



**Learning for Jobs  
OECD Reviews of Vocational Education  
and Training**

**United States: Texas**

Viktória Kis



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OECD Reviews of Vocational  
Education and Training

## Texas

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**Acronyms**

CTE	Career and technical education
NAEP	National Assessment of Educational Progress
PISA	Programme for International Student Assessment
TAKS	Texas Assessment of Knowledge and Skills
TEA	Texas Education Agency
TEKS	Texas Essential Knowledge and Skills
THECB	Texas Higher Education Coordinating Board
VET	Vocational Education and Training

## Summary: Strengths, Challenges and Recommendations

This review of career and technical education (CTE) in Texas is part of “Learning for Jobs”, the OECD policy study of vocational education and training, a program of analytical work and individual country reviews designed to help countries make their CTE systems more responsive to labor market needs. The review of Texas assesses the main challenges faced by the CTE system and presents an interconnected package of four policy recommendations. Each recommendation is described in terms of the challenge, the recommendation itself, supporting arguments, and issues of implementation.

### Strengths

The Texas CTE system has many strengths:

- There are flexible pathways of entry into the CTE teaching profession; part-time teachers are used constructively to tackle the challenge of recruiting CTE teachers.
- Texas has a strong system of university and community college education.
- There are promising initiatives to ensure a well-articulated CTE system, linking high school CTE to postsecondary level CTE. In postsecondary CTE state standards allow students to move easily from one institution to another in the state while retaining earned credits.
- There are various initiatives to increase performance in CTE, including the “AchieveTexas” and “Closing the Gaps” initiatives.
- The benefits of contextualizing learning and integrating general education into CTE are widely recognized by schools and policy makers.
- There are good data in many areas of CTE.
- Encouraging participation in some form of postsecondary education is a key policy goal in Texas. At the same time, achieving this is a major challenge.
- The Texas economy is doing relatively well despite the global economic downturn.

### Challenges

Some challenges remain.

- Quality assurance in the career-specific element of CTE is weakly developed.
- Career advice is often marginalized in school counseling and it is not ensured that all students receive high quality career information.

- High school CTE makes limited use of workplaces as a learning environment and employer engagement with the CTE system is highly variable according to local circumstances.
- While Texas has achieved progress in academic performance among high school students, many young people still do not have sufficient basic skills.

## Recommendations

1. Establish a state-wide CTE quality assurance framework to increase attention to the quality of career-specific learning, support quality improvement and underpin accountability. The framework should involve employers and draw on quantitative indicators as well as qualitative assessments.
2. Strengthen and develop career guidance by:
  - Ensuring that career guidance receives sufficient separate attention and resources relative to other forms of school counseling.
  - Strengthening the career guidance element in the initial and in-service training of counselors. Ideally, a career advisor profession should be established, which would be separate from psychological counseling.
  - Clearly setting out the career advice responsibilities (for school counselors, or career advisors if a separate profession is established).
3. Increase the use of work-based learning opportunities in high school CTE, providing substantial work-based learning opportunities to those following a CTE *program of study* and those likely to seek employment directly after high school.
4. Sustain the effort to improve literacy and numeracy in high school, enhancing teacher quality and promoting good practices.

Sustain the effort to make postsecondary education available to all, by ensuring that all high school graduates are college-ready and, while that is not yet achieved, supporting students who are not college-ready.

Assess whether the current balance between support for basic skills in school as opposed to developmental postsecondary education represents an optimal use of resources.

## **Chapter 1**

### **Introduction**

*This chapter describes the OECD policy study of CTE, the review of Texas, summarizes the main features of the Texas CTE system and sets out an assessment of its strengths and challenges.*

## 1.1 The OECD policy review of Texas

This is one of a series of reviews of career and technical education (CTE)/vocational education and training (VET) in OECD countries (see Box 1.1).

### Box 1.1 Learning for Jobs: the OECD review

The review aims to bridge the gap between learning and jobs, by exploring how to make CTE/VET for young people respond better to labor market requirements. It therefore looks at initial CTE/VET in schools, colleges, workplaces and other institutions, offering policy messages for all OECD countries, alongside concrete advice on policy reform in reviewed countries. A program of analytical work drew on evidence from all OECD countries, including a questionnaire on CTE/VET systems, literature reviews of previous OECD studies and the academic literature on topics such as costs and benefits, career guidance and CTE/VET during the economic crisis. The results of both the analytical work and the country reviews fed into this comparative report, of which an initial version was published on the OECD website in October 2009.

*Skills Beyond School*, a new policy review examining postsecondary vocational education and training was launched by the OECD at the end of 2010.

See [www.oecd.org/edu/learningforjobs](http://www.oecd.org/edu/learningforjobs)

Country policy reviews were carried out in Australia, Austria, Belgium (Flanders), the Czech Republic, Germany, Hungary, Ireland, Korea, Mexico, Norway, Sweden, Switzerland, the United Kingdom (England and Wales), and the United States (South Carolina and Texas) between the end of 2007 and 2010. Special studies were also conducted in Chile and the People's Republic of China. Canada, Denmark, Finland and the Netherlands have also contributed financially to the work.

The review follows the methodology established for the Learning for Jobs: OECD policy review of vocational education and training. An OECD Secretariat team visited Texas on 13-20 January 2010 for an initial preparatory visit to assemble information on the characteristics of CTE in Texas and to identify the main policy challenges. Then the Texas authorities were invited to complete a detailed questionnaire. Equipped with the responses and other background information, the team conducted further interviews via videoconference<sup>1</sup> on 21-23 April 2010 (see Annex for the program of the visits and meetings) in order to develop policy recommendations. This review presents the OECD recommendations, with supporting analysis and data. (An earlier draft of this report was submitted to the Texas authorities for verification of factual information in order to ensure that the description of the Texas CTE system presented in this document is correct).

The review is not comprehensive and deals with a deliberately limited set of issues, on which it could draw on international experience or otherwise usefully add value to the domestic policy debate.

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1. Usually the review involves a second visit with site-visits and interviews. Due to a volcanic ash cloud, which prevented transatlantic flights, interviews scheduled for the second visit were held via videoconference.

## 1.2 The structure of the report

This first chapter places the Texas review of CTE in the context of the OECD policy study of CTE, presents the structure of the report, describes the main features of Texas CTE system, and examines its strengths and challenges. The second chapter proposes policy recommendations.

Each policy recommendation is set out as:

- *The challenge* – the problem that gives rise to the recommendation.
- *The recommendation* – the text of the recommendation.
- *The supporting arguments* – the evidence that supports the recommendation.
- *Implementation* – a discussion of how the recommendation might be implemented.

## 1.3 A snapshot of the system

### *Secondary level CTE*

Texas has over 1.2 million students in 1,453 public high schools in over 1,000 school districts. Over two-thirds of high school students enroll in some CTE course (TEA, 2009a). Each school is represented and supported by one of 20 Regional Education Service Centers.

High school students can graduate with one of three graduation plans. In the Recommended High School Program and the Distinguished Achievement Program they must earn 26 credits to graduate, including four credits each in math, science, social studies and English. Students can take the 22-credit Minimum High School Program only if approved by their parent(s) or guardian and a school official. Students must pass their classes as well as all four sections of the exit level Texas Assessment of Knowledge and Skills (TAKS) in order to receive a diploma and graduate from a Texas public high school. In addition to the set of courses required by each graduation plan, students choose from elective courses according to their interests and career plans.

CTE is provided within a comprehensive high school framework and there are no separate pathways for vocationally and academically oriented students. Secondary level CTE programs are offered in various forms: high school CTE courses (both individually and in sequence); integrated academic and CTE programs (*e.g.* magnet schools, stand alone career academies and career academies within larger schools); Tech Prep/2+2 Programs (see below).

CTE courses are grouped in sixteen federally defined career clusters. The state administrative code requires each district to offer at least one coherent sequence in at least three career clusters. A program of study must include a coherent sequence of courses, which is defined as two or more courses for three or more credits (TEA, 2010a). Texas has developed over 100 programs of study aligned with the clusters, with at least one program of study for each of the 81 cluster sub-groups. These programs are described on the AchieveTexas website.

