	27	3,062	25	484	4	151	1	5,798	47
	White	7,587	38	2,512	20	1,891	15	388	3	165	1	4,197	34
Income Level	Low SES	7,086	36	2,759	22	2,269	18	317	3	87	1	4,454	36
	Not Low SES	12,821	64	4,592	37	3,815	31	695	6	309	3	7,889	64
English	LEP	2,103	11	1,261	10	990	8	150	1	*	*	2,047	17
	Not LEP	17,804	89	6,090	49	5,093	41	862	7	357	3	10,295	83
TOTAL	Students	19,907	100	7,351	60	6,084	49	1,012	8	396	3	12,343	100

Sources: AISD course enrollment data and TEA standard reports

Note: Totals are duplicated unless otherwise stated.

* Less than 1%

Table 4: High School Students by Campus and Level of CATE Participation

	Students in CATE classes				
	Elective	Coherent	Tech Prep	Total	Percent
Akins	787	160	37	984	49%
Anderson	1057	132	45	1,234	64%
Austin	844	123	37	1,004	47%
Bowie	860	208	96	1,164	49%
Crockett	814	208	96	1,118	54%
Garza	40	16	14	70	19%
Johnston	448	49	16	513	51%
Lanier	992	195	98	1,285	67%
LBJ	527	65	29	621	35%
McCallum	204	108	13	325	19%
Reagan	395	100	67	562	44%
Travis	852	122	62	1,036	61%
Other*	0	13	3	16	12%
Total	7,820	1,499	613	9,932	50%

Sources: PEIMS submission data and TEA standard reports

* "Other" includes students registered at the Alternative Learning Center, JJAEP, and the virtual school pilot.

Success in Meeting Goal of Equal Opportunity

Demographically, the population of CATE is in line with the overall population of the district. However, there are clear differences in access based on campus attended. This may indicate a need to make CATE resources more evenly available at all campuses.

EXPANSION OF THE POPULATION SERVED

During the 2002-03 school year, 8,996 high school students identified themselves as CATE students. This comprises 45% of the district's high school population. Of those students, 1,944, or 10% of district high school students identified themselves as CATE Coherent or Tech Prep students. In Texas, during the 2001-02 school year, 70% of high school students identified themselves as CATE students and 31% of high school students identified themselves as CATE Coherent or Tech Prep students.

District records show that, during that time, 12,343 high school students attended CATE courses. This was 62% of the student population. Of those, 4,992 or 25% of high school students were in classes that were part of a pathway. Clearly, a number of students in pathway courses did not intend to complete a pathway or did not know they were in a CATE course.

Several initiatives took place in the 2002-03 school year that were intended to expand CATE and make it more relevant to different student groups.

Recruiting

Each high school campus holds a career fair offering students and parents information about the careers available in the area and the CATE classes that are relevant to those careers. CATE staff and local industry representatives attend these career fairs. Additionally, the CATE department has developed a video showing their offerings, which is available at all high school campuses.

Institute of Hospitality and Culinary Arts

The new Institute of Hospitality and Culinary Arts (IHCA) facility opened at Travis High School in November, 2002. IHCA recruits students from across the district and from the Texas School for the Deaf and offers Hotel Management, Culinary Arts, and Travel and Tourism pathways. All students in these programs have the opportunity to work in the industry receiving work experience and high school or college credit. During the 2002-03 school year, the institute held a three-day training in cooperation with the Driskill Hotel. The culinary arts program at Bowie High School sent four students to the state competition in culinary arts. One of those students went on to win the silver medal in the national competition. During the summer of

2003, the culinary arts program at Travis and Bowie plans to sponsor 20 student internships at local hotels and restaurants.

Health Sciences Institute

The Health Science Institute (HSI) opened at Lanier High School in the fall of 2002. The HSI offers coursework in five pathways in the health sciences. It also offers certification programs in first aid and CPR as well as in certifications necessary to become an emergency medical technician, a pharmacy technician, a phlebotomist, or a licensed vocational nurse. The HSI also offers a program of premedical, preveterinary, pre dental coursework. HSI students have the opportunity to perform clinical rotations at Seton Topfer Hospital. All of the programs at the HSI are articulated with ACC for college credit.

Automotive Program

During the 2002-03 school year, the automotive program at Johnston High School received certification from the national Automotive Youth Education System (AYES). AYES, a non-profit group supported by auto manufacturers, helps school districts develop programs that ensure students will be prepared for entry-level employment opportunities in the automotive industry. Through partnerships with local dealerships, AYES has provided the program at Johnston with a Pontiac Vibe for instructional purposes, teacher training in current technology, and at least 5 student internships.

Success in Meeting Goal of Expanding the Student Population Served

The goal of serving at least 25-30% of students has been exceeded. The number of students taking CATE courses in 2002-03 was 12,343, or 62% of the high school student population. However, if serving students means shepherding them through coherent pathways, then the CATE department is not meeting this goal. The CATE department does not maintain records of students who complete pathways, and this information is prohibitively difficult to assemble from district records, but 1,944 students, or 10% of the high school student population identified themselves as part of a pathway. This represents a decrease from 2001-02, when 3,227, or 17% of high school students were part of a CATE pathway.

PREPARATION FOR POSTSECONDARY OPTIONS

Internships

CATE teachers and administrators, in collaboration with Austin business, offer summer internships to CATE students. In the summer of 2002, six internships will be available in business through Washington Mutual. Another 10 internships in automotive repair and 7

internships in automotive collision and bodywork will be available through several local auto dealers. Internships are negotiated with area businesses and then offered to individual students based on availability. The CATE department does not maintain waiting lists or request lists, so it is impossible to assess whether every student who wants an internship can get one.

