New York State's

Career and Technical Education Policy Initiative

Evaluation Report

November, 2004

MAG Educational Services, Inc.

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Executive Summary

The CTE policy is designed to assist school districts and BOCES to better prepare high school students to develop the universal work skills and the technical skills that can lead to high paying careers, as well as the academic competencies to pursue further education and training.

Overview

In 2001, The New York State Education Department (NYSED) crafted the Career and Technical Education Policy Initiative, by inviting all school districts and Boards of Cooperative Educational Services (BOCES) across the state to apply for state-endorsement of career and technical education (CTE) programs. The CTE policy is intended to create a flexible pathway to high school graduation—one that preserves the rigor and integrity of academic and technical education without duplication of coursework.

To evaluate the CTE policy three years after its inception, MAGI Educational Services, Inc., a private research and consulting firm,

surveyed 611 approved CTE programs from 38 BOCES and 12 local educational agencies (LEAs), as well as 141 CTE programs that had not applied for NYSED approval. In addition, we visited 14 sites across the state to conduct in-depth focus group interviews and classroom observations of approved CTE programs. Collectively, these data provided an independent perspective on the implementation and perceived early impact of NYS' CTE Policy Initiative.

Key Findings

Support for the CTE Policy

- NYSED policy was viewed as an opportunity to raise the quality of CTE programs.
- CTE programs were supervised and taught by experienced educators.
- Business and industry representatives figured prominently on CTE external review boards and took a proactive role in CTE programs.

Implementation of CTE Policy

- The self-study teams were primarily made up of CTE and academic teachers, but other members of the school community were well represented.
- A variety of student assessment data was collected for program improvement.
- Well over half the respondents claimed that professional staff were NYS certified in their program areas.
- The most sought-after professional development topics were on integrated course development, technology integration, and teaching diverse learners.
- Both LEAs and BOCES had restructured their fiscal and material resources, chiefly in the area of technology integration.
- CTE courses reflected research-based methods and commencement-level learning standards, in both academic and technical content.
- Work-based partners were predominantly used to provide applied learning experiences for CTE students.
- Most CTE programs used a national technical competency test.
- There were more articulation agreements with two-year than with four-year colleges, and agreements were clearly communicated to students.

- Finding time to schedule CTE courses and learning experiences was cited as a major constraint.

Early Impact of CTE Policy

- According to CTE teachers, students and their parents saw improvement in student skills and were satisfied with the quality of CTE programs.
- Teachers claimed that CTE programs had met the needs of student population groups.
- Increases in CTE enrollment, particularly in the technology and healthcare fields were similar to projected job trends for New York State.
- Considerable enrollment disparities in gender, race, and special education status exist in CTE programs.
- Although the NYS benchmark had only been met in academic skill attainment, the majority of CTE program completers have achieved technical skill proficiency, passed a technical assessment, and have been successfully placed.
- A vast majority of non-participating schools, citing an insufficiency of resources, had no plans to seek NYSED approval for their CTE programs.

Conclusions and Recommendations for Future Study

CTE programs in New York State have made a commendable beginning in their adherence to the NYSED policy, according to the quality indicators used in this study. Given that all CTE programs have been in operation for no more than three years, program improvement was an ongoing feature. Securing appropriate certification for all CTE staff was a laborious process, as was establishing articulation with postsecondary educational institutions. Professional development centered on academic and technical content integration, and CTE administrators were aware of the need to ensure adequate participation of academic teachers. Finding suitable industry-based technical assessments was a challenge for many CTE programs, an area in which respondents requested NYSED technical assistance. The weakest component of CTE programs was work-based learning, where program quality was largely dependent on the local economy.

Our findings from this early impact study suggest several directions to expand the CTE Initiative, strengthen existing programs, and build local capacity.

1. **Conduct follow-up studies of CTE graduates**.

   By studying outcomes for students who have graduated from approved CTE programs, the CTE policy initiative can determine whether added value has accrued to those students who select this graduation pathway in terms of postsecondary education, employment options, and earnings. Their outcomes could be compared with those students who graduate from non-approved CTE programs, as well as those who complete high school with little or no CTE courses.

2. **Study enrollment and outcome patterns for additional CTE program cohort years.**

   Building on the early findings of this pilot study, an examination of additional years of CTE program data can add considerable credibility to the CTE Initiative. Such analyses can inform stakeholders of changes in CTE policy perception, in student enrollment, and in student outcomes. These data, in turn, can shape refinements in CTE policy.

3. **Perform an in-depth analysis of non-participating school districts.**

   Our finding that about **80%** of non-participating district-based CTE programs chose not to apply for NYSED endorsement warrants further exploration, because it has a bearing on the potential statewide reach of CTE approved programs. While a lack of resources was cited as the chief obstacle in these schools, an in-depth examination of their challenges vis-à-vis CTE policy can point out areas for NYSED technical assistance.

4. **Design and pilot the use of a quality CTE indicator system for local self-assessment and program improvement**.

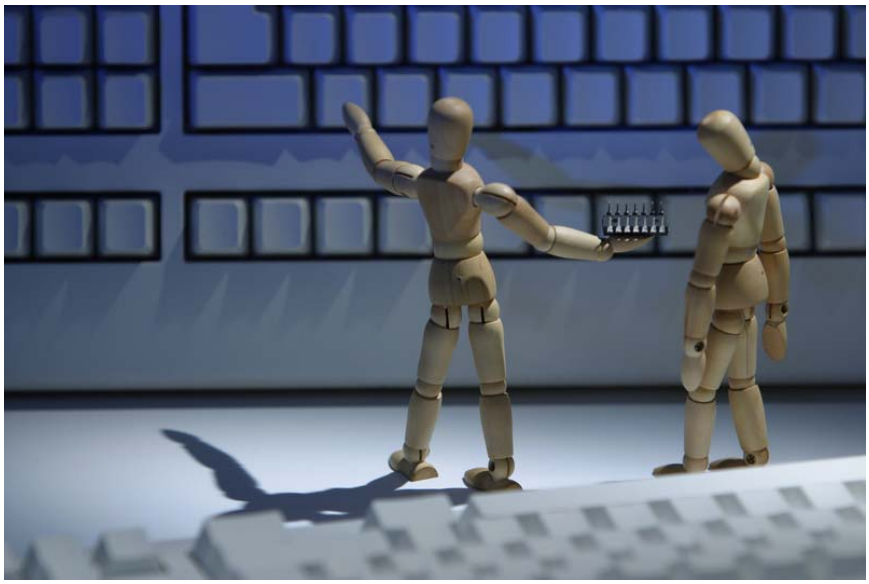
   In order to achieve excellence, it is important that CTE programs engage in continuous internal evaluation. Using the CTE quality indicators developed for this project, NYSED should design and pilot a local CTE self-assessment and program improvement system, so that all components of CTE programs maintain the highest standards of academic and technical integrity.

5. Identify strategies for marketing CTE programs, particularly in middle schools.

In their drive to raise student achievement, localities must determine effective strategies for increasing awareness of the CTE pathway among their feeder schools, i.e., middle schools. Localities exploring creative strategies for recruitment in the middle schools may consider the use of follow-up data on CTE graduates, as described on the preceding page.

Chapter One

Introduction



We are told that we live in an era of acute economic change, much like the period that surrounded the Industrial Revolution. The rapid rise of technology and global competition has forced us to reassess readiness of young adults to meet the higher intellectual and technical demands of the 21st century workplace. What we are witnessing in America today is a growing disconnect between high schools, postsecondary education, and the world of work. For example, many high school graduation tests have lower reading requirements than a large proportion of entry-level jobs (Daggett, 2001). We also know that 45% of students in two-year colleges do not return for the 2nd year (Meeder, 2003).

The need to address this skills gap has spawned a number of career education reform movements. Legislation in the 1990s—the original ***Carl D. Perkins Vocational and Applied Technology Act*** of 1990, the ***School to Work Opportunities Act*** of 1994 and the ***Tech Prep Act*** of 1998—pushed high schools to develop curricula that would prepare students for the world of work as well as provide a seamless transition to postsecondary education. And in the current wave of school accountability legislated by the ***No Child Left Behind Act*** of 2002, career and technical education (CTE) programs must prove that they also contribute to the academic proficiencies of their served student population on state academic tests. As the Bush administration considers the reauthorization of the ***Carl D. Perkins Vocational and Technical Education Act,*** CTE programs are expected to complement both the academic mission of the ***No Child Left Behind*** legislation and the workforce development mission of the ***Workforce Investment Act*** of 1998 (U. S. Department of Education, 2004).

The challenge for high schools has been to offer students a pathway which preserves the rigor and integrity of academic courses, as well as the career and technical standards dictated by industry. Given the increased graduation requirements authorized by the Board of Regents in 1999, such a pathway must provide flexibility and reduce duplication of coursework at the local level. In 2001, the New York State Education Department (NYSED) issued an invitation to all high schools and Boards of Cooperative Educational Services (BOCES) to apply for state-endorsed CTE pathways to graduation. In doing so, this policy would stimulate programs that:

- help every youth receive an academic education that prepares him/her for future education and career success,
- offer a smooth transition into a postsecondary program leading to a technical certificate, associate or baccalaureate degree, apprenticeship, or a job, and
- connect to workforce investment systems to strengthen regional workforce quality and economic competitiveness.

Three years since its inception, how has the state-endorsed CTE policy fared? MAGI Educational Services, Inc., an independent research and evaluation firm was contracted to answer this question. Employing a systems-based model of evaluation, we examined the *context* for CTE programs, their *design,* and the *outcomes* of the policy as measured by administrator and teacher perception, and student enrollment and outcome data. We also wanted to understand why certain CTE programs had not applied for state endorsement, the answers to which would guide state officials in the refinement of future policy. Our evaluation questions were the following.

1. What contextual factors influenced high schools and BOCES to design CTE programs that would meet the state policy requirements?

2. To what extent did the CTE programs adhere to state policy?

3. What outcomes have accrued for students and families, as measured by teacher and administrator perception and student enrollment/outcome data?

4. In what ways can CTE policy be improved/refined so that all students can take advantage of high quality CTE programs?

Evaluation Methods

A number of quantitative and qualitative data collection methods were used from multiple perspectives to cross-validate of our findings on key issues.

CTE Criteria and Indicators—drawing from nationally relevant studies and our past work, MAGI developed a comprehensive listing of CTE criteria and corresponding program indicators that would guide the overall evaluation agenda. With NYSED approval, we based our instrumentation design upon these variables.

Document Review—sample program approval applications, curricula crosswalks, employability profiles, and student portfolios were reviewed to obtain a snapshot of the scope and depth of typical CTE state-endorsed programs.

CTE Implementation Survey—an extensive survey was sent to all CTE approved programs across the state. Fifty-five administrators and 626 CTE teachers were sent a separate survey. Of these, 50 administrators and 611 teachers completed their surveys, resulting in a return rate of 91% and 98%, respectively. The surveys captured responses on key CTE cluster areas such as program planning, administration, curricula/instruction, work-based learning, postsecondary articulation, and student outcomes.

Non-Participant Survey—drawing from a geographically stratified random sampling of local school districts across the state, 85 principals were sent a brief survey to ascertain why their CTE programs had not been submitted for state approval. Subsequent follow-up attempts secured a return rate of 59%, representing 141 CTE programs.

Site Visits—a stratification by community (New York City, the Big 4 large cities, small cities, suburbs, and rural regions), need/resource capacity index, number of site programs, and a balance between BOCES and local school districts, resulted in the selection of 14 representative CTE sites. Interviews and focus groups were conducted with CTE coordinators, self-study team members, external review board members, postsecondary partners, students, and parents. In addition, we visited work sites to observe students on-the-job and to have conversations with employers.

Review of Electronic Databases—Student data from NYSED's 2002-2003 and 2003-2004 Career and Technical Education Database were examined to determine patterns and relationships between enrollment and outcome factors, such as CTE enrollment and graduation rates for special education students, and the proportion of CTE enrollees who achieved NYSED academic benchmarks.

Chapter Two

Key Findings

This section is organized into three parts. The first addresses the local context for CTE policy implementation, in particular, the organizational and support features that influenced schools in their decision to respond to the Initiative. The second part examines the extent to which CTE programs adhered to the prescribed NYSED policy, how programs were shaped by local needs and partnerships and the manner in which challenges were met. Finally, we describe the early impact of CTE approved programs for all constituents—students, schools, and community—taking into consideration both staff perception and student enrollment patterns and outcomes.