Individual school districts assess the outcomes of individual CTE courses. Each district reports data to TEA, including student performance on academic standardized

tests (TAKS), and all Perkins core indicators. TEA then reports state-level data to the United States Department of Education annually.

Tech Prep programs, as part of a federal initiative, allow high school students to earn college credit through content-enhanced articulated courses (local articulation agreements between school districts and community colleges); dual credit (concurrent enrollment); and/or College Board Advanced Placement. All new Tech Prep plans are being aligned to the 16 career clusters and programs of study. 26 Tech Prep Consortia facilitate the implementation of local articulation agreements. In addition, there are numerous articulation agreements between independent school districts and community and technical colleges that are not through Tech Prep consortia.

Advanced technical credit (ATC) is a state wide articulation program. The ATC leadership committee, using advisory committees that include secondary teachers and postsecondary faculty, identifies secondary courses that may qualify for postsecondary credit. The committee further identifies enhancements to the secondary courses to capture the full objectives of the postsecondary courses, and trains secondary teachers to meet the postsecondary requirements. Community colleges participate through voluntary membership in the program. Membership constitutes an agreement to accept the enhanced secondary courses for postsecondary credit.

### *Postsecondary level CTE*

Texas has 64 public community colleges, which enroll over 344 000 CTE students – this represents 63% of all students in public community colleges ([www.careertech.org/state\\_profile/show/Texas](http://www.careertech.org/state_profile/show/Texas), 2006/07). Programs of study are offered within the 16 career clusters and information on programs is available at the Texas Career Cluster Project website.

CTE curricula are developed using state/federal and business/industry standards. The development of CTE courses follows Workforce Education Course Manual guidelines, and all CTE courses are reviewed on a 3-year cycle. Assessment methods in CTE courses are determined locally by program personnel in the community and technical colleges. In addition, many CTE programs lead to an industry credential, license, or certification and those assessments are performed by the appropriate agencies. All postsecondary CTE programs have advisory committees including a variety of stakeholders (*e.g.* employers). These committees meet regularly to review courses and programs and to provide input regarding the knowledge/skills needed by the local workforce.

Postsecondary institutions receive funding from the state determined by formula, a significant portion of funding comes through local property taxes and tuition and fees paid by students. Federal funds represent a smaller proportion of funding. All postsecondary institutions report annually on various performance and accountability measures via the state's accountability/reporting system. Accountability/performance data is available on the THECB website at [www.txhighereddata.org](http://www.txhighereddata.org). In addition, the state's CTE performance measures/core indicators are reported to the US Department of Education/Office of Vocational and Adult Education annually. Each state negotiates its annual targeted secondary/postsecondary performance with OVAE. Texas' performance is submitted by the Texas Education Agency.

Texas has over 450 active Registered Apprenticeship programs and over 13 500 apprentices. The Texas Workforce Commission administers the apprenticeship program within a federal framework operated by the U.S. Department of Labor. Applicants are

required to hold a high school diploma or GED. Upon completion apprentices obtain a Certificate of Completion of Apprenticeship and the title of journeyworker that acknowledges skill mastery. The training usually lasts three to five years, depending on industry standards.

#### 1.4 CTE in the United States in international context

The approach of the United States to high school CTE has some distinctive features when compared internationally. Looking at other OECD countries, there are three main models of high school CTE. One is the ‘dual system’ with youth apprenticeships alternating schooling with workplace training, found, for example in the Germanophone countries in Europe, but also elsewhere. In this model academic high schools, leading to university, are a separate track. The second model is that of a vocational high school (again a separate track from academic high schools) where young people receive vocational preparation alongside other education and may or may not also have the opportunity to enter postsecondary education. This model is very widespread in Europe, but is also the dominant model in, for example, China, Mexico and Korea. The third model involves comprehensive high schools with relatively little vocational preparation at high school (upper secondary) level, and is found, for example, in the United Kingdom (although youth apprenticeships have been expanding). Each of these models has strengths and weaknesses and needs adaptation to both the labor market and other institutions of individual countries. One very typical dilemma, arising in many countries, is that more ‘vocational’ models with the emphasis on very specific and practical skills may be more effective at supporting an immediate entry into the labor market, but may be less effective at supporting further career development including further education.

The US approach is, in effect, a distinctive fourth model in that it includes CTE modules within a comprehensive high school program. Its great merit is that it allows elements of vocational preparation, including workplace experience, and the benefits flowing from that experience, without the disadvantages of early vocational tracking, and early career choice. In principle it should allow all young people to explore career options and gain useful workplace experience without stigmatizing those involved as unsuited to academic study, while sustaining an emphasis on core academic skills including numeracy and literacy to support further education and career development. In practice of course it does not always work out like this (and some of the challenges in practice are considered below) but in principle the model is very strong.

#### 1.5 Appreciation of the Texas approach

##### *Dynamism in policy making with many examples of good practice*

Compared with many countries education policy making in Texas is dynamic and innovative. A range of state-wide initiatives encourage high quality in education. For example, the AchieveTexas College and Career Initiative (see Box 1.2) aims to prepare students for secondary and postsecondary opportunities and to support career preparation and advancement, meaningful work, and active citizenship. It uses the sixteen federally defined career clusters as the foundation for restructuring how schools arrange their instructional programs. Programs of Study (POS), which offer a recommended sequence of coursework, have been developed for each cluster. While this initiative is aspirational

rather than mandatory, it embodies an impressively coherent vision of what CTE should be achieving.

### **Box 1.2 Goals of AchieveTexas College and Career Initiative**

In the ideal envisaged by the AchieveTexas College and Career Initiative, the CTE system achieves the following goals:

Career Clusters and Programs of Study (POS) are an integral part of the Texas education system.

Every student prepares a personalized graduation plan in middle school to plan for grades 9-16 and beyond. The student chooses a Career Cluster and POS to guide his or her learning in the context of personal career interests. Plans are evaluated and updated annually.

Clusters span all grades (P–16+). Career awareness begins in elementary school and transitions into career exploration in middle school. Career concentrations in high school help students transition into career preparation in postsecondary. All participants experience career advancement in employment.

The education system is seamless between high school and postsecondary institutions. Students have opportunities in a POS to earn dual credit and articulated credit that flows seamlessly into postsecondary education or training.

Meaningful partnerships are established statewide and locally between business and education.

Academics are woven throughout the P–16+ curriculum. There is an integration of academic and technical knowledge and skills within the curriculum. Interdisciplinary teaching takes place and academics are taught in context. Curriculum alignment occurs between secondary and postsecondary education.

Career guidance is dramatically enhanced. All students have access to resources for assessment and career information. Career counseling is provided with a strong emphasis on career and college readiness.

All students take part in extended learning opportunities, such as service learning, internships, apprenticeships, and work-based learning.

Professional development supports the cluster system. Professional development is a critical part of the teacher’s career. Schools of education train teachers for career clusters.

*Source:* Texas Education Agency (2010b), Achieve Texas web site, [www.achievetexas.org](http://www.achievetexas.org), accessed July 2010.

In many areas of CTE good data support evidence-based policy making. TAKS performance data can be broken down in various ways (*e.g.* ethnicity, English language proficiency, economic status, CTE participation), which helps policy makers and other stakeholders monitor performance. Eligibility for Perkins funding requires schools to report on the labour market outcomes for students, providing some feedback on what happens as a result of CTE courses.

In the Texas CTE system – which is strongly decentralized in international comparison – there are both examples of good practice and cases in which quality needs to be improved. One of the advantages of such a system is that it fosters local innovation. The Best Practices Clearinghouse is designed to share best practices and their implementation across the state (see Box 1.3). One important challenge for Texas is to

ensure that all schools and districts prepare young people for higher education and successful careers. As set out in section 2.1, this requires stronger quality assurance in CTE with a view to supporting improvement everywhere and ensuring that the quality of CTE does not vary excessively with local circumstances.

### **Box 1.3 Best Practices Clearinghouse**

The Best Practices Clearinghouse (BPC) that was established by the Texas Education Agency in 2009 supports schools by providing a centralized location for schools to share evidence-based best practices. The BPC features “Best Practice Summaries” from districts and schools that are consistently high performing or that have demonstrated improvement in student performance. Programs and practices focus on a range of issues (*e.g.* dropout prevention, college and career readiness) at various levels of education.