Certifications

The CATE program offers programs that culminate in certifications for specified careers in the areas of health care, culinary arts, and cosmetology. During the 2002-03 school year, 96 students were eligible for certifications. AISD does not have an effective system in place for tracking the number of students who receive certifications. This is especially difficult to track if students defer or retake the certification exams.

Students in certification programs may choose not to take certification exams or may delay taking them for a number of reasons. Some programs require a minimum amount of time of participation in the program. Students with too many absences may lose eligibility. Some students miss application deadlines or similar bureaucratic necessities. Also, there is usually an examination fee, which students may be unwilling or unable to pay. Some programs require students to complete a significant of workplace experience before taking certification exams. Finally, some students choose not to take the exams for personal reasons. These students sometimes take a later examination, but the system for reporting this to AISD staff is entirely informal.

Articulation Agreements

Articulation agreements are contracts between AISD and 2-year state colleges granting college credits for completions of specified courses or sequences of courses. During the 2002-03 school year, AISD had 26 tech prep articulation agreements that offered credit at any two-year state college in Texas for 87 individual courses and 10 sequences of 2 or more courses. In addition, AISD had one local agreement with Austin Community College that offered credit for 3 individual classes and 1 sequence of two classes. The CATE department does not maintain records of students who have completed articulation agreements, and because many of the agreements have branching sets of options, it is prohibitively difficult to gather the information from district records.

The system for using articulated courses for college credit places a lot of responsibility on students. The course numbers for articulated courses are not standardized throughout the state,

and no record or certificate is awarded, so students must remember that they took articulated coursework and explicitly request that colleges verify completion and grant credit.

Success in Meeting Goal of Preparation for Postsecondary Options

It is difficult to judge the success of programs that address postsecondary options. Centralized records are not kept for college credits earned through articulation agreements and the district does not follow CATE students to determine how many have received certifications.

DISCUSSION AND RECOMMENDATIONS

GOAL ACHIEVEMENT

Equal Opportunity

Demographically, the population of CATE is consistent with the population of the district. This argues that access to CATE resources based on student characteristics is equal. However, individual campuses vary widely in the number of CATE courses they offer. This may indicate a need to make CATE resources more equally available at all campuses.

Expansion of the Population Served

One emphasis in district program planning has been the establishment of coherent career pathways, yet almost half of the CATE courses offered are not part of a pathway. AISD staff should decide whether its primary mission is to offer coherent pathways to students who have made career choices, or to offer exploratory classes to the main body of students. Then, a comprehensive department strategy should be developed that either incorporates these classes into a plan or eliminates them.

This goal would be easier to pursue, and to evaluate progress on, if the CATE staff or guidance counselors maintained student-level data on pathway completion. The counselors have access to individual student data, but no mechanism exists to indicate how many students have completed each level of a pathway. Without that data, it is difficult to tell how well the CATE department is guiding students through coherent pathways.

Preparation for Postsecondary Options

CATE offers a number of programs, including internships, certification programs, and articulation agreements with colleges to prepare students for postsecondary options. However, neither CATE staff nor district evaluators have followed up on how the skills developed in these programs are utilized by students after graduation. A survey of CATE graduates to determine

how many graduates received their certifications and how many took advantage of articulated course credits would meet this data need.

Additionally, failure to keep records of articulation agreements satisfied by each student places a burden on students to remember that they have received credits and to request that colleges honor them. CATE staff should cooperate with counselors to maintain a record for each student, outlining completion of articulated coursework. This information should be sent to colleges at students' request, possibly attached to transcripts.

SYSTEMIC PROBLEMS

Some of the difficulties encountered by the CATE program this year, were caused or exacerbated by recurring problems of the department.

Poor Communication Outside the Department

Perhaps the biggest area for improvement in the CATE department is communication with people outside the department. CATE staff have had difficulty communicating program information to students, campus staff and other district administrators. During the 2002-03 school year, the CATE section of the Secondary School Information Guide (SSIG) was omitted to save printing costs. This section of the SSIG had provided information on courses, pathways, and graduation plans including CATE courses.

The Guidance and Counseling liaison was a positive step toward communication with counselors, but the CATE department still needs to take steps to improve communication with parents, students, and other administrators. Communication with other school officials is essential for CATE staff, because responsibility for functions of the CATE program is distributed among a number of departments in the district. Student recruiting is divided between the CATE Department and the Department of Guidance and Counseling. Although the CATE staff is responsible for creating course curricula and designing pathways, individual principals decide which classes will be held on their campuses and campus guidance counselors place students in those classes. According to surveys of department heads, coordination among these departments has been difficult. Breakdowns in communication with campuses have resulted in courses planned by central office staff but not offered at campuses. Breakdowns in communication with other district staff have fueled a perception by district administration that the CATE department is ineffective.

Unused Data

CATE staff have many data relevant to their programs stored in file drawers or distributed to very limited audiences. These data include: pathway charts, lists of certification programs, and articulation agreement requirements. The CATE department needs to gather these data and make them available to district staff and students as needed.

Lack of Needed Data

Some data sets that seem central to CATE function are never compiled. These include programmatic data such as lists of CATE courses and number of students in CATE classes, as well as student-level data such as pathway chosen, number of CATE courses taken, progress in a pathway, and progress in an articulated sequence. All these data sets should be compiled and made available on SASI or a similar centralized electronic system. The online version of the IACP, which will premiere in 2003-04, would be an ideal forum for gathering these student-level data.

The new service provider should review the programs offered in light of a coherent strategy to determine which ones are needed and which should be eliminated. Efforts should be made to integrate of CATE coursework with academic classes.

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