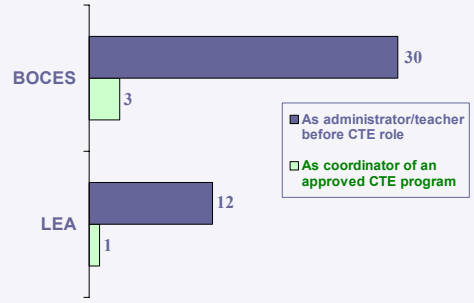
A. The Context

Sampling across urban, suburban, and rural regions of New York State, we analyzed 611 CTE programs that were housed in 38 BOCES and 12 local educational agencies (LEAs), i.e., school districts.

Leadership and Experience

CTE programs were supervised and taught by experienced educators.

Figure 1
CTE Coordinators' Leadership Experience



According to **Figure 1**,

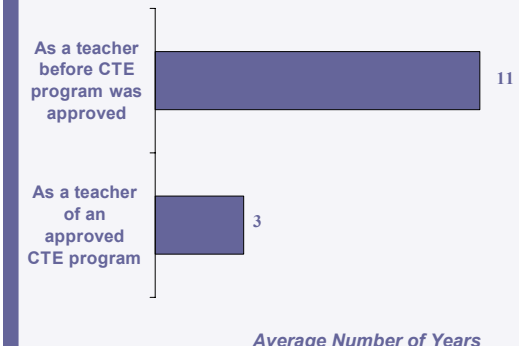
- CTE coordinators at BOCES centers had ***three times more*** administrative experience overseeing CTE programs than their counterparts in LEAs.
- BOCES administrators had more years of experience overall.

Closer examination of the data points to the fact that BOCES CTE programs had been in effect longer than those in LEAs, and many before the inception of the policy in 2001.

As seen in **Figure 2**,

- CTE programs in both LEAs and BOCES were taught by experienced teachers, who averaged a combined total of **14 *years*** in the profession.

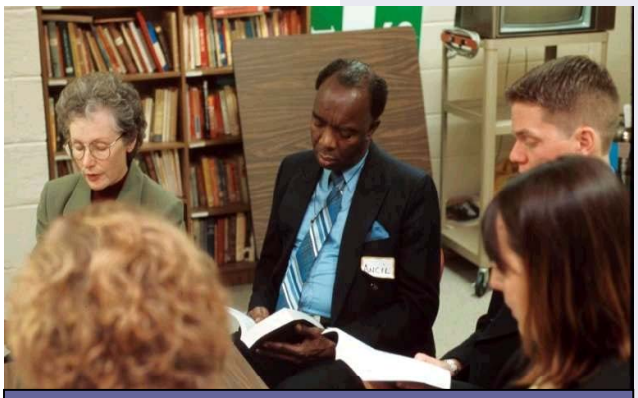
Figure 2
CTE Teacher Experience
(LEAs & BOCES combined)



Vision and Motivation

NYSED policy was viewed as an opportunity to raise the quality of CTE programs.

Between **51%** and **72%** of coordinators and teachers claimed that *to a great extent*, their CTE programs were guided by a common set of beliefs and values. In our interviews with self-study teams, their primary motivation for applying for NYSED endorsement was that it was an opportunity to "raise the credibility" of CTE programs. Many had begun this very process of upgrading and alignment with NYS Learning Standards well before NYSED's formal invitation. As a result, the first CTE programs to be submitted for NYSED approval were those that were "almost ready".



"The time was right. We needed to bring all our staff together to look closely at our programs, to throw out outdated stuff, to include current developments, and to refine our teaching. There is more work to do, but now we can hold our heads high."

CTE coordinator

Support for the CTE Concept

Coordinators and teachers were also asked whether stakeholders, such as the business community, teaching staff, parents, and the school board were supportive of the CTE concept.

Support for the CTE concept was generally high.

Figure 3A
Perception of Support by:
CTE Coordinators in LEAs

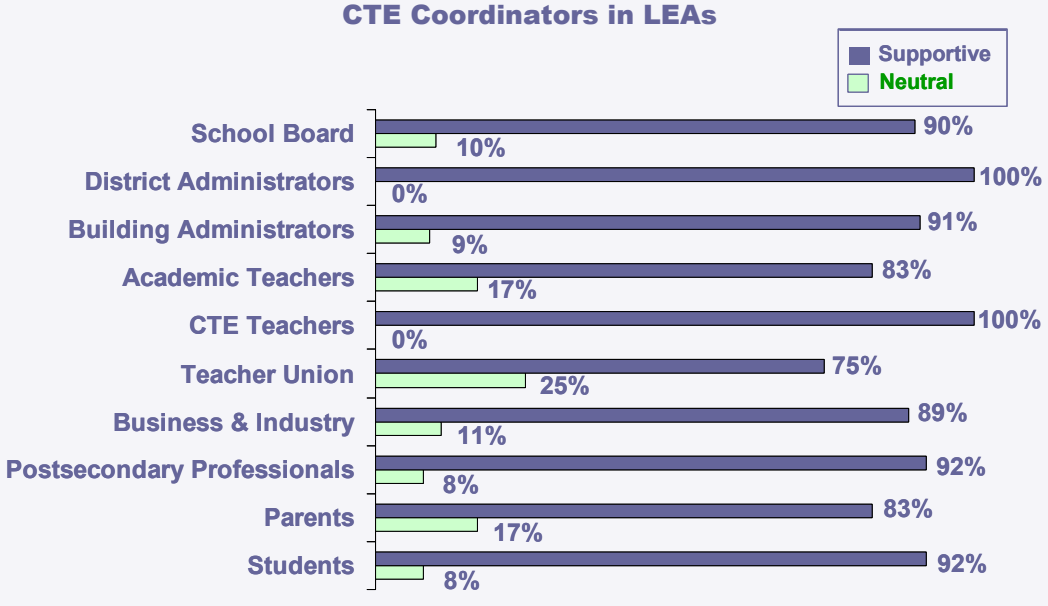


Figure 3B
Perception of Support by:
CTE Coordinators in BOCES

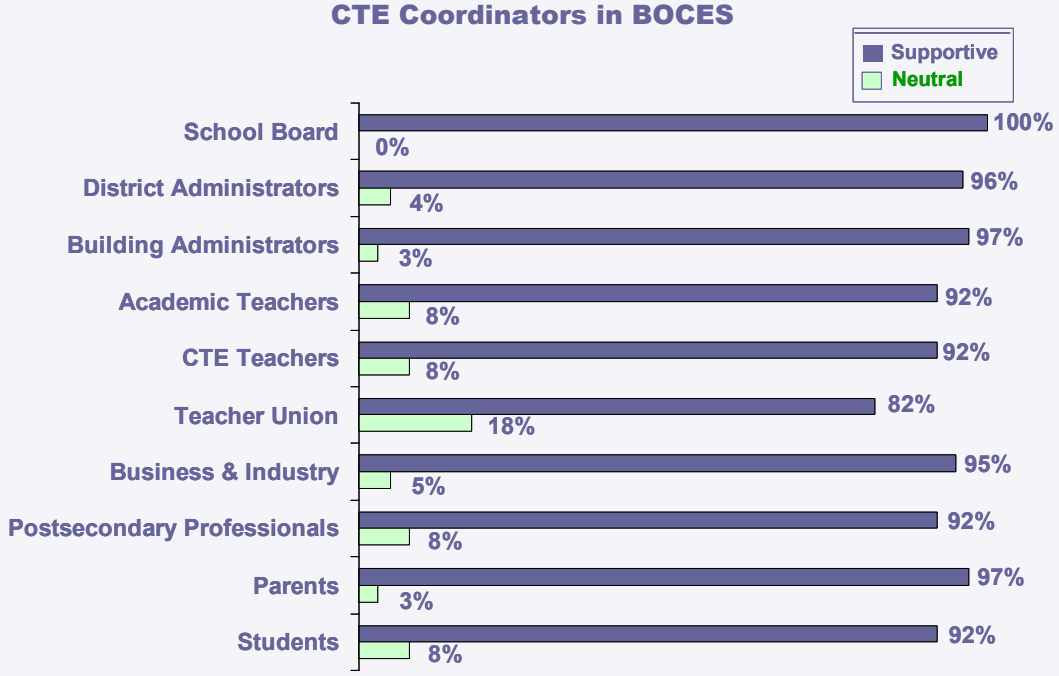
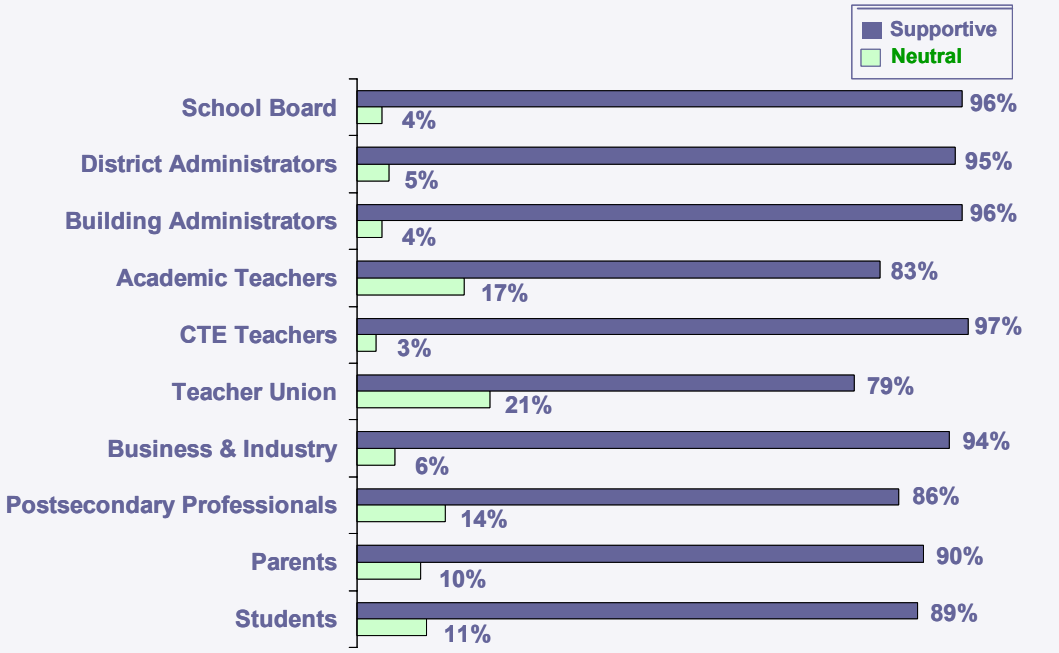


Figure 3C
Perception of Support by:
CTE Teachers (LEAs & BOCES combined)



Figures 3A, B, and C show that,

- over **75%** of all stakeholders supported the CTE concept, as perceived by respondents.
- between **18%** and **25%** of all respondents felt that teacher unions were neutral to the CTE concept.
- according to **17%** of coordinators in LEAs and **17%** of all CTE teachers, academic staff were also indifferent to the CTE concept.
- **10%** of CTE teachers felt that parents were unsure in their support for CTE programs.

These findings, in conjunction with our site visits, suggest that academic teachers and their unions may have felt some degree of insecurity from the possibility that increased student enrollment in CTE programs— all of which must integrate academic content under the CTE policy— could result in declining enrollment in traditional academic classes, thereby jeopardizing academic teaching positions. However, we were not able to support teachers' perception about parent neutrality to the CTE idea. All the parents we interviewed were strongly in support of CTE programs, both in LEAs and in BOCES centers.