The BPC aims to provide practitioners with information that will allow them to adapt best practices for local implementation. Best Practice Summaries offer detailed information, such as training needs, cost components, literature base, lessons learned and contact information. As of 2009/10, newly added best practices are assigned to one of four BPC evidence types, describing the strength of evidence and the generalizability of results.

*Source:* Texas Education Agency (TEA) (2010c), Best Practices Clearinghouse website, [www.teabpc.org](http://www.teabpc.org), accessed July 2010.

### *Articulation between high school and postsecondary CTE and commitment to increased postsecondary enrolment*

Again, by international standards, postsecondary VET in Texas is very well-articulated. A number of initiatives aim to articulate high school and postsecondary CTE, helping students in making a smooth transition from one level of education to another without delays or duplication in learning. Tech Prep and advanced technical credit programs allow students to earn college credit in high school according to conditions set out in the local articulation agreement or statewide articulation program, respectively. Dual credit programs allow high school students to simultaneously earn credit towards a high school diploma and a postsecondary degree or certificate.

Texas has clearly recognized that an increasing majority of young people entering the labor market need some form of postsecondary qualification. Increasing enrolment in higher education is a major policy goal in Texas. The “Closing the Gaps by 2015: The Texas Higher Education Plan”, adopted in 2000, aims to make all high school graduates college-ready and close the gaps between young people from different backgrounds in higher education participation and success, in educational excellence, and in funded research. One key element of the plan is the use of performance data to monitor progress towards the plan’s goals. Each postsecondary institution is required to provide targets and report progress. Focusing on the four target areas of Closing the Gaps, the Texas Higher Education Accountability System tracks performance in higher education institutions.

### *Commitment to equipping all students with sound literacy and numeracy skills*

Texas also shows a strong and clear recognition of the importance of sound basic skills – these are very important in modern labor markets and underpin lifelong learning (see section 2.4), and in some countries basic skills are neglected in vocational programs. Requiring all students, whether they are academically or vocationally oriented, to

complete a core set of academic courses is an asset of the system. The potential benefits of contextualized learning and integrating academics and CTE are widely recognized and the integrated approach is widely used in CTE programs. A number of policy instruments are designed to ensure strong academic skills among all students, such as the Texas Assessment of Knowledge and Skills. Data are used to monitor performance among different groups of students and target interventions at schools with unsatisfactory performance.

A related challenge for Texas is to find the right balance between general and career specific skills needed for successful careers. Across OECD countries the balance of different skills in high school programs is highly variable. At one end of the spectrum (*e.g.* apprenticeships in Austria, Belgium-Flanders, Germany), there is a rather small element of numeracy and literacy skills as part of the (typically) one or one and a half days a week part-time school component. At the other end of the spectrum some students in vocational programs follow the same core requirements in literacy and numeracy as their peers in general education (*e.g.* Sweden) – this is similar to the Texas arrangement.

CTE programs need to realize a balance between providing students with sound basic skills, as well as soft skills (*e.g.* team-working, communication) and a set of career-specific skills that will facilitate transition into the labor market. While basic skills are vital, the strong policy emphasis on literacy and numeracy, and the associated accountability mechanisms have contributed to a relative neglect of some other areas of CTE, such as the development of career-specific skills at schools and in work-based learning, and the provision of career advice. The first three recommendations of this report argue for increased attention to these elements of the CTE system, which are, alongside basic skills, vital for successful careers.

### *The role of the state in a decentralized system*

One key question for Texas is the role of the state government in a highly decentralized system. In areas where the state does not (or cannot) establish mandatory policies, it has two main tools to influence local practices. First, the state can provide a supportive framework – in the form of recommendations, best practices or guidelines – which helps local authorities and stakeholders follow state aspirations. Such frameworks are frequently used in Texas – the Best Practices Clearinghouse and the AchieveTexas Initiative both illustrate this. But to ensure that local authorities and stakeholders pursue the state’s objectives, the state also needs to provide the right incentives. Texas has clearly used this to enhance basic skills among students – high stakes accountability in literacy and numeracy gives very strong incentives to schools to improve results. At the same time there are weak incentives to enhance some key aspects of CTE (*e.g.* career-specific and work-based learning, career advice) so that some of the state’s objectives might not be pursued at local level and risk remaining mere aspirations. In addition to a supportive framework and adequate incentives to local stakeholders, it is also necessary to ensure that schools and districts have sufficient resources to implement the changes intended by the state. The recommendations advanced in this report are therefore designed to shift the balance and increase the incentives for schools and school districts to give adequate attention to quality CTE alongside other aspects of education.

## 1.6. Strengths and challenges

In summary, the strengths of the Texas CTE system include:

- There are flexible pathways of entry into the CTE teaching profession, including alternative certification mechanisms for those coming from industry and business. Part-time teachers are also often used constructively to tackle the challenge of recruiting CTE teachers.
- Texas has a strong system of university and community college education.
- There are promising initiatives to ensure a well-articulated CTE system, linking high school CTE to postsecondary level CTE. In postsecondary CTE state standards allow students to move easily from one institution to another in the state while retaining earned credits.
- There are various initiatives to increase performance in CTE. These include “Achieve Texas”, which restructures high school CTE provision into 16 federally defined career clusters and defines programs of study. It aims to better combine academic and CTE education and help students make career choices. Another program, “Closing the Gaps” sets out targets for increasing postsecondary enrolment in different sub-groups of the population.
- The benefits of contextualizing learning and integrating general education into CTE are widely recognized by schools and policy makers. Many schools aim to teach with an integrated approach.
- There are good data in many areas of CTE.
- Encouraging participation in some form of postsecondary education is a key policy goal in Texas. At the same time, achieving this is a major challenge.
- The Texas economy is doing relatively well despite the global economic downturn.

At the same time, some challenges remain.

- Quality assurance in the career-specific element of CTE remains a challenge.
- Career advice is often marginalized in school counseling and it is not ensured that all students receive high quality career information.
- High school CTE makes limited use of workplaces as a learning environment and employer engagement with the CTE system is highly variable according to local circumstances, reflecting the degree of local control in Texas.
- While Texas has achieved progress in academic performance among high school students, many literacy and numeracy challenges remain.



## Chapter 2

### Policy Recommendations

*Policy making in Texas is dynamic and innovative, and is supported by good data in many areas of CTE. There are promising initiatives to ensure a well-articulated CTE system, linking high school CTE to postsecondary level CTE. Texas also shows a strong and clear recognition of the importance of sound literacy and numeracy skills and the benefits of integrating general skills into CTE are widely recognized. At the same time, the CTE system also faces some challenges. To address these issues a set of four interconnected recommendations is proposed.*

*First, quality assurance in the career-specific element of CTE is weakly developed. The establishment of a state-wide CTE quality assurance framework would increase attention to the quality of career-specific learning, support quality improvement and underpin accountability. Second, career guidance is often marginalized in school counseling. Career guidance could be strengthened by ensuring that it receives sufficient attention and resources relative to other forms of school counseling. Career advisors should receive training with a stronger career guidance element and their career advice responsibilities should be clearly set out. Third, high school CTE makes limited use of workplaces as a learning environment. Texas should increase the use of work-based learning in high school CTE, as this would facilitate school-to-work transition and may be particularly beneficial to disadvantaged students. Finally, while Texas has achieved progress in academic performance among high school students, many young people still lack basic skills. The effort to improve literacy and numeracy in high school should be sustained to ensure that postsecondary education is available to all. At the same time, Texas might assess whether the current balance between support for basic skills in school as opposed to developmental postsecondary education represents an optimal use of resources.*

## 2.1 Quality assurance in CTE

### *Challenge*

#### *Weak quality assurance in CTE leads to the neglect of career-specific learning*

In this report the term “CTE quality” refers to the career-specific component of CTE programs, as opposed to their academic component or the academic performance of CTE students. Existing quality assurance tools focus mainly on the academic components of CTE. Academic outcomes are rigorously assessed among CTE students through Texas Assessment of Knowledge and Skills (TAKS) scores. The CTE indicators of the Texas Performance Based Accountability System report various academic outcomes – TAKS results, dropout rate, graduation rates and graduation with Recommended High School Program or Distinguished Achievement Program diploma, and nontraditional course completion. But these indicators do not capture student outcomes in terms of career-specific skills. There are few rigorous input- or output-based assessments of CTE quality. State quality assurance relies mainly on defining the content – Texas Essential Knowledge and Skills (TEKS) CTE standards are defined for each career cluster and schools are expected to follow these. Federal (Perkins) accountability measures include some indicators, such as “technical skills attainment” (passing an industry-recognized end-of-program exam) and measures of placement of secondary students (in postsecondary education, advanced training, military service or employment). Other CTE performance measures include Perkins Core Indicators, the Performance Based Monitoring Accountability System and data reported to the Legislative Budget Board and the Texas Workforce Investment Council (e.g. participation in CTE and Tech Prep, placement in education or employment, achievement of a degree or credential). But overall these indicators provide only limited information on the quality of career-specific teaching.