B. Implementation of the NYSED CTE policy

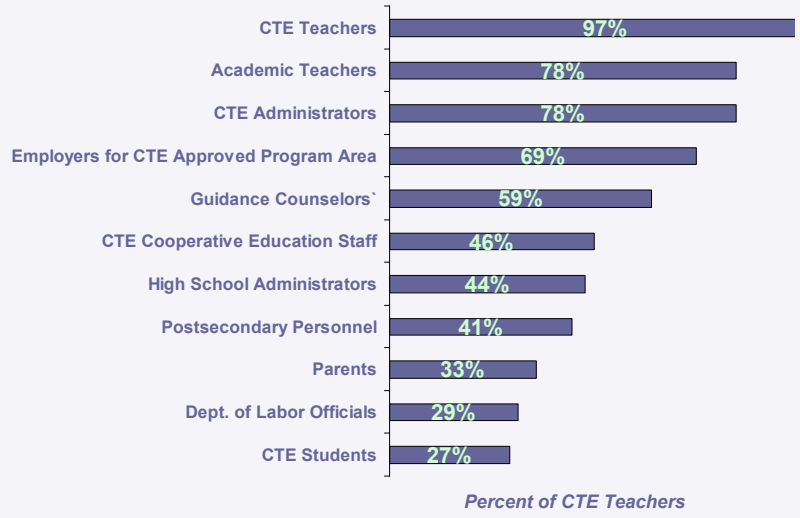
Planning

The Self-Study Team

The first step towards securing NYSED approval was the assembly of a self-study team for each CTE program area. In all LEAs and BOCES centers, these teams headed by the CTE program teacher, and were made up of an array of professionals whose task was to scrutinize, revise, and fine-tune the CTE curriculum.

The self-study teams were primarily made up of CTE and academic teachers, but other members of the school community were well represented.

Figure 4
Membership of Self-Study Teams



According to **Figure 4**,

- between **78%** and **97%** of respondents verified that CTE teachers, CTE administrators, and academic teachers were members of the self-study team.
- employers and guidance counselors were also present, as claimed by **59%** to **69%** of respondents.
- less than half the respondents felt that postsecondary personnel (**41%**) and students (**27%**) were on their teams.

Others on the team were special education teachers, advisory council members, and school board representatives. According to information we gathered in our site visits, the self-study process was laborious and difficult, extending from six months to about a year for many applicants. These teams met mostly after school hours and on designated staff development days. In some LEAs, the local BOCES curriculum specialist provided technical assistance, but this was atypical of most applicants' experience.

"In some areas we were surprised to discover how much rigor we had actually demanded of students, and in others, the academic specialists helped to tweak the curriculum. We all came away having learned something important."

CTE teacher

The work of these teams was guided by a set of *action plans* to (a) define the scope and direction of the CTE program; (b) gain input and support from stakeholders; (c) identify professional development for all relevant groups; (d) involve students so as to ensure access for those with disabilities, students who are disadvantaged, and academically talented; (e) evaluate and monitor the CTE program; and (f) ensure adequate funding for the CTE program. The vast majority of teachers surveyed (**80%** to **97%**) said that these plans were clear and coherent.

Despite its lengthy and detailed nature, the self-study process was recognized as a valuable one that improved staff communication across curricular areas, dispelled stereotypes about certain programs, and validated "job-embedded staff development."

External Review Board

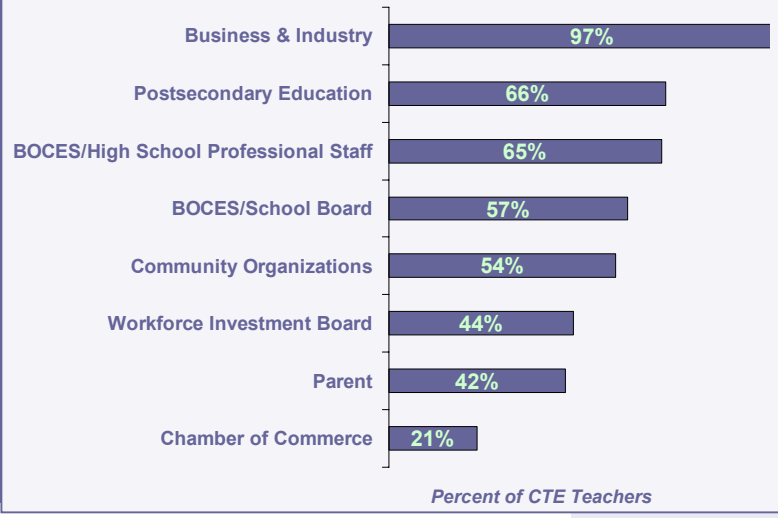
Upon completion of the self-study process, a panel of independent "consultants" used their expertise to review the newly designed/revised CTE curriculum. On average, there were 10 members on the external review board.

A diverse array of community partners served on the external review board.

As seen in **Figure 5**,

- almost all (**97%**) respondents reported that representatives from business and industry were present on the external review board.
- about two-thirds (**65%**) of teachers claimed that postsecondary educators and high school professional staff were members.
- less than half (**42%**) felt that parents were on the external board.

Figure 5
Membership of External Review Board



Other representatives cited were former students, state accreditation team members, and local government officials. Qualitative data analyses from focus group interviews indicated that the diversity of membership helped to review the CTE curriculum from many points of view. Business representatives were impressed with the quality and depth of pedagogy that was evident in the curriculum. One member commented, "I can assure you that students graduating from these classes are far better prepared for what they'll confront in my business than are most of my associates who come to me with a plain high school diploma."

With respect to the academic content of the CTE curriculum, it was not clear whether high school academic teaching staff *co-designed* the course syllabus with the CTE teachers, or whether their role came into play at the time of external review. With very few exceptions, our interviews with self-study teams did not include high school academic teaching staff. Conflicts in scheduling may have impeded their presence.

Program Administration

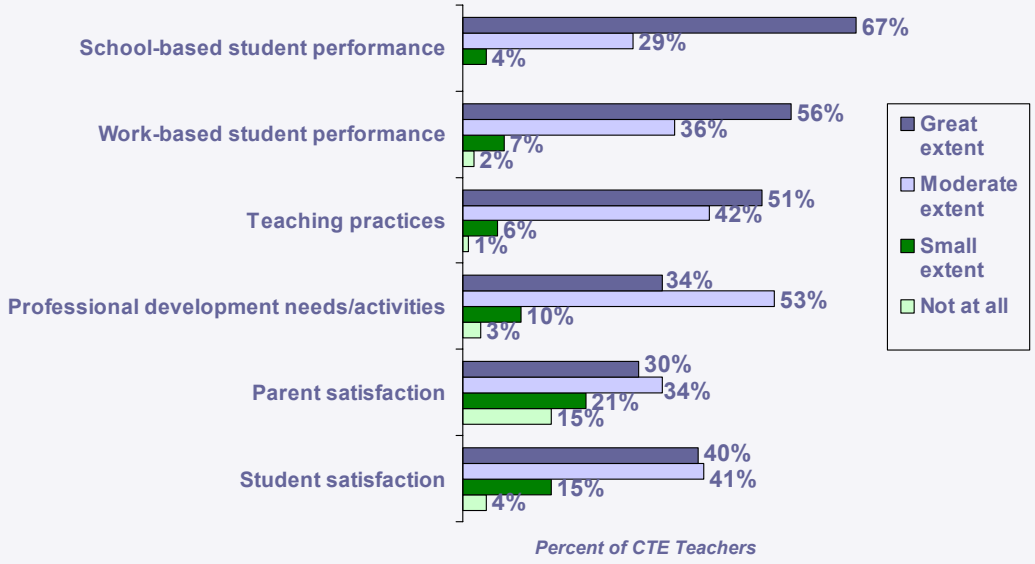
Self Assessment

A variety of student assessment data was collected for program improvement.

As seen in **Figure 6**,

- over **80%** of respondents claimed that assessment data from student performance, student satisfaction, teaching practices, and professional development were used—to a *moderate* and *great extent*— to improve CTE programs.
- using parent feedback was less extensive (**64%**, to a *moderate* and *great extent*).

Figure 6
Extent to which Assessment Data is Used for CTE Program Improvement



Also used for self assessment were employer satisfaction and student follow-up surveys. Self assessment methods that needed improvement were:

- career plans, cited by **35%** of teachers, and
- career plan portfolios, cited by **30%** of teachers

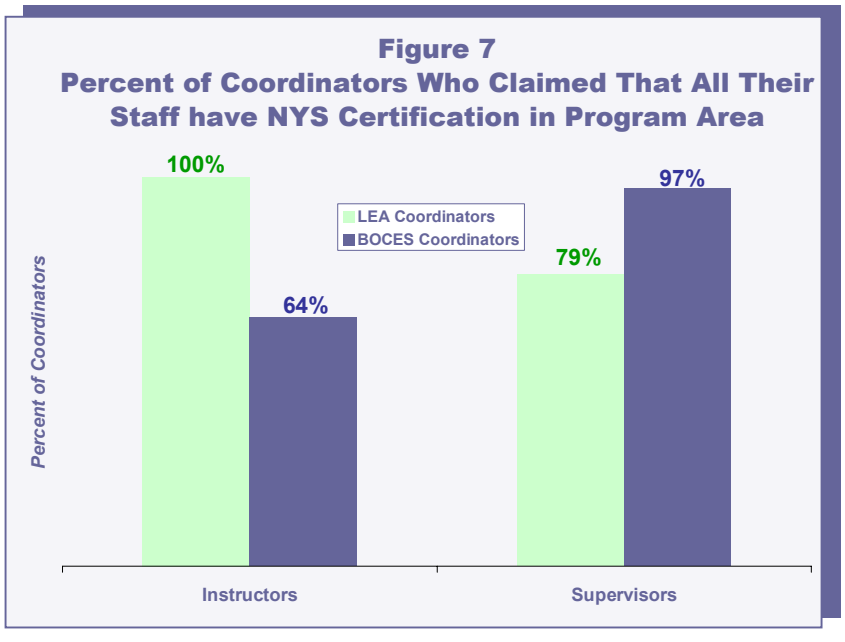
Personnel

Certification

Well over half the respondents claimed that their professional staff were NYS certified in their program areas.

As **Figure 7** indicates,

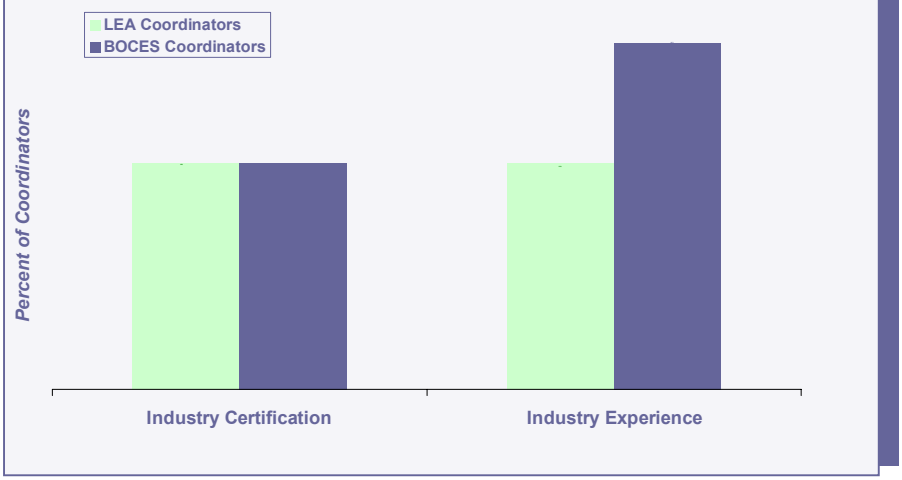
- at LEAs, **100%** of coordinators reported that all instructors were appropriately certified, though **79%** of them claimed that to be true of supervisors.
- at BOCES centers, **64%** of coordinators felt that all instructors were certified, but that proportion increased to **97%** with respect to the certification of supervisors.



Further inspection of the data revealed that high school *supervisors* of CTE programs came to the position with prior academic certification,

while supervisors at BOCES centers were drawn from existing administrative ranks. Conversely, high school *instructors* generally underwent conventional teacher preparation prior to seeking employment, whereas instructors at BOCES centers came to the CTE classroom with prior industrial experience and completed their teaching certification requirements while on-the-job.[1] This difference is further illustrated in the following graph (**Figure 8**):

Figure 8
Percent of Coordinators Who Claimed That All Their Staff have Industry Certification and Experience



- While just **58%** of LEA and BOCES coordinators reported that all staff are industry *certified*, many more BOCES coordinators (**89%**) testified that all their staff have industrial *experience*.

Supervision

On average, CTE coordinators conducted classroom observations of CTE teachers three to four times a year. Informal feedback was provided about 30 to 50 times a year. Supervision of work-based learning experiences for CTE students was conducted about six times a year by the work-study coordinator. In general, **50%** to **60%** of coordinators claimed to use the above information to *a great extent* for program improvement.