The consequences of poor quality in academic education sharply differ from those of poor quality CTE. Weak performance in the Texas Performance Based Accountability System triggers energetic state intervention. Underperforming districts are subject to an in-depth monitoring process, in which CTE programs are inspected to determine if the CTE TEKS standards are being followed ([www.acteonline.org/profile\\_tx.aspx#approval](http://www.acteonline.org/profile_tx.aspx#approval)). But there is no procedure to identify schools and districts delivering CTE with poor quality career-specific learning and there is no systematic follow-up procedure to ensure and support improvement.

Weaknesses in the assessment framework for career-specific skills have arisen as an issue in several other countries participating in the Learning for Jobs review. But a particular feature of the Texas system is the combination of high-stakes test-based accountability in academic skills and very little assessment of career-specific learning. This combination gives extremely strong incentives to districts and schools to concentrate their time and resources on student achievement in core academic areas and neglect career specific learning. Research shows that in systems with high-stakes testing schools tend to concentrate on what is tested (see for example Hoffman, Assaf and Paris, 2001; Taylor *et al.*, 2003; Jacob, 2005). This point is relatively well-understood in relation to non-tested academic subjects or soft skills, but it also holds for CTE.

Offering high quality CTE is very challenging, as it involves a blend of theoretical knowledge and hands-on skills, so good CTE teachers need up-to-date practical skills and theoretical knowledge of their career field. But the capacity to convey a practical skill involves more than the ability to exercise it, so they also need pedagogical skills and this is indeed reflected in the training arrangements for CTE teachers in Texas. The curriculum has to be regularly updated to reflect rapidly changing labor market needs. If students need equipment for practical training, it needs to be regularly renewed, as in many career fields rapidly changing technologies mean that equipment becomes quickly obsolete. These challenges mean that achieving good CTE teaching is not easy task. Inevitably, some CTE will be weak – quality assurance in career-specific learning is therefore essential.

*Some students may not have sufficient CTE options to choose from*

Quality assurance mechanisms have implications for the availability of CTE options for students. Schools and districts have very few incentives to dedicate time and resources to high quality CTE. This means that some well-resourced areas with satisfactory academic outcomes may offer a wide range of high quality CTE courses, but schools and districts that have weak academic outcomes or face financial hardship may use CTE primarily or entirely as a means of improving TAKS scores, retaining the attention of the less academically-inclined, and embedding literacy and numeracy skills in the practical training. This is a reasonable objective for CTE, but it is not the only one. Career-specific skills are also valuable in themselves to students, particularly those who enter the labor market directly after high school.

For these reasons, in schools and districts with weak academic outcomes or financial difficulties, there is a risk that CTE provision will be limited to a relatively undemanding minimum – the state administrative code requires each district to offer courses in at least three career clusters, and in at least one cluster the courses have to amount to a coherent sequence (program of study). This means that the choice of many students will be very restricted. In addition, in schools and districts facing such difficulties, there is a high risk of poor quality in CTE because the incentives encourage a concentration of limited resources on academic learning. Interviews conducted during the review visit suggest that schools in poor and rural areas often struggle to offer a wide enough choice of CTE subjects and to provide high quality courses.

This is problematic especially for students who seek employment immediately after high school, as the skill-set acquired at school will be a very important basis for their careers. These young people would need both rigorous general education and high quality CTE in balance. Economically disadvantaged students are less likely to enroll in higher education than their better-off peers (THECB, 2009). But districts and schools with a high share of economically disadvantaged students are likely to have more limited resources, because property wealth strongly affects school finances. This suggests that districts with a high share of young people who will enter the labor market immediately after high school are likely to find it particularly difficult to offer a sufficient range of high quality CTE – those who would most need high quality CTE might be the least likely to receive it.

### ***Recommendation***

**Establish a state-wide CTE quality assurance framework to increase attention to the quality of career-specific learning, support quality improvement and underpin accountability. The framework should involve employers and draw on quantitative indicators as well as qualitative assessments.**

### ***Supporting arguments***

This recommendation is supported by three arguments. First, a strong quality assurance framework in CTE would underpin accountability and support improvement. Second, it would also create a better balanced incentive structure between academic and career-specific learning. Third, linking quantitative indicators of CTE quality to high-stakes accountability would be neither feasible nor desirable. The framework should thus draw on both quantitative and qualitative assessments.

### ***A strong quality assurance framework in CTE would underpin accountability and support improvement***

A quality assurance framework for the career-specific component of CTE might involve a mix of information sources on CTE quality, such as self-assessment reports prepared by schools, site visits conducted by external teams and quantitative performance indicators. This might underpin existing efforts, whereby school districts provide self-assessment reports on the program effectiveness report and Perkins applications that are submitted to the state. Ideally, such a framework should contain an element of accountability as well as a supportive framework for improvement – while at the same time the quality assurance framework should not be seen as an additional administrative burden for schools and districts, but as a tool that supports continuous improvement.

### ***Stronger quality assurance in CTE would create a better balanced incentive structure between academic and career-specific learning***

Recognition of the importance of literacy and numeracy skills for all young people is a strength of the Texas system, as set out in section 2.4. This section does not argue for reducing attention to basic skills, but it argues that policies targeted at improving basic skills have created incentives for schools and districts to focus on what is tested and neglect other skills – including CTE – and that a better balance is necessary.

High-stakes standardized testing is widely used in the United States with the aim of enhancing student achievement – the federal No Child Left Behind Act requires states to test students in basic skills to qualify for federal funding, and Texas had adopted test-based accountability prior to this federal initiative. It is not the function of this report to give a view on the value of high-stakes testing in literacy and numeracy. But when in Texas it is placed alongside limited quality assurance for career-specific education and training, the risk is that this latter element will be marginalized. Readjusting the balance between career-specific and academic skills would require a quality assurance mechanism in CTE that places career-specific education under scrutiny – looking at career-specific learning, rather than only CTE's contribution to academic skills development. In the current system, a district or school achieving improvements in math scores will be very visible, while an excellent CTE program or teacher (as well as poor quality CTE programs or poorly prepared CTE teachers) might be unnoticed. Increasing the visibility

of CTE quality would modify the current incentive structure, which neglects career-specific learning, and create an incentive for schools and districts to improve the quality of their CTE provision. It would also motivate CTE teachers and trainers by giving a general signal of the value and importance of their work and specific recognition of good performance.

Establishing a sound quality assurance mechanism in CTE is also necessary to support schools and districts in their efforts to improve quality. A coherent quality assurance system includes a clear definition of “quality” in CTE, as well as criteria and benchmarks against which CTE programs can be assessed. This supports the work of schools and districts, as they can assess the quality of their provision against these, identify challenges and elaborate improvement plans. It can also give an opportunity for relevant stakeholders (e.g. employers) to interact with the CTE system and provide feedback on its quality.

*Linking quantitative indicators of CTE quality to high-stakes accountability would be difficult in practice and may not be desirable*

Measurement of skills acquired through CTE, and the link to accountability is certainly an active subject of debate in the US. They also represent a strong component of the Perkins requirements. But, for a number of reasons, quantitative indicators of CTE quality, including standardized tests of career-specific skills, are best used as part of a broader quality assurance process in Texas combined with qualitative assessments, rather than tightly linked to high-stakes accountability.