[1] We found an interesting departure from the above pattern at a site visit, where a pre-engineering CTE program was taught by an adjunct college faculty member.

Professional Development

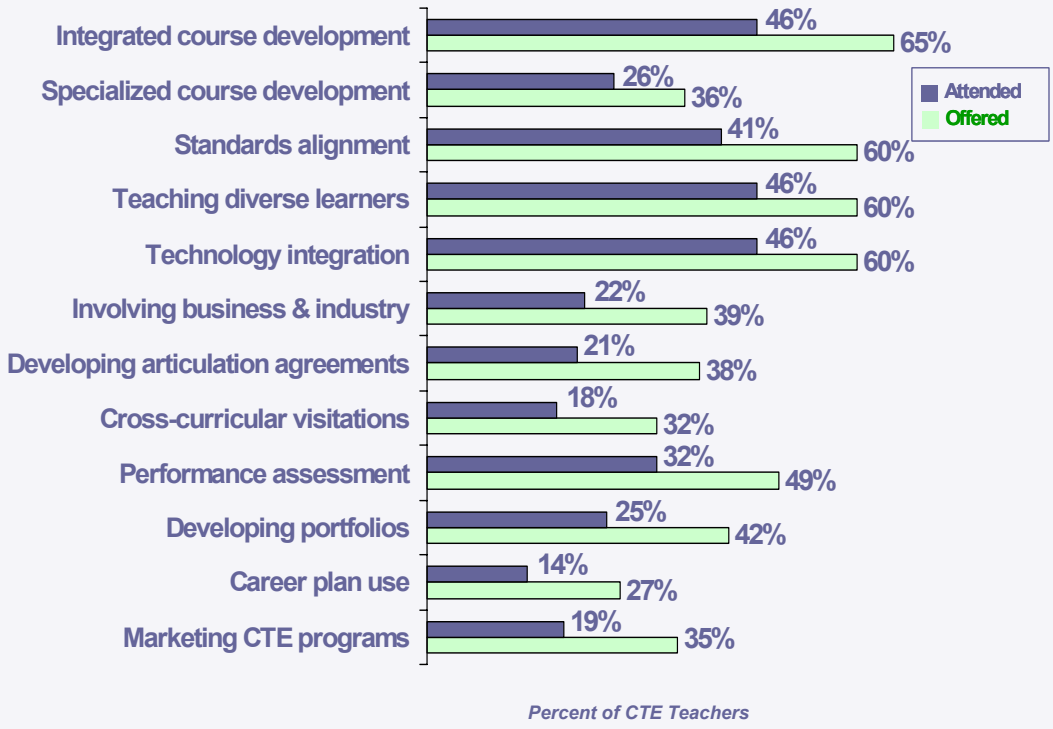
Both CTE coordinators and faculty reported that about **seven** CTE-related professional development activities/workshops were conducted during 2003-2004, attended by **60%** to **90%** of CTE faculty.

The most sought-after professional development centered around integrated course development, technology integration, and teaching diverse learners.

According to **Figure 9**,

- **60%** or more of teachers claimed that integrated course development, technology integration, teaching diverse learners, and standards alignment were offered as professional development topics. These were also the most heavily attended.
- topics less frequently offered and attended were career plan use (*offered* to **27%** of teachers, and *attended* by **14%** of teachers) and cross-curricular visitations (**32%** and **18%**, respectively).

Figure 9
Percent of CTE Teachers Who Were Offered and Who Attended Professional Development in 2003-04

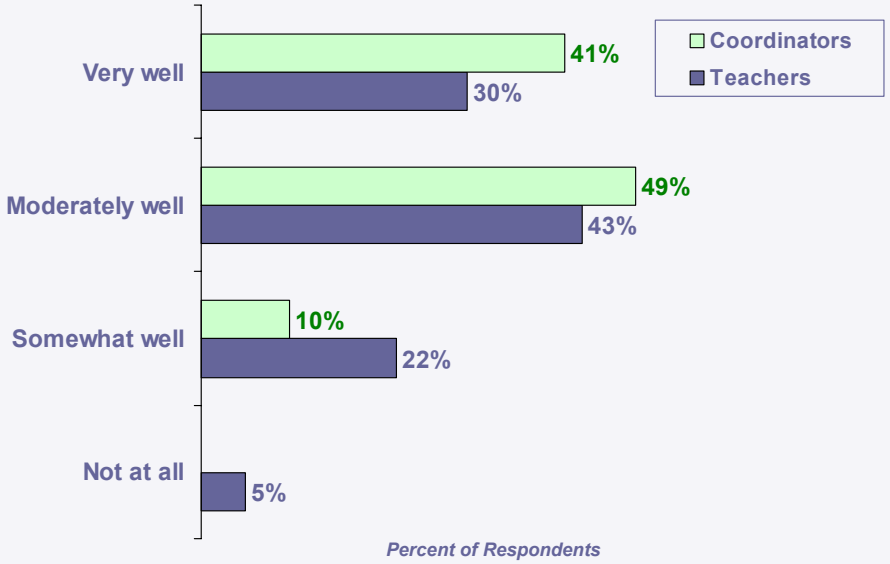


CTE staff were reasonably satisfied with the quality of professional development.

As shown in Figure 10,

- a greater proportion of coordinators than teachers felt that professional development had adequately prepared CTE teachers for their roles.

Figure 10
How Well did Professional Development Prepare You for Your Professional Roles?



Coordinators and teachers differed in their perception of additional professional development needs.

Figure 11
Additional Professional Development Needs as Perceived by CTE Coordinators and Teachers

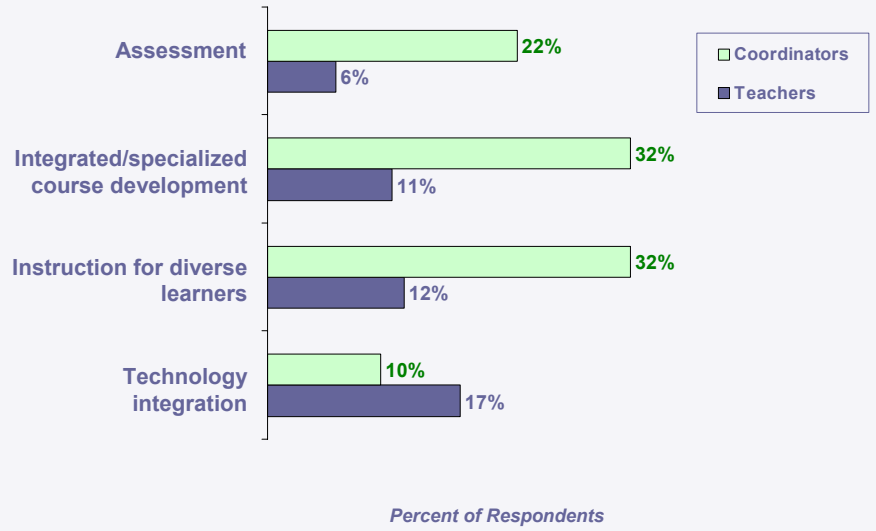


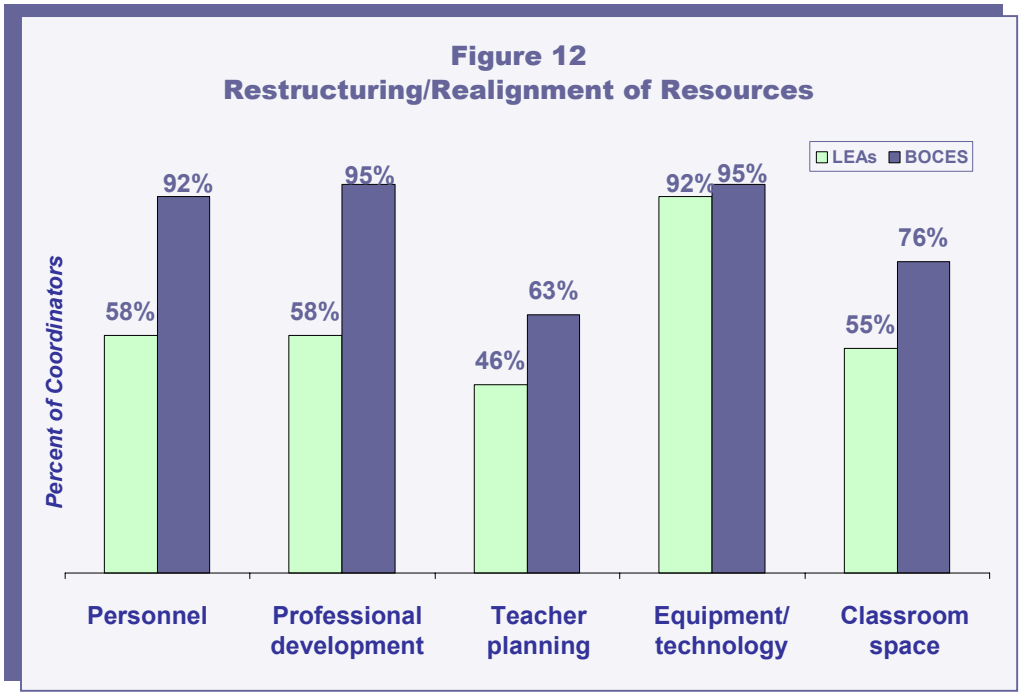
Figure 11 shows that,

- **22%** of coordinators cited a need for additional training in *assessment*, whereas just **6%** of teachers felt the same.
- **32%** of coordinators claimed that additional training was needed in (a) *integrated/ specialized course development* and (b) *instruction for diverse learners,* whereas only **11%-12%** of teachers felt the same.
- **17%** of teachers requested more training in *technology integration*, while just **10%** of coordinators supported the same.

Taken together, these findings suggest that the CTE policy had placed considerable demands on personnel. While the greater majority of respondents reported that all staff at LEAs and BOCES were appropriately credentialed, a sizeable proportion (**64%** to **75%** of respondents) felt that gaps in certification existed and were being addressed. At a few sites, we were told that NYSED "had held up approval" of staff credentials, which in turn had delayed CTE program endorsement. Furthermore, additional training needs persisted at all sites, and some of these were "overwhelming". In the words of a CTE computer systems teacher, *"There just aren't enough hours in the school year to get all the training I need to be fully competent to run my CTE class."*

Fiscal and Material Resources

Both LEAs and BOCES have restructured their fiscal and material resources, chiefly in the area of technology and equipment.



As shown in **Figure 12**,

- changes in equipment and technology were cited by over **90%** of coordinators in both LEAs and BOCES centers.
- in the areas of personnel (**92%**), professional development (**95%**), classroom space (**76%**), and teacher planning time (**63%**), BOCES coordinators claimed to have made more restructuring efforts than their counterparts in LEAs. Content analyses of interview data revealed that part-time academic teachers had moved into full-time positions, as a function of the CTE policy.

Areas where additional restructuring occurred were rescheduling, work-based learning, testing and curricular materials.

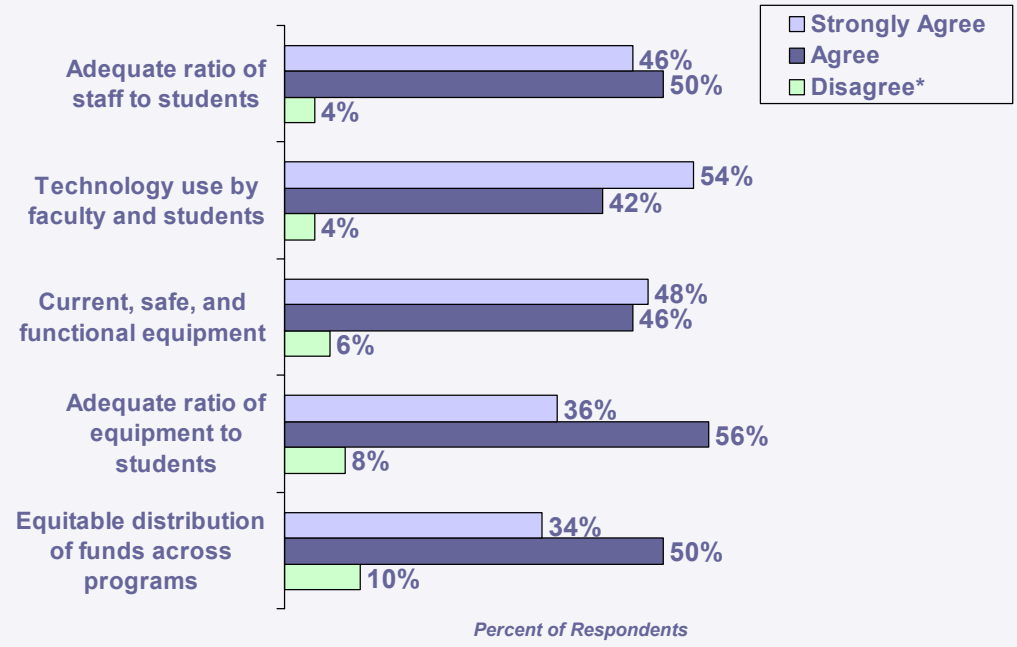
How adequate were the resources allocated to CTE programs?

Most CTE staff felt that they had adequate resources to operate CTE programs.

According to **Figure 13**,

- between **84%** and **96%** of respondents agreed that resource allocation to CTE programs was equitable (*agree* and *strongly agree* combined).

Figure 13
Adequacy of Resources



*"Strongly disagree" and "Disagree" were combined since proportions of respondents were very small in both categories

However, further analyses revealed that LEA and BOCES coordinators differed in their perception of *work-based learning* resources. While just **8%** of BOCES coordinators claimed that the ratio of work-study supervisors to students was unmanageable, **25%** of LEA coordinators felt that to be true. Again, only **16%** of BOCES coordinators reported that the number of employers available for work-based learning experiences was insufficient, whereas twice as many LEA coordinators (**33%**) claimed that was the case.

We suspect that this difference is largely due to the fact that the infrastructure required for work experiences was present in BOCES centers long before the CTE policy went into effect and hence, their

programs had little "tweaking" to do in order to secure approval. LEAs on the other hand, may have required significant reallocation of resources since traditional high schools are not structured to provide work-based programs. Our inference was confirmed in conversations we had with administrators and teachers during site visits.

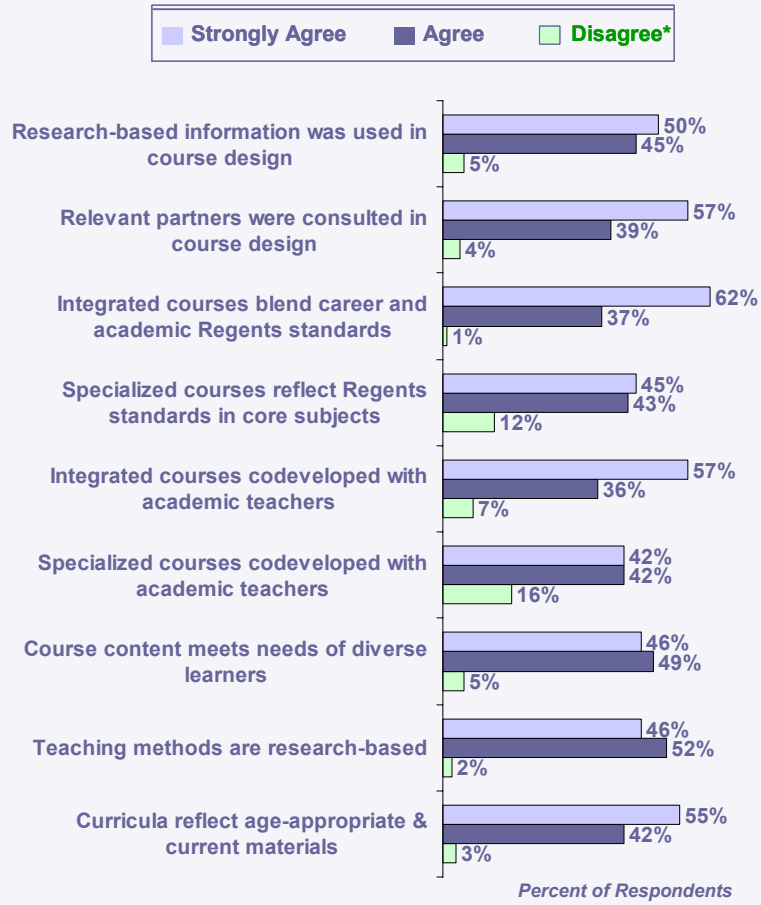
Curriculum and Instruction

CTE courses reflected research-based methods and commencement-level learning standards in both academic and technical content.

As seen in **Figure 14**,

- over **60%** of teachers *strongly agreed* that integrated courses blended career and academic Regents standards and **57%** also *strongly agreed* that they were co-developed with academic teachers.

Figure 14
Teacher Perceptions about their CTE Curricula



** "Strongly disagree" and "Disagree" were combined because the proportion of respondents were very small in both categories*

- fewer (**42%**) *strongly agreed* and *agreed* that specialized courses were co-developed with academic teachers. A similar proportion (**43%** to **45%**) strongly concurred that specialized courses reflected Regents standards in core subjects.
- over **50%** of respondents *strongly agreed* that CTE courses reflected age-appropriate and current materials and that relevant partners were consulted in course design.

These findings suggest that while most CTE programs have adhered to NYSED policy in course development as perceived by CTE teachers, the policy created some challenging demands. Our site visit observations indicated gaps in the development of integrated courses. Authorization of academic credit was pending at several sites and at others, the component schools had refused to grant academic credit.[2] These experiences were discouraging to applicants who felt their work had been devalued.

"If specialized/integrated academic credits for CTE programs have been approved by NYSED, then NYSED should reinforce the obligation of home districts to ensure that students should receive the credit(s) earned. This policy should be uniform for ALL home schools."

CTE coordinator

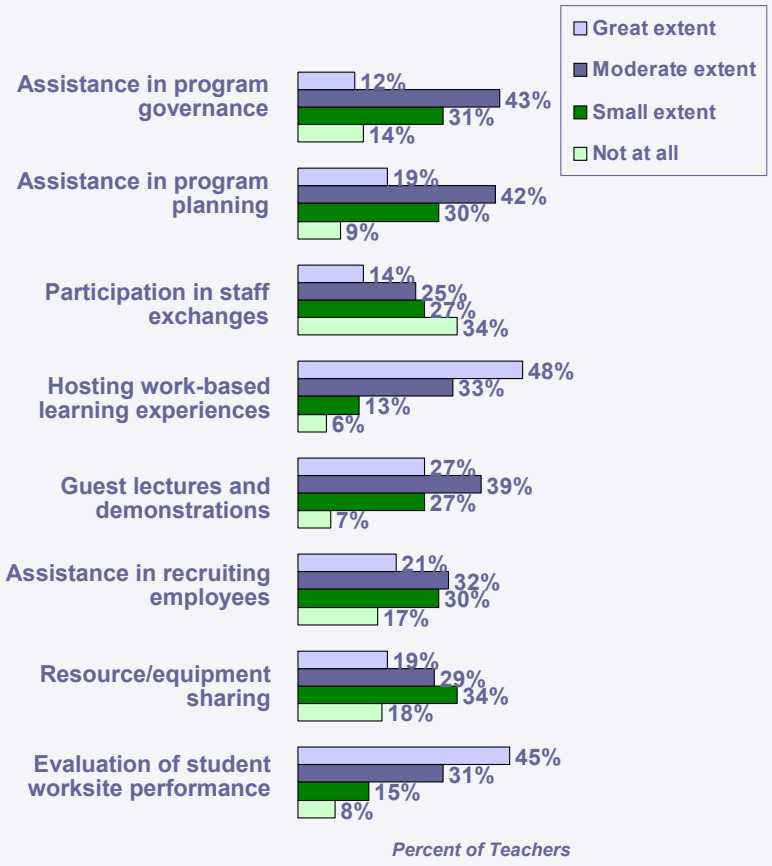
Work-based Learning

Over **65%** of CTE teachers maintained five or more business partnerships for the purpose of promoting work-based learning. On the average, CTE programs used six work sites per year to host field experiences for their students.

[2] Conversations with CTE staff suggested multiple and changing interpretations of what constituted "integrated" and "specialized" courses. Also, we were told that NYSED's policy with respect to academic credit authorization had shifted since policy inception in 2001.

Work-based partners were predominately used to provide applied learning experiences for CTE students.

Figure 15
Involvement of Work-based Partners in CTE Programs



As seen in **Figure 15**,

- most teachers used work-based partners to host learning experiences to evaluate student worksite performance to a *moderate* and *great extent* (**81%** and **76%** respectively).
- partners were used to a *moderate and great extent* by **66%** of teachers in order to provide guest lectures and demonstrations.
- **34%** of teachers did *not* use partners in staff exchanges.

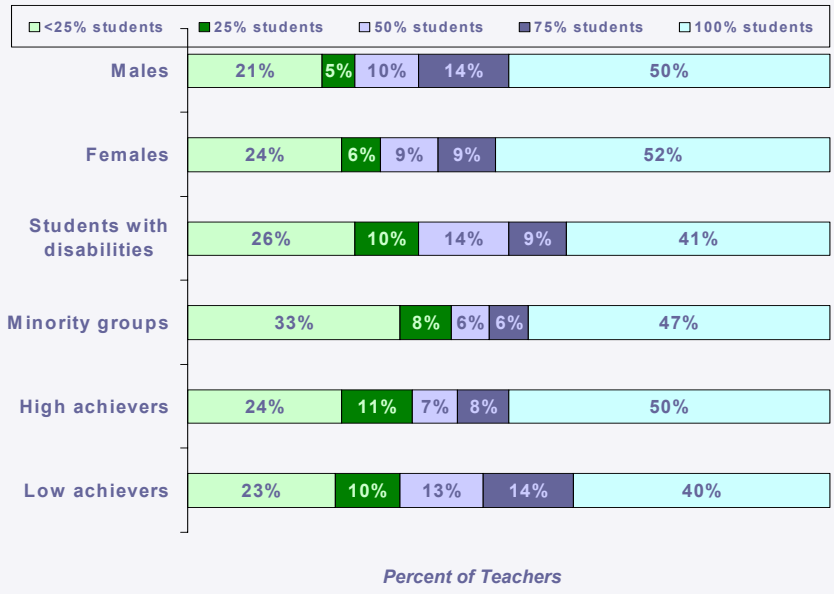
Other ways business partners were used were in (a) hosting field trips, (b) judging contests, such as Skills USA, and in (c) evaluating technical assessments.

Students from all population subgroups participated in work-based learning in about half of all CTE programs.

Figure 16 shows that,

- between **50%** and **52%** of CTE teachers placed all their male and female students in work-based learning experiences.
- all high achieving students were also placed by **50%** of teachers, while all low achievers were placed by **40%** of respondents.
- between **41%** and **47%** of CTE programs placed all students with disabilities and those from minority groups.

Figure 16
Involvement of Students in Work-based Learning



Respondents claimed that **50%** of weekly class time was spent in work-based learning. Over **75%** of teachers felt that work-based learning was supported by training plans for students, procedural and accountability safeguards, and a monitoring plan.

From a qualitative point of view, we observed considerable diversity in CTE work experiences.

(a) Curricular Connections

Some worksites appeared to have a tenuous connection with the academic and technical components of their curriculum, such as certain agricultural (farm) and culinary field sites where students appeared to be engaged in tasks that bore little to no applied relationship to the CTE curriculum. Others, such as those in childcare and nursing required student interns to apply technical and academic knowledge to the care of their clients and these were closely supervised by professionals at the host site.

(b) Availability of Work Sites

We witnessed large disparities in the availability of worksites between rural and urban regions of the state. In urban areas, there was no dearth of worksites for all levels of student ability. As a result, the ratio of worksites to students was reasonable and manageable. In rural regions, schools had to rely on the small number of available business partners, who were willing to shepherd student interns through phases of their business. In some cases, these employers felt overwhelmed with the large number of requests from schools.

(c) Transportation Challenges

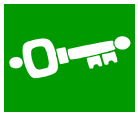
In urban areas that were well connected by public transportation, work-based programs enjoyed considerable flexibility in scheduling and supervision. For many rural CTE programs, transportation issues were the primary obstacles to placement of students. Many LEAs and BOCES centers dedicated their own vans and station wagons to the transportation of students.