First, it would not be feasible to fully replicate in CTE the accountability system used for academic performance. Such a framework would require a standardized test of career-specific competences. Theoretically one could imagine such a test measuring the outcomes of each CTE course, against TEKS standards. Students would be assessed within a standardized framework – in a centrally established test, or in local exams following national guidelines (see Box 2.1). But implementing this in every CTE course across Texas with regular tests would be very resource intensive and therefore probably unrealistic. Alternatively, one might create a system with standardized assessments at the end of each program of study (or coherent sequence of courses), once students have acquired a set of competences related to a specific career – this is the rationale behind industry-recognized end-of-program certificates in Texas. In some contexts the pass rate on such tests (whether as part of industry certification or as part of a separate assessment framework) can be an indicator of quality and underpin accountability. The Learning for Jobs review of the Czech Republic (Kuczera, 2010a), for example, recommended that the practical element of school-based VET programs be subject to standardized assessments to improve the signaling value of VET qualifications, underpin quality and accountability.

### Box 2.1 Standardized assessment frameworks in CTE

A *standardized national assessment framework* provides a consistent method to assess the learning outcomes of vocational programs. This might involve examinations developed locally but subject to clear national guidelines allowing for adjustment of a national assessment to local circumstances. The creation of such a framework was recommended in several OECD reviews of VET (for apprenticeships in Australia and Norway, for school-based VET in the Czech Republic).

A more extreme possibility, as part of a standardized assessment framework, would be a *standardized test* undertaken by all students in similar conditions. Industry certification in many countries typically involves a standardized assessment of competences and some countries (e.g. Czech Republic, Germany) use standardized assessments as part of their apprenticeship program.

A standardized national assessment framework may :

- Assure the quality of training: A standardized assessment framework checks whether schools equip students with the same core set of competences. This can offer information on the quality of vocational programs, which can help the elaboration of targeted interventions in response.
- Improve the signaling value of the qualification: Qualifications become more meaningful to employers, as standardized assessment frameworks offer consistent information on the competences of CTE graduates independent of local circumstances.
- Be more cost-effective than local examinations: Decentralized systems require different assessment procedures to be developed all round the country, duplicating effort.

Source: OECD (2010a), *Learning for Jobs*, OECD, Paris.

In many OECD countries high school VET students follow a program preparing for one particular occupation (or group of occupations). Students who start a VET program follow the set of courses included in that program, and changing career fields is much more difficult than in the United States. It is therefore reasonable to expect students in a VET program to undergo an assessment at the end, checking whether they have acquired the set of competences needed in their target occupation. A low share of students passing these tests is a clear indicator of low quality VET. In contrast, in Texas (and in the United States) not all students taking a CTE course will pursue a program of study (*i.e.* coherent sequence of courses) in that field. Students are to some extent encouraged to follow a coherent sequence, but “career exploration” is one of the purposes of high school CTE, allowing for more casual pursuit of individual courses. While students pursuing a program of study should ideally obtain an industry-recognized certificate, the share of students acquiring industry credentials is likely to paint only part of the picture – a low share may signal low quality CTE, or alternatively it may be a sign of students taking CTE courses in several clusters to get a flavor of different career options. Other quantitative measures of CTE quality (*e.g.* labor market outcomes, participation in work-based learning) for high-stakes accountability raise similar challenges – some results may be due to contextual factors (*e.g.* low participation in work-based learning in an economically depressed area) and many aspects of CTE quality do not easily lend themselves to quantitative measurement or are not quantifiable enough to be linked to high-stakes accountability (*e.g.* availability of up-to-date equipment, quality of partnerships with employers).

Finally linking quantitative indicators of CTE quality to high-stakes accountability would not only be difficult to achieve, it would also be undesirable, as it would risk creating perverse incentives for schools and districts. An illustration of the point comes from the particular context of higher education, where a number of papers argue that quantitative performance indicators offer a very partial picture of performance and can only be meaningful if they are carefully interpreted in their context (*e.g.* Vroeijenstijn, 1995; Harvey, 2002; Knight, 2001; Vidal, 2001). In the Texas CTE system, where high-stakes accountability in general education is routinely used, a quality assurance framework in CTE should be designed with great caution to avoid perverse incentives. If quantitative indicators were linked to high-stakes accountability, one can imagine many examples of potential distortionary incentives. For instance, as districts and schools are free to choose which career clusters they offer, there would be incentives to choose those that seem easiest to teach and in which students can achieve the highest scores, or where it is easiest to obtain high scores on the quality of equipment (*e.g.* because the cluster does not use expensive equipment). If the share of CTE students participating in work-based learning were linked to high-stakes accountability, there would be an incentive for counselors to discourage students who might find it hard to find a work-based learning opportunity, from enrolling in CTE. In conclusion, it is important to avoid a tight link between quantitative indicators and high stakes accountability. But using such indicators as part of a broader framework is possible and desirable, as suggested below.

### ***Implementation***

In the development of a quality assurance framework in CTE, the first step is to identify key aspects of high quality CTE and adequate measures or benchmarks. The second step is the design of a framework, defining the timeframe for program evaluations, the information sources to be used and the follow-up procedures.

### ***Key factors underpinning quality in CTE***

This analysis of CTE quality in terms of responsiveness to labor market needs, draws on the conclusions of OECD comparative work conducted in 16 countries (OECD, 2010a). As defined in the comparative report, we interpret this objective as follows:

*Ensuring that VET [CTE] students are provided with the skills necessary to work in an “entry” set of occupations, and the broader and flexible competences necessary to sustain a fulfilling career, in the context of rapid and sometimes unpredictable changes in occupational circumstances.*

A strong quality assurance system needs to examine the key factors underpinning high quality CTE. Box 2.2 provides an overview of some factors, which are further discussed in the comparative report of Learning for Jobs (OECD, 2010a). The comparative report does not explicitly deal with quality assurance in CTE, but it offers an overview of international practices in CTE policy, an analysis of the challenges faced by CTE systems in responding to labor market needs and offers potential policy solutions to address these.

## Box 2.2 Factors underpinning high quality CTE

### The right mix of skills

- The mix of provision (*i.e.* CTE courses on offer) takes into account labor market needs and is responsive to changing demands.
- CTE students are equipped with sound general skills, in particular literacy and numeracy.
- The content of CTE courses builds on up-to-date career-specific curricula and standards, developed in partnership with employers.
- The outcomes of CTE courses are rigorously assessed against the targeted standards.
- Students following programs of study obtain industry-recognized credentials at the end of the program.

### Effective teachers and trainers

- CTE teachers have pedagogical preparation and relevant work experience, which is regularly updated.
- Supervisors of CTE students participating in work-based learning are adequately prepared.

### Links with business and industry

- There are systematic links between the CTE system and business and industry at all relevant levels (*e.g.* school, district, state).

### Work-based learning

- Students participate in work-based learning of a type suited to their career aims. This may range from very short work experience aiming to provide the flavor of an occupation to substantial and structured internships.
- Work-based learning is of high quality, supported by quality standards in the case of more substantial work-based learning.
- There is a clear legal framework setting out the conditions of work-based learning.

### Career guidance

- Career advisors have the specific competences required for career guidance (*e.g.* knowledge of labor markets, career opportunities, capacity to identify career choice solutions adapted to individuals).
- Adequate resources, pro-active delivery and unbiased advice.
- Good sources of career information (*e.g.* about careers, education pathways) accessible to all.

### Use of evidence

- Schools, districts and other education authorities have data on the labor market outcomes of CTE courses and programs and these are used to support continuous improvement.

*Source:* Adapted from OECD (2010a), *Learning for Jobs*, OECD, Paris.

### *A quality assurance system drawing on quantitative and qualitative information*

While international experience may be helpful in identifying relevant criteria to assess CTE quality, US experience with quality assurance practices and experience may be more suited to the Texas context – as argued earlier, the role of CTE, its provision and the incentives for districts and schools resulting from high-stakes academic testing create a policy context that is different from most OECD countries. Kentucky, for example, has established an assessment framework for high school CTE (see Box 2.3).