(d) CTE Program Restrictions

In certain trade areas such as cosmetology, certification/licensure by the industry is a prerequisite to hands-on work in the field. As a result, work-based learning in these fields was limited to on-campus salons and simulated work projects.

Industry-based Technical Assessments

One of the (optional) CTE policy criteria for attaining NYSED approval is that programs secure and administer technical assessments that meet the industrial standards in the CTE program area. In other words, in addition to meeting the academic benchmarks as set by the NYS Regents, students graduating from CTE programs may also demonstrate proficiency on industry-based technical test.

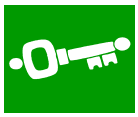


Most CTE programs used a national technical competency test.

Our findings showed that the vast majority of approved CTE programs used a national industry test—the National Occupational Competency Testing Institute (NOCTI) test—in fields such as business occupations, construction trades, culinary arts, and machine and small engine trades. However, certain CTE programs such as nursing and cosmetology used New York State licensing tests. In other programs, we found that self-study teams engaged in developing original technical assessments because no appropriate industrial measure existed, or because the prevailing NOCTI test did not adequately measure student competence vis-à-vis the CTE curriculum.

During our interviews with CTE teams, we were told that finding appropriate industry-based technical assessments posed a significant burden on the CTE application process. In fact, it was often the one component that stood in the way of application completion. Many participants felt that NYSED should have provided them with the resource information in their program areas. In their words, “This is the sort of technical assistance we expected from NYSED.”

Postsecondary Articulation

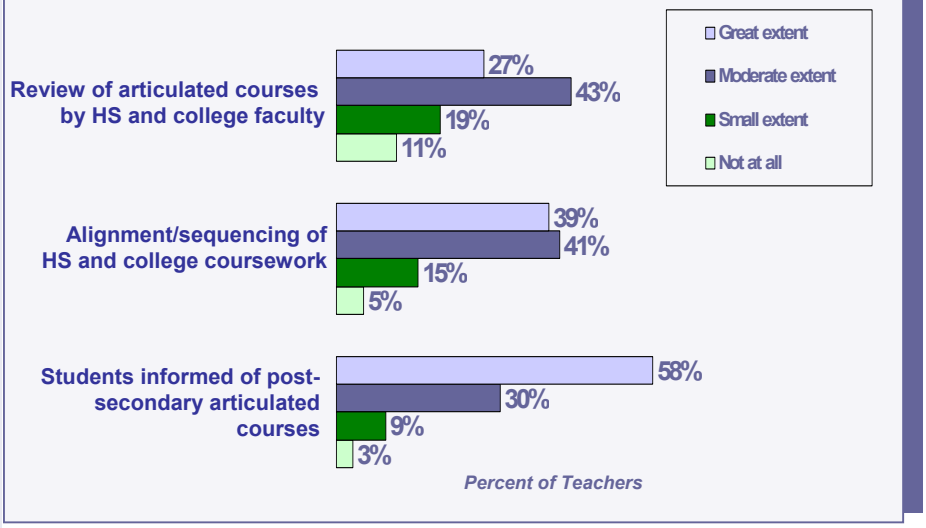


There were more articulation agreements with two-year than with four-year colleges, and most respondents felt that the agreements were clearly specified and communicated to students.

Approved CTE programs had established articulation agreements with colleges that would allow students to receive college credit for CTE courses that they passed in high school. The median number of agreements with 2-year colleges was two, and that with 4-year colleges was one.

Over **70%** of respondents said that the agreements clearly specified prerequisite skills/courses needed, the number of college credits that could be earned, and the roles and responsibilities of both CTE and college programs. Between **15%** and **20%** of respondents claimed that the agreements needed improvement.

Figure 17
Features of Postsecondary Articulation Agreements



According to **Figure 17**,

- almost **60%** of respondents believed that students were informed of articulated courses (to a *great extent*), but under **50%** of them felt that the courses were aligned and reviewed by faculty at both levels (to a *moderate extent*).

Several CTE teachers told us that securing college articulation was a challenging task, made more arduous by the fact that there was no facilitator to move the process along. As a result, ambiguities about the number of credits that could be earned and the "seamless" sequencing of courses, were not resolved in a timely manner.

"I like the fact that I can earn college credit because that will definitely cut the cost of college tuition."

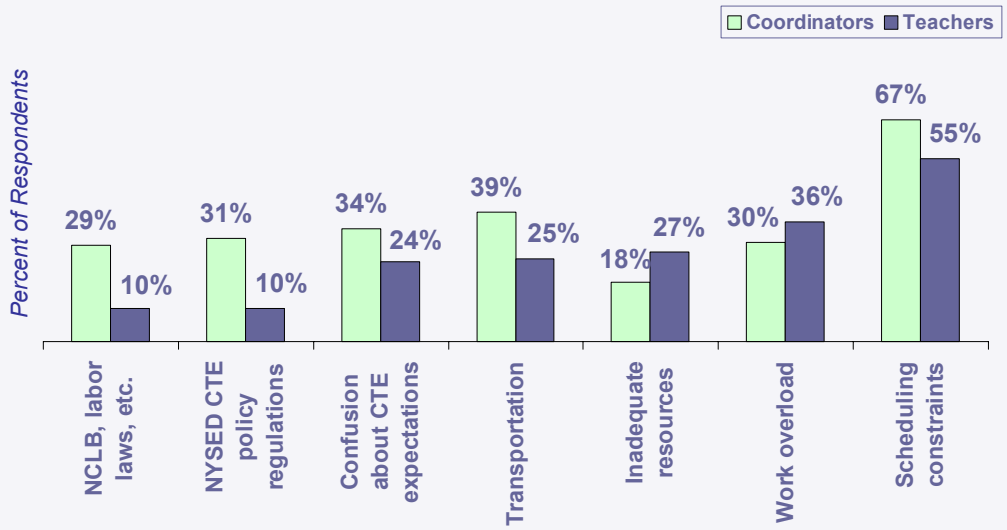
CTE student

We also noticed that in a small number of LEAs, college articulation was not a determining factor for CTE course selection by students. If they had decided to enroll in an articulated CTE course, it was because of an inherent interest in the subject (i.e., business marketing), and their college plans may not have included the particular institution that granted course credit. Yet in rural schools and BOCES centers, college articulation was an incentive to pursue postsecondary education.

Obstacles to Implementation

Finding time to schedule CTE courses and learning experiences was cited as the major constraint.

Figure 18
Obstacles to CTE Program Implementation



As **Figure 18** shows,

- the majority of coordinators (**67%**) and teachers (**55%**) claimed that scheduling constraints stood in the way of CTE program implementation.
- over one-third of teachers (**36%**) felt that work overload was an obstacle.
- transportation issues (**39%**) and confusion about CTE expectations (**34%**) were cited as additional constraints by coordinators.

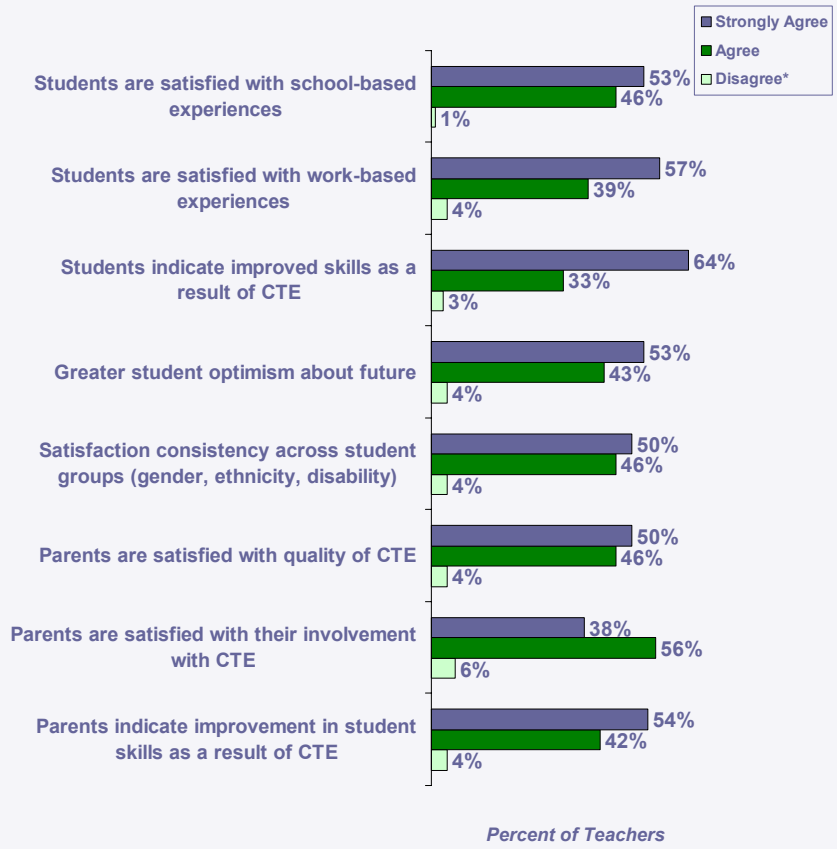
Confusion over CTE expectations included a perception of inconsistency in NYSED's policy that led to different interpretations. Other obstacles were fragmented academic support for CTE programs, greater numbers of special needs students who may not be able to meet the higher expectations, and shortage of worksites.

C. Impact of CTE Policy

Student and Parent Satisfaction

Teachers reported that students and parents perceived improvement in student skills and were satisfied with the quality of CTE programs.

Figure 19
Outcomes of CTE Programs as Perceived by CTE Teachers

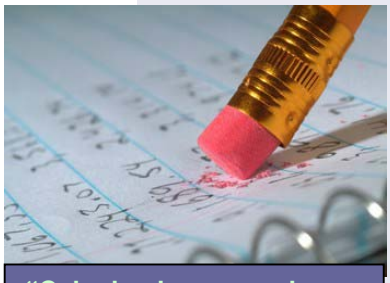


**Strongly disagree" and "Disagree" were combined since proportions of respondents were very small in both categories*

As seen in **Figure 19**,

- **54%** of teachers *strongly agreed* that parents saw improvement in student skills, and **64%** of teachers also *strongly agreed* that students believed they had improved their skills as a result of the CTE program.
- over **50%** of teachers *strongly agreed* that students were satisfied with school-based and work-based experiences and that they felt an optimism about their own future.

- just **50%** of teachers *strongly agreed* that there was consistency of satisfaction across student groups (gender, ethnicity, and disability).
- a smaller proportion (**38%**) *strongly agreed* that parents were satisfied with their involvement with CTE programs.

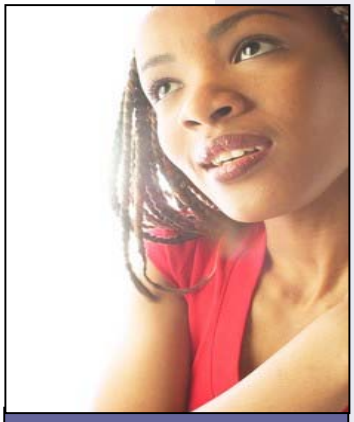


"Calculus has never been this hard at my home school. I'm also getting to be a better writer."

CTE student

In our interviews with teachers, students, and parents, the feedback we received about CTE programs was overwhelmingly positive, both in LEAs and in BOCES centers. When asked about the rigor of academics and the academic credit given, students generally commented that courses were more challenging as well as more enjoyable in CTE programs. Most students said that BOCES centers typically got a poor reputation and that students attending classes ran the risk of being stigmatized. However, they were pleasantly surprised to find that, "teachers here treat you like adults…you're held to a higher standard…teachers really care if you fail."

Parents unanimously said that CTE programs produced better outcomes for their children than had their children remained in a traditional academic track. "Here, they have choices, and are two steps ahead." Parents also volunteered for various CTE activities, such as fundraising, Skills USA, and FFA.



"My daughter had no goals two years ago. Since joining the CTE program, she dreams of going to FIT (Fashion Institute of Technology)."