#### **Box 2.3 Program assessment in Kentucky**

The Kentucky Tech Office of Career and Technical Education (OCTE) was designated to manage program assessment for secondary CTE programs in a 2000 legislative initiative. The stakeholders (business and industry, OCTE, Kentucky Department of Education, postsecondary institutions, teachers and administrators) developed a process and a 21-standard document (later revised to 17 standards, *e.g.* curriculum, postsecondary links, work-based learning) by which to assess the CTE programs.

Since 2002, an **assessment team visits** approximately 45 schools with 380 programs each school year. The visiting team includes a university educator, representatives from secondary CTE, OCTE and KDE, the community college system and business and industry. The team reviews documentation of the assessment standards, and the program receives a score based on a 0-4 scale. Based on the team visit's findings, the school develops **improvement plans**. In addition, each school year, schools prepare a self-study on the program assessment standards for all secondary technical programs, also using a 0-4 scale.

The findings of the assessment teams are entered into a database and are *i)* shared with the schools for their use in developing program and school continuous improvement plans; *ii)* the major support for SACS accreditation; *iii)* used for the development of the OCTE district continuous improvement plan and *iv)* used to provide professional development for teachers and administrators.

A website (<http://kytech.ky.gov/programassessment.htm>) was developed to assist in the process.

*Source:* Kentucky Tech Office of Career and Technical Education (OCTE) (2010), Kentucky Tech Program Assessment website, <http://kytech.ky.gov/programassessment.htm>, accessed August 2010.

A quality assurance system employing qualitative information tends to be more costly than a system building exclusively on quantitative indicators. But if it is well designed and carefully implemented, the returns in terms of better quality CTE are likely to outweigh the cost. To achieve this it is crucial that the quality assurance is not perceived by teachers, schools and districts as a bureaucratic process imposed by the state. Rather stakeholders should take ownership of the quality assurance system, which should be seen as a supportive tool, facilitating continuous improvement. It is also essential to engage employers (or representatives of employer organizations) in the quality assurance process, as they are clearly in a strong position to judge whether a CTE program delivers the expected skills for particular careers. Their feedback provides valuable information to schools and districts, helping them adapt CTE programs to rapidly changing labor market requirements. A quality assurance system for CTE is likely to work best if it is developed in partnership with all relevant stakeholders, including the providers of CTE (*e.g.* teachers, schools, districts), employers and state representatives.

## 2.2 Career guidance

### *Challenge*

#### *School counselors have a wide range of responsibilities in addition to career guidance*

In Texas there is no separate profession of “career advisor”, in the sense of someone whose main profession is to provide career advice. School counselors have a wide range of responsibilities, as set out in the Texas Education Code. Their primary responsibility is counseling students to develop their academic, career, personal and social abilities; further responsibilities include working on a comprehensive developmental guidance program; consulting with students’ parents or guardians; dealing with tests and assessments; and participating in the delivery of classroom guidance. Career guidance (sometimes termed career counseling in Texas) often competes with other tasks performed by counselors – such as helping students with personal problems or at risk of dropping out, informing students about funding options for higher education – and these tend to dominate priorities. While ensuring adequate attention to those tasks is important, problems arise when career guidance is squeezed at the margins of counselors’ other activities. The risk of neglecting career guidance is particularly high when counselors have responsibility for a large number of students. Interviews conducted during the review visit suggest that student-counselor ratios are very high in most schools, well above the state recommendation of 300 students per counselor. Many school districts find it hard to lower student-counselor ratios because they lack resources and perhaps also because they give priority to teaching staff.

#### *Incentives for school counselors marginalize career advice in counseling activities*

Districts, schools and counselors are held accountable for student achievement in core academic subjects. The “No Child Left Behind Act” requires all educators, including school counselors, to formally define how their jobs and programs impact on students’ academic growth and contribute to overall school success (School Counselor.org, 2010a). In contrast, counselors are not held accountable for the quality of their career advice linked to the labor market, which is admittedly more difficult to measure. As a result there are incentives for schools and counselors to focus counseling activities on academic achievement and college preparation, rather than career advice. It is likely that schools and counselors will only dedicate time and resources to career advice if they are driven by some internal motives, and if other objectives for which they are held accountable are fully achieved. A qualitative study on the implications for school counselors of the “No Child Left Behind Act” (Dollarhide and Lemberger, 2006) found that negative effects included the reluctance of teachers to give up class time for counseling, the burden of testing as a deterrent to counseling students and the focus on academics to the exclusion of other student needs.

While core academic skills and achievement are very important, access to good career advice is also vital. The strong emphasis in counseling on academic achievement and postsecondary enrolment is consistent with the “college for all” objective of the Texas (and US) education system. But even those who enroll in higher education after high

school need to learn about labor market issues and career prospects in different occupations and programs. While, for a school, enrolment in some form of postsecondary education or in a good university may be a sign of success on its own, postsecondary education also needs to lead to a good career. Without good career advice the risk of wrong choices is higher – students may opt for courses with poor employment prospects, while they may be unaware of courses leading to good jobs. All students therefore need to be equipped with some knowledge of labor markets so that their postsecondary choices are informed by an understanding of labor market prospects.

In addition, the current counseling system rooted in the objective of “college for all”, may not adequately address the needs of those who will seek employment upon graduating from high school – either temporarily before entering higher education, or as a first step in working life. As discussed in section 2.3, many young people in Texas do not enroll in higher education or fail to complete it. This means that the choice of high school courses will strongly affect the skill-set with which they enter the labor market. It is therefore essential that, if they enroll in high school CTE, their choices equip them with skills that are needed in the labor market.

#### *The responsibilities of counselors regarding career advice are not clearly set out*

The Texas Education Code (subchapter on school counselors and counseling programs) dedicates a separate section to counseling in relation to higher education, with a detailed description of responsibilities in this area. This is in sharp contrast with counselors’ responsibilities regarding career advice – these are mentioned briefly and in broad terms (*e.g.* “developing academic, career, personal and social abilities”, “helping students make educational and career plans”).

#### *The initial training of counselors gives limited attention to labor market issues*

In Texas certified school counselors must hold a Master’s degree in School Counseling, have at least two years of teaching experience and pass the TExES School Counselor Examination (School Counselor.org, 2010b). The initial training of counselors has an emphasis on psychological counseling and gives limited attention to labor market issues. While this background may be appropriate for supporting students with learning and behavioral problems, it is less well adapted to the delivery of advice on types of job, career prospects, and learning opportunities. School counselors may not be up-to-date with labor market needs and career options, which makes it difficult to advise students on constructing a career plan. During the review visit some stakeholders argued that many counselors do not have specific knowledge of career fields and are therefore not in a position to propose a coherent sequence of CTE courses to students. It is the aim of the “career cluster programs of study” created as part of AchieveTexas to offer coherent sequences and help counselors propose coherent plans to students. The creation of the programs of study is a welcome initiative and attention to career planning could be taken further by better preparing career professionals to offer advice.

#### *Personalized graduation plans are not extensively used*

In Texas the graduation programs (“minimum”, “recommended” or “distinguished”) define a set of courses students are required to complete. Within this plan, students have some choice between courses. Unlike some other states (*e.g.* Delaware, Idaho, Kentucky, Nevada, South Carolina, Utah, West Virginia Education Commission of the States,

2007a), Texas does not require all students to create a personalized graduation plan. But like several other states<sup>2</sup>, at-risk students are required to have a personal graduation plan: a junior high, middle or high school student must have a personal graduation plan if they do not perform satisfactorily on a Texas Assessment of Knowledge and Skills exit exam, or if they are not likely to receive a high school diploma before the fifth school year following the student's enrolment in grade level nine (Texas Education Code, § 28.0212).

*Texas can build on existing initiatives to address challenges that are common in many countries*

The challenges faced by Texas are shared by many OECD countries. The OECD comparative report, drawing together conclusions from 17 country reviews, argued for reform to address some common problems, such as inadequate preparation of those providing career guidance; fragmentation and marginalization of guidance services; under-resourced and reactive services often with a pro-academic bias; and insufficient use of relevant labor market information. In very few countries does career guidance receive the attention it deserves.

But Texas is fortunately in a position where it can build on existing strengths of the system and take further existing policy initiatives. For example, the use of CTE as a tool for career exploration is clearly a strength in Texas. Unlike in many OECD countries, taking a CTE course in one career field does not imply enrolling in a separate track and an occupational program. Students can enroll in a CTE course to get the flavor of a career field, without necessarily making a weighty career choice immediately.

The importance of career guidance is also recognized by a number of policy initiatives in Texas. For example, the AchieveTexas College and Career Initiative is designed to help students (and their parents) make good education choices. It includes various objectives for career guidance throughout the school system (see Box 1.2) and the “implementation guide” aims to help local stakeholders to reach this goal. While these goals are worthy, schools are not required to implement the suggested changes, nor can there be assurance that sufficient resources are available for its implementation. The goals of this initiative have therefore not yet been fully achieved and career guidance remains a somewhat marginalized element of school counseling. The recommendation below proposes how career guidance might be enhanced in Texas.

***Recommendation***

**Strengthen and develop career guidance by:**

- **Ensuring that career guidance receives sufficient separate attention and resources relative to other forms of school counseling.**
- **Strengthening the career guidance element in the initial and in-service training of counselors. Ideally, a career advisor profession should be established, which would be separate from psychological counseling.**
- **Clearly setting out the career advice responsibilities (for school counselors, or career advisors if a separate profession is established).**

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2. In 2007 19 states required individual learning plans for at-risk students. (Education Commission of the States, 2007b)

### *Supporting arguments*

The arguments set out below draw on the findings of the comparative work conducted during the Learning for Jobs project (OECD, 2010a) adapted to the specific circumstances of Texas. The recommendation is supported by three arguments in particular. First, strong career guidance is particularly important in the Texas context, where students have freedom to choose some of their courses. Second, career advice risks being marginalized when amalgamated with other tasks. Third, career advisors need specific training and an independent base to provide objective career guidance.

#### *Strong guidance is particularly important in the Texas system*

Wrong career decisions are costly, both to the student and to society. Strong career guidance is important, and the international context suggests that it is particularly important in Texas (as in the United States), where high school students have considerable freedom to choose their courses. This contrasts with many OECD countries, where choices are possible only at a small number of transition points – typically before entering the next level of education. Once students enroll in a secondary vocational track, they typically must take a pre-defined set of courses<sup>3</sup>. In Texas (and in the United States) high school CTE in most schools<sup>4</sup> is provided in a more flexible framework – students may take a CTE course in one career cluster and afterwards take a course in the same cluster, in another cluster or not take any CTE at all. This flexible framework has many strengths, but it also makes the role of career guidance crucial. Students need advice not only before entering middle school, high school or graduating from high school, but throughout their high school career to construct a plan which coherently reflects their career interests and aims.

Key elements of career guidance should be delivered pro-actively to all students, otherwise those who need it most will not receive it. At key decision-making points particular attention needs to be paid to thorough one-to-one guidance by career advisors. This means, for example, that when students choose a high school, create or revise their graduation plan, there should be a compulsory one-to-one interview with a career advisor. Ideally, this should also engage the student’s parents.

#### *When amalgamated with other tasks, career advice risks being marginalized*

In Texas, like many other countries (*e.g.* Austria, Czech Republic and Ireland) career guidance is amalgamated with counseling for students with behavioral and psychological problems. While this approach may flow from a broad perception of the counseling role, it risks distorting and marginalizing the role of career guidance. Evidence from different countries shows that counselors who have to deal with both psychological counseling and career guidance tend to spend much of their time on the learning and behavioral problems of a minority of students. This leaves career guidance at the margins and often focused on immediate educational choices rather than longer term career planning (Fretwell and Watts, 2004; OECD, 2002; OECD, 2004a). Students may be less willing to be seen knocking on a counselor’s door since they may be stigmatized as having personal

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3. In some countries (*e.g.* Belgium-Flanders, Hungary) students choose a career field when entering a vocational track and they choose an occupation within that field a few years later.
  4. There are different models (*e.g.* career academies), which require students to follow a coherent set of CTE courses.

problems. In the United Kingdom, the integration of careers with personally-based services targeted at young people at risk has decreased the attention paid to labor market issues in the training of career advisors (Colley, Lewin and Mazzei, 2008) and reduced the number of students who receive career guidance (Watts, 2008).

### *Career advisors need specific training and an independent base to provide objective career guidance*

Career guidance responsibilities are demanding and require a specific set of competences. Career advisors need to have good knowledge of labor markets, careers and learning opportunities, and the capacity to identify and use further sources of information to provide more specific advice. They also need to be able to draw out from young people what their interests, aptitudes and objectives are and to identify career options that are both realistic and meet their needs. Training for career advisors should be designed to provide these competences.

While it makes sense to deliver guidance in schools to ensure access to all students, career advisors need to preserve their independence from the school. Career advice should not have any bias towards programs offered at one school, if it is in the interest of the student to attend another school. Also, career advice should not be biased towards academic rather than CTE options. Texas requires counselors to have at least two years of teaching experience. One drawback of this is that typically counselors will have very limited experience of the wider work environment (other than the teaching profession) and their formal or informal advice to students may therefore be biased towards general education and university pathways. They may be reluctant to recommend CTE courses, especially to bright students. As one UK study reports, students, parents and employers considered apprenticeship as a genuine alternative to academic upper secondary education, whereas very few teachers shared this view (Skills Commission, 2009).

## ***Implementation***

### *Specific training for career advisors*

Experience in many different countries shows that career guidance services need to be protected against the risk of marginalization by regular teaching and psychological counseling. Texas shares this challenge. One potential solution is to establish a separate profession of career advisors, with a substantial targeted training program, as recommended for example in the Learning for Jobs review of the Czech Republic (Kuczera, 2010a). The same approach has been pursued in some US states, for example in South Carolina the position of “career specialist” is clearly separated from that of school counselor and schools are expected to have both types of professionals. Career specialists are required to complete “Career Development Facilitator” training. Legislation related to the Education and Economic Development Act mandated fundamental changes in guidance personnel roles, shifting the focus from testing and scheduling to assisting students with career planning and providing career education for students and teachers. Achieving shifts in roles takes time – an interim evaluation of the new policy shows these are only slowly taking place (Smink *et al.*, 2010). But recognizing the importance of career advice and clearly separating its role from psychological counseling is a key step towards ensuring that professionals dedicate adequate time and resources to career advice.

Ideally, a qualification system for career advisors would cover not only those in schools but also those who work in adult education and training, postsecondary education, employment offices and other services for adults. This would facilitate recognition and transferability of career advisor skills across institutional sectors (e.g. schools could hire career advisors from employment offices and vice versa). A competence framework for career advisors also helps to develop both vertical and horizontal progression opportunities and thus to improve the status of the profession (OECD, 2004a).

All professionals who offer career advice should receive adequate training for the task. If a separate profession is established, then full-time career specialists should receive substantial targeted training. If school counselors continue to provide career advice, their initial training should contain a stronger element of career guidance, and existing counselors who provide career advice should be encouraged to participate in in-service training. In all cases, there needs to be a stronger emphasis on knowledge of the labor market.

#### *Adequate resources and clearly described responsibilities*

The career advisor function of school counseling could also be strengthened by ensuring that adequate resources (in terms of staff and time) are dedicated to career guidance and that all students receive guidance. Sufficient resources are essential for the implementation of various goals of the AchieveTexas College and Career Initiative. For example, ensuring a personalized graduation plan for every student, linked to an annual evaluation and update is a commendable ideal, but it demands additional resources.

Setting out the responsibilities of career advisors could help districts and schools offer better career guidance, by providing a list of key elements in high quality career advice. In Texas legislation describing the responsibilities of school counselors says very little about career advice. Establishing state guidelines covering the duties of career advisors (see Box 2.4 for an example from South Carolina), would support the efforts of schools, districts and counselors in developing quality career guidance.