CTE parent

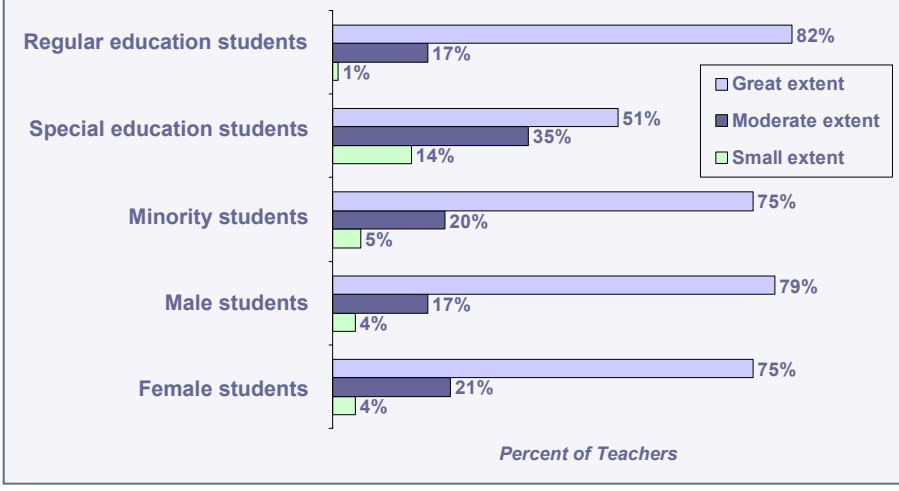
Teachers and administrators, while admitting to an arduous application process that was often stymied by changes/confusion in NYSED policy interpretation, concurred that on balance, the policy has resulted in a "win-win" situation for all partners. They had not expected to find that students took first and second places at national competitions, and that employers had offered students more advanced positions than those for which they had applied.

"The program is a very big success. Students have participated in events held by the New York Federal Reserve, New York Stock Exchange and several major financial service businesses."

CTE teacher

The majority of teachers claimed that CTE programs had met the needs of student groups.

Figure 20
To What Extent Does Your CTE Program Meet the Needs of the Following Groups?



As seen in **Figure 20**,

- the majority of teachers reported that CTE programs, to a *great extent,* met the needs of regular education students (**82%**), minority students (**75%**), male (**79%**) and female (**75%**) students.
- only **51%** of respondents felt the same was true for special education students.

This difference may reflect ”flip side” of their perception of the quality and improved rigor required of growing CTE programs. Teachers were uncertain of how students with diverse learning needs would succeed under higher learning standards. This sentiment was validated by teacher comments about program challenges such as:

“High numbers of special needs learners”

“Dramatically reduced reading and writing skills of incoming students”

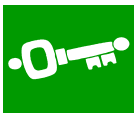
“Increasing number of incoming students w/ reading levels below 6th grade”

Student enrollment and outcomes in 2002-2003

What was the impact of NYSED's policy on student enrollment and outcomes in CTE programs? To answer this question, we isolated data from the Career and Technical Education Data System (CTEDS) for the years 2002 through 2004 because these were the years closest to the inception of the CTE policy for which there were complete data on the variables of interest to this study.

Student enrollment trends

We compared enrollment patterns in matched program clusters[3] between 2002-2003 and 2003-2004 to see whether there were shifts in enrollment, and to determine the extent to which these changes matched job trends in New York State.



Increases in CTE enrollment, particularly in the technology and health care fields, were similar to projected job trends in New York State.

Table 1
CTE Enrollment Patterns in 2002-2003 and 2003-2004
(n=328 CTE Programs)

#	Program Cluster	2002-2003	2003-2004	Percent Change
1	Business & Office Management	451	649	44%
2	Technology & Communications	2,408	2,769	15%
3	Agriculture & Renewable Resources	388	430	11%
4	Marketing & Distribution	199	221	11%
5	Health Care	829	915	10%
6	Food Service & Hospitality	1,529	1,608	5%
7	Personal & Other Services	3,015	3,098	3%
8	Public & Protective Services	1,062	1,060	0%
9	Trade & Industry	9,625	9,561	-1%
10	Child Care	875	842	-4%

[3] Individual CTE programs were grouped into larger clusters according to a national taxonomy for vocational programs in secondary schools. A detailed breakdown is listed in Appendix 1

Table 2
Ten Fastest Growing Occupations in New York Projected for 2000-2010

#	Occupation	Employment		Percent Change
		2000	2010	
1	Computer support specialists	34,790	62,350	79%
2	Computer software engineers, system software	17,860	29,160	58%
3	Network & computer systems administrators	14,120	22,270	58%
4	Computer software engineers, applications	22,060	34,080	54%
5	Medical assistants	21,450	32,880	53%
6	Database administrators	8,390	12,700	51%
7	Personal and home care aides	67,840	102,390	51%
8	Desktop publishers	4,520	6,780	50%
9	Physical therapist aides	2,700	3,990	48%
10	Network systems and data communication analysts	8,620	12,710	47%

Tables 1 and **2** above indicate that,

- the greatest increase in CTE enrollment occurred in business programs (**44%**), followed by technology and communications (**15%**). The computer technology field ranks #1 in statewide job growth projections.
- increases in health care enrollment ranked fifth in CTE programs (**10%**), reflective of a pattern in the statewide health care industry: medical assistants, home care aides, and physical therapy aides are featured in the top 10 fastest growing jobs.
- there were decreases in CTE enrollment in trade and industry (**-1%**), and child care (**-4%**).

Student representation in enrollment patterns

We also wanted to examine the extent to which students from different subgroups of the population were enrolled in various program clusters. To this end, we inspected enrollment data from the 2003-2004 program year.

Considerable enrollment disparities in gender, race, and special education status exist in CTE programs

Table 3
CTE Enrollment in 2003-2004 by Gender, Race, and Special Education Status
(n=328 CTE Programs)

Program Cluster	Gender		Race			General Education	Special Education
	Male	Female	White	African-American	Hispanic		
Agriculture & Renewable Resources	56%	44%	87%	7%	5%	66%	34%
Business	48%	52%	29%	42%	20%	85%	15%
Child Care & Education	3%	97%	87%	6%	6%	65%	35%
Food Service & Hospitality	53%	47%	72%	17%	10%	67%	33%
Health Care	9%	91%	74%	16%	8%	82%	18%
Marketing & Distribution	27%	73%	72%	15%	10%	72%	28%
Personal & Other Services	1%	99%	81%	11%	7%	80%	20%
Public & Protective Services	64%	36%	90%	5%	4%	76%	24%
Technology & Communication	77%	23%	47%	23%	27%	77%	23%
Trade & Industry	85%	15%	59%	14%	23%	73%	27%

As seen in **Table 3**,

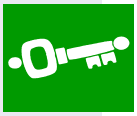
- the greatest gender disparity in enrollment was in the Personal and Other Services cluster (**1%** males: **99%** females), largely accounted for by variances in Cosmetology programs.
- the smallest difference occurred in Business programs where the ratio of males to females was **48%** to **52%**, respectively.
- overall, gender differences of at least **28%** occurred in seven out of ten program clusters.
- racial differences existed in all program clusters. Enrollments were dominated by White students in all but Business programs, where more African-American students (**42%**) were enrolled than both White (**29%**) and Hispanic (**20%**) students.
- special education students were under-represented in all CTE program clusters, the greatest disparity occurring in the Business program cluster (**85%** general education: **15%** special education), and the least in the Agriculture and Renewable

Resources cluster (**66%** general education: **34%** special education).

Collectively, these data indicate that enrollment patterns in approved CTE programs reflected trends that are historically typical of career and technical programs: non-traditional enrollment (where less than **25%** of the gender is employed in the occupational field) was low, as was the inclusion of students with disabilities. Racial distribution, we feel, was more a function of the local demographics and therefore not attributable to inherent program characteristics.

Student outcomes

In order to address student achievement in NYSED-approved CTE programs, we isolated a cohort of CTE programs from the 2002-2003 enrollment database and matched them with their outcome data. This resulted in a total of 312 CTE matched programs, which accounted for approximately 60% of the total CTE program database.



Although the state benchmark had only been met in academic skill attainment, the majority of CTE program completers have achieved technical skill proficiency, passed a technical assessment, and have been successfully placed.

According to **Table 4**,

- aggregated over all approved CTE programs, **75.5%** of students in 2002-2003 passed all applicable Regents exams, thus exceeding the NYS target of **48.5%** of students.
- **74.2%** of students in approved programs achieved technical skill attainment, an outcome that was shy of the state benchmark of **76.9%**.
- the majority of CTE program completers passed the industry-based technical assessment in their program area (**73.3%** overall).
- more students in special education attained proficiency in technical skills (**54%**) than in the academic area (**46%**).
- almost two-thirds (**65%**) of special education students who completed a CTE approved course sequence were successfully placed.

Table 4
Percent of Students Meeting NYS Performance Levels* in Approved CTE Programs in 2002-2003 (n=312 CTE Programs)

	Academic Skill Attainment	Vocational/ Technical Skill Attainment	Technical Assessment Takers	Technical Assessment Passers	Placement
Measurement Definitions	Percent of CTE completers who passed all applicable Regents exams	Percent of CTE completers who achieved an average of 75% in CTE courses	Percent of CTE completers who took an industry-defined technical exam	Percent of CTE completers who passed an industry-defined technical exam	Percent of CTE completers/graduates who were successfully placed in postsecondary education, the military, or employment
NYS Performance Levels for all CTE Programs	48.5%	76.9%	N/A	N/A	93.6%
Results for all NYSED-Approved CTE Programs	**75.5%**	**74.2%**	**68.5%**	**73.3%**	**75.9%**
Gender					
Male	NP	NP	NP	NP	NP
Female	NP	NP	NP	NP	NP
Ethnicity					
White	NP	NP	NP	NP	NP
African-American	NP	NP	NP	NP	NP
Hispanic	NP	NP	NP	NP	NP
Ethnicity					
Students with disabilities	46%	54%	39%	23%	65%

N/A - Not applicable. Technical Assessments apply only to NYSED-Approved CTE Programs.
NP - Data is not provided because the 2002-2003 enrollment data did not include these fields.

*The Office of Vocational and Adult Education of the U.S. Department of Education (USDOE) set New York State performance levels to reflect the minimum levels required under the Carl D. Perkins Vocational and Technical Education Act for school year 2002-03. The minimum performance level for academic skill attainment during the 2004-05 school year has since been increased by USDOE to 72.95%.

In all occupational program clusters, CTE completers met the NYS performance levels for academic skill attainment and over 50% of completers had achieved proficiency in other outcome areas.

Table 5
Percent of Students Meeting NYS Performance Levels* in Approved CTE Programs by Program Cluster in 2002-2003 (n=312 CTE Programs)

	Academic Skill Attainment	Vocational/ Technical Skill Attainment	Technical Assessment Takers	Technical Assessment Passers	Placement
Measurement Definitions	Percent of CTE completers who passed all applicable Regents exams	Percent of CTE completers who achieved an average of 75% in CTE courses	Percent of CTE completers who took an industry-defined technical exam	Percent of CTE completers who passed an industry-defined technical exam	Percent of CTE completers/ graduates who were successfully placed in post-secondary education, the military, or employment
NYS Performance Levels for all CTE Programs	**48.5%**	**76.9%**	**N/A**	**N/A**	**93.6%**
Program Clusters					
Agriculture & Renewable Resources	61%	78.1%	80.1%	56.4%	78.1%
Business	84.6%	81.9%	30.9%	56.5%	85.9%
Marketing & Distribution	68.3%	77.2%	86.0%	65.3%	82.5%
Health Care	73.9%	89.8%	62.0%	85.1%	75.6%
Public & Protective Services	70.3%	77.6%	77.4%	79.2%	85.9%
Trade & Industry	77.8%	70.4%	65.6%	69.0%	70.0%
Technology & Communications	81.3%	72.2%	62.1%	66.3%	77.6%
Personal & Other Services	74.2%	73.5%	76.7%	78.3%	78.8%
Food Service & Hospitality	70.9%	76.0%	74.9%	78.3%	80.7%
Child Care	68.2%	73.9%	71.9%	78.1%	78.3%

N/A - Not applicable as technical assessments apply only to NYSED-Approved CTE Programs

*The Office of Vocational and Adult Education of the U.S. Department of Education (USDOE) set New York State performance levels to reflect the minimum levels required under the Carl D. Perkins Vocational and Technical Education Act for school year 2002-03. The minimum performance level for academic skill attainment during the 2004-05 school year has since been increased by USDOE to 72.95%.

Table 5 illustrates that during the year 2002-2003,

- over **60%** of students in all occupational program clusters passed all applicable Regents exams, thus exceeding the NYS target of **48.6%** of students.
- in five out of ten occupational program clusters, students had met NYS target for technical skill attainment, i.e., passing all CTE courses with an average grade of **75%.**

- more than **50%** of students who took an industry-based technical assessment achieved a passing grade. Students in health care (**85.1%**) led all other occupational cluster areas in this outcome.
- although over **70%** of CTE program completers were successfully placed, the NYS target for placement (**93.6%**) was not met in 2002-2003.

Non-Participating Districts

In order to better understand the overall impact of the NYSED CTE policy, it was necessary to survey high schools with CTE programs that had not taken advantage of the policy. What was the status of their CTE programs and why had they not applied for state approval?

A vast majority of non-participating schools reportedly had no plans to seek NYSED approval for their CTE programs.

Figure 21
Status of Non-Approved CTE Programs
(n=141)

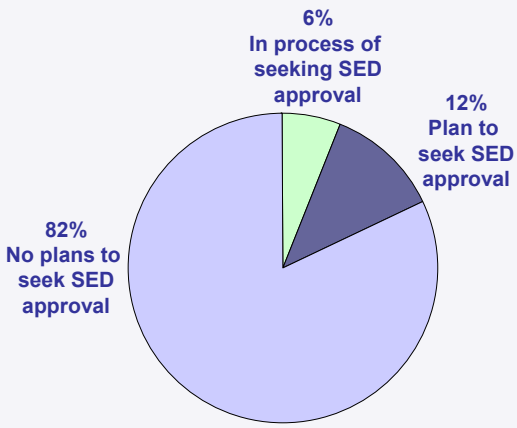


Figure 21 demonstrates that

- while **6%** of programs were in the process of seeking NYSED approval, and **12%** planned to do so, **82%** of CTE programs had no plans to apply for approval.

"Not really sure what the benefits/added value would be."
Non-participating LEA principal

An insufficiency of resources was cited as the chief obstacle to seeking NYSED approval for CTE courses.

Figure 22
Impediments to seeking NYSED Approval for CTE Programs
(n=141)

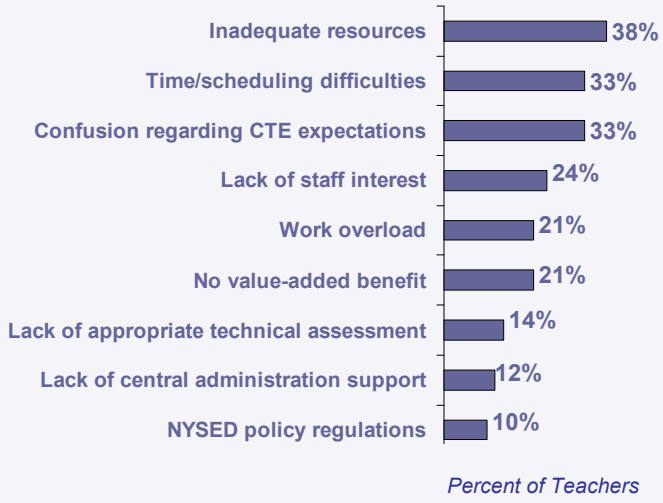
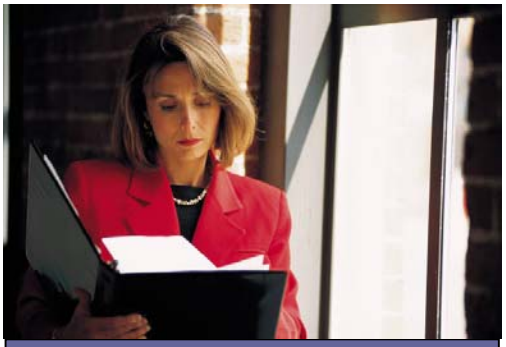


Figure 22 reveals that for the CTE programs not seeking NYSED approval,

- inadequate resources was cited by **38%** of the principals as the chief impediment. Time and staff to complete the CTE application, and the 5-year recertification process were seen as determents.
- difficulties in scheduling and confusion regarding CTE expectations were voiced by **33%** of the school principals.

Other reasons for withholding applications were (a) lack of awareness of the CTE policy, (b) satisfaction with their current level of participation through the local BOCES centers, and (c) difficulties in getting integrated academic credit approved by their central administration. Many LEAs saw themselves as academic institutions and hence the CTE concept was not implicitly or explicitly promoted.



"The state has removed the use of a 3 or 5 unit sequence for graduation. As a result, our courses are looked upon as electives. Students do not have much room in their schedule because of the new requirements."

Non-participating LEA principal

Chapter Three

Summary & Conclusions

What can we gather about the first three years of CTE policy implementation in New York State? Our study revealed several important findings that collectively depicted a wide range of strengths, works in progress, and challenges.

"I believe it has added accountability and respect for the programs I teach and that students receive."
CTE teacher

1. ***Support for CTE was exceptionally high.***

Across all stakeholders, both in school districts and BOCES, the CTE concept enjoyed much support. Despite initial skepticism about the validity and worth of a CTE pathway, administrators, teachers, employers, students, and parents resoundingly endorsed the program. For educators, the CTE policy represented an opportunity to raise the credibility of career and technical education, programs that had historically been regarded as dumping grounds for low achieving students. With the added rigor of academic standards integration, CTE staff could now "hold their heads high". For students, CTE courses represented the best of a high school education—securing academic and technical education credit in demanding *and* meaningful courses that were articulated with postsecondary educational institutions. Parents claimed that as a result of CTE programs, their children had "engaged with school", found a niche, and were determined to complete their education.

2. ***Business and industry assumed a proactive involvement in secondary CTE programs.***

Beginning with their representation on external review boards, business officials became actively involved with CTE program implementation. Not only did they review the technical and academic content of proposed CTE curricula—a task that was perceived to be lengthy and arduous—but they also routinely kept CTE staff abreast of developments in industry as a means to ensure the currency of CTE curricula.

3. ***Enrollment in CTE programs had increased and reflected general trends in statewide job growth.***

Our findings for the 2002-2003 and 2003-2004 program years indicated that business occupations, technology and communication, and health care were among the top ten fields in which enrollment had increased. These occupational fields were the same areas represented in the statewide trend of the ten fastest growing jobs.

4. ***In all occupational program clusters, students exceeded NYS' target for academic skill attainment, and the majority of them had achieved success in other outcome measures.***

In keeping with the accountability requirements of *NCLB*, now reflected in the *Carl D. Perkins Act*, over **60%** of students had passed all applicable Regents exams in all CTE program areas, thus surpassing the NYS target of **49%**. Additionally, in five out of ten program clusters, CTE students met and exceeded the state

benchmark in technical skill proficiency by attaining a grade average of **75%** for all CTE courses. Over **50%** of completers had also passed industry-based technical assessments and had been successfully placed.

5. ***The majority of CTE programs continue to refine their various components.***

   Given that all CTE programs have been in operation for no more than three years, efforts to refine their original designs were evident. Securing appropriate certification for all CTE staff necessitated frequent monitoring, as did articulation with postsecondary educational institutions. Professional development centered on academic and technical content integration and CTE administrators were aware of the need to ensure adequate participation of academic teachers. Finding suitable industry-based technical assessments was a challenge for many CTE programs, an area in which many respondents requested NYSED technical assistance. The weakest component of CTE programs was work-based learning, where program quality was largely dependent on the local economy. In regions of the state that had strong business and industrial bases, there was no shortage of worksites and transportation, whereas in economically depressed areas, CTE programs were challenged to create meaningful work-based learning experiences for students.

6. ***There is a need to market CTE programs, particularly in middle schools.***

   In order for CTE programs to contribute to raising student achievement, localities must determine effective strategies for increasing awareness of the CTE pathway among their feeder schools, i.e., middle schools. We were told during several site visits that school districts and BOCES had not launched a credible public relations pitch to middle school students, their guidance counselors, and their parents. Many CTE “champions” continually worked to dispel myths about CTE programs. Localities exploring creative strategies for recruitment in the middle schools may consider the use of follow-up data on CTE graduates, as described in the following section.

Recommendations for Future Study

Our findings from this early impact study suggest several directions to expand the CTE Initiative, strengthen existing programs, and build local capacity.

1. ***Conduct follow-up studies of CTE graduates.***

   By studying outcomes for students who have graduated from approved CTE programs, the CTE Policy Initiative can determine whether added value has accrued to those students who select this graduation pathway in terms of postsecondary education, employment options, and earnings. Their outcomes could be compared with those students who graduate from non-approved CTE programs, as well as those who complete high school with little or no CTE courses.

2. ***Study enrollment and outcome patterns for additional CTE program cohort years.***

   Building on the early findings of this pilot study, an examination of additional years of CTE program data can add considerable credibility to the CTE Initiative. Such analyses can inform stakeholders of changes in CTE policy perception, in student enrollment, and in student outcomes. These data in turn can shape refinements in CTE policy.

3. ***Perform an in-depth analysis of non-participating school districts.***

   Our finding that about **80%** of non-participating district-based CTE programs chose not to apply for NYSED endorsement warrants further exploration, because it has a bearing on the potential statewide reach of CTE approved programs. While a lack of resources was cited as the chief obstacle in these schools, an in-depth examination of their challenges vis-à-vis CTE policy can point out areas for NYSED technical assistance. This can be determined through a follow-up study using qualitative methods, such as focus group interviews with CTE staff and administration.

4. ***Design and pilot the use of a quality CTE indicator system for local self-assessment and program improvement.***

   In order to achieve excellence, it is important that CTE programs engage in continuous internal evaluation. Using the CTE quality indicators developed for this project, NYSED should design and pilot a local CTE self assessment and program improvement system, so that all components of CTE programs maintain the highest standards of academic and technical integrity.

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Appendix 1

Vocational Programs Grouped by the Secondary School Taxonomy (Revised, 1998)[4]

Vocational programs: Vocational programs (also called specific labor market preparation or occupationally specific programs) are offered at both the secondary and postsecondary levels, although the classifications differ somewhat at the two levels. The examples given are not exhaustive of the courses offered in each area.

At the secondary or high school level, vocational coursework is grouped by the 1998 revised Secondary School Taxonomy into the following occupationally specific program areas:

Agriculture and renewable resources: Includes courses in Agricultural Mechanics, Horticulture, Animal Sciences, and Environmental Management.

Business: Offers training in business services and business management, including courses in Bookkeeping, Accounting, Data Entry, Office Procedures, Business and Management, and Banking and Finance.

Marketing and distribution: Includes courses related to the selling and distribution of goods and services, including Distributive Education, Distribution and Marketing, Fashion Merchandising, and Entrepreneurship.

[4] Levesque, K., Lauen, D., Teitelbaum, P., Alt, M., & Librera, S. (2000). Vocational education in the United States: Toward the Year 2000, NCES 2000-029. National Center for Education Statistics. Washington, D.C.: U.S. Department of Education.

Health care: Includes courses intended to prepare students for careers in the health professions, such as Health Occupations, Dental Assistant, Medical Laboratory Technologies, and Practical Nursing.

Public and protective services: Includes courses in Criminal Justice, Fire Protection, Public Administration, and Social Work.

Trade and industry: Includes coursework in construction trades, mechanics and repair, precision production, and transportation and material moving. The construction trades program area includes courses in Electricity, Carpentry, Plumbing, and General Construction. Mechanics and repair includes courses in Industrial Maintenance; Radio and T.V. Repair; Air Conditioning, Refrigeration, and Heating; and Auto Mechanics. Precision production includes courses in Drafting, Graphic Arts, Machine Shop, Woodworking, Plastics, Electronics, and Leatherwork and Upholstery. Transportation and material moving includes Aviation Technology, Marine Engine and Boat Repair, and Truck Driving.

Technology and communications: Includes coursework in computer technology, communication technology, and other technologies. The computer technology field includes courses in Computer Applications, Computer Programming, and Data Processing. The communication technology field includes courses in Broadcast Management, Film Making, and Radio and Television Production. Other technology courses include Electronic Technology, Industrial Production Technology, and Chemical Technology.

Personal and other services: Includes courses in Cosmetology, Clothing and Textiles, Vocational Home Economics, and Institutional Maintenance.

Food service and hospitality: Includes courses in Food Service and Nutrition, Hospitality, and Travel and Tourism.

Child care and education: Includes courses in Teacher Assisting, Child Care, and Elder Care.

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