Clearly described responsibilities could also underpin accountability mechanisms. It is admittedly more difficult to hold schools and counselors accountable for the outcomes of their career advice, than for outcomes in math and English. For example, a student taking CTE courses in a particularly diverse set of clusters might indicate that they did not receive sufficient advice to construct a coherent career plan, but it might also be a positive sign of CTE operating as a tool for career exploration. In the light of this, it would be particularly important to clearly set out what is expected from counselors in respect of career advice. This might help the establishment of some accountability tools in relation to career advice, but maybe looking more at inputs rather than outcomes.

### **Box 2.4 The duties of school-based career specialists in South Carolina**

An individual employed by school districts to provide career services [...] shall work to ensure the coordination, accountability, and delivery of career awareness, development, and exploration to students in kindergarten through twelfth grade. To ensure the implementation and delivery of this chapter, this individual shall:

1. Coordinate and present professional development workshops in career development and guidance for teachers, school counselors, and work-based constituents.
2. Assist schools in promoting the goals of quality career development of students in kindergarten through twelfth grade.
3. Assist school counselors and students in identifying and accessing career information and resource material.
4. Provide educators, parents, and students with information on career and technology education programs offered in the district.
5. Support students in the exploration of career clusters and the selection of an area of academic focus within a cluster of study.
6. Learn and become familiar with ways to improve and promote career development opportunities within the district.
7. Attend continuing education programs on the certified career development facilitator curriculum sponsored by the State.
8. Assist with the selection, administration, and evaluation of career interest inventories.
9. Assist with the implementation of the district's student career plan or individual graduation plan.
10. Assist schools in planning and developing parent information on career development.
11. Coordinate with school counselors and administration career events, career classes, and career programming.
12. Coordinate community resources and citizens representing diverse occupations in career development activities for parents and students.
13. Assist with the usage of computer assisted career guidance systems.

*Source:* South Carolina Department of Education (2006), South Carolina Education and Economic Development Act Guidelines. Available at [www.uscupstate.edu/uploadedFiles/academics/Education/EEDAGuidelines.pdf](http://www.uscupstate.edu/uploadedFiles/academics/Education/EEDAGuidelines.pdf)

If counselors maintain their double role (counseling and career advice), the division of the two types of responsibilities should be reflected in the school timetable – counselors should have a fixed time commitment to career advising work, and the hours during which students can seek advice from a career advisor should be separated from time devoted to psychological counseling.

Career advisors should also be independent from schools in the sense that they should not have any bias towards programs offered at the school or towards academic rather than CTE options. There are various ways of guaranteeing this independence. Switzerland, for example, has established a professional career guidance service separate from schools,

but with a roving function in the schools<sup>5</sup> (see Box 2.5). Alternatively, making career advisors independent from schools might involve teachers or school counselors trained as career advisors who report to a state (or district) guidance service in respect of their career guidance responsibilities.

Texas should also assess the pros and cons of requiring school counselors to have two years of teaching experience. In particular, for professionals whose main task is to provide career advice, teaching experience as an entry requirement might have more drawbacks (*e.g.* risk of academic bias, limited knowledge of workplaces) than advantages.

### Box 2.5 Career guidance in Switzerland

In Switzerland career guidance and information sessions are mandatory in secondary education. All teachers receive some training on labor market opportunities. In grades 7, 8, and 9 students learn in their own schools about different career options and the main institutions for guidance and counseling (*Berufsinformationszentren, BIZ*). The BIZ centers are free-standing institutions providing information and counseling for all levels of education and training. Students can meet with generalist career counselors, and may then be directed to specialists in different fields. BIZ centers work closely with schools, and sometimes provide some services at the school rather than at the BIZ site.

*Source:* OPET (2008) “Background report”, Learning for Jobs: The OECD Policy Review of Vocational Education and Training, unpublished.

### *High quality career information to underpin career guidance*

Career information on courses, occupations and career paths, including labor market outcomes and prospects, can be provided in various formats (*e.g.* websites, printed material). Easily accessible and high quality career information is crucial to support the work of career advisors. In Texas, several career planning software packages (*e.g.* Career Cruising, Kuder, Naviance, Bridges, COINS) are used but, according to the interviews conducted during the review visit, not all districts and schools are aware of these resources or use them systematically. It is important to ensure that all districts, schools and students are aware of and have access to these sources. While students can learn to manage their own career, they need up-to-date career information to make informed choices. Similarly, increasing the emphasis on the use of labor market information in the training of career advisors could improve the use of existing information sources. Equally important is to ensure that information sources provide up-to-date information on career options, the content of programs and the labor market prospects they offer.

Creating a single, state-wide comprehensive website would help improve awareness and usage of career information. Box 2.6 describes the approach used in the Czech Republic and South Carolina.

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5. The OECD review of career guidance (OECD, 2004, ch.3) recommended “specialised external career guidance agencies that visit the school”.

### Box 2.6 Career information in the Czech Republic and South Carolina

In the **Czech Republic**, a website provides information on educational options and their labor market outcomes. Website users can learn about the range of programs provided by secondary and tertiary institutions, entry requirements, and the qualifications and jobs these programs lead to. Information is presented about employment conditions and employee satisfaction in different occupations. This is supported by data on employment/unemployment rate and salary by educational attainment and field. Web users can also learn about various occupations by watching videos and reading about employer expectations regarding the required skills of potential recruits.

*Source:* Czech Statistical Office [from the survey of the ISPV (the Information System of Average Earnings, the Ministry of Labour and Social Affairs) ; [www.infoabsolvent.cz](http://www.infoabsolvent.cz)]

The **South Carolina** College and Career Planning System offers detailed online information to students, parents and educators on a wide range of topics. The “career planning” section includes an overview of nearly 1000 occupations, describing the occupation, important interests, skills and abilities, education requirements and income. Students can obtain information on programs after high school, ranging from 3-months training to doctoral programs. They can also learn about how to prepare for different programs and finance their studies.

*Source:* *Personal Pathways to Success (2010), career planning website, [www.scpathways.org/MasterWeb/content/SC/dispatch.aspx?category=planner&page=main&major=guest&minor=planner](http://www.scpathways.org/MasterWeb/content/SC/dispatch.aspx?category=planner&page=main&major=guest&minor=planner), accessed June 2010.*

## 2.3 Enhancing work-based learning

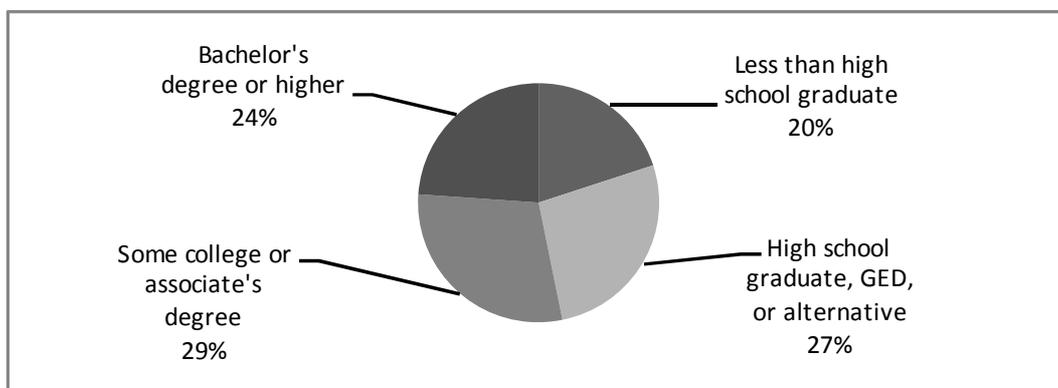
### *Challenge*

*Many students will look for a job with high-school level skills or less*

While Texas has increased postsecondary enrolment, many young people still do not complete higher education (see Figure 2.1). The challenge for high school education, including CTE, is to make students both college and career ready. (This objective is set out in the Texas College and Career Readiness Program, conducted in collaboration between the Texas Education Agency and the Texas Higher Education Coordinating Board.) This includes catering for the skills needs of those who seek employment without a postsecondary qualification. The current arrangement, precisely because it is rooted in an ideal of “college for all” and focuses on increasing postsecondary enrolment, may not adequately address the needs of these students.

**Figure 2.1 Educational attainment among young people in Texas**

2006-2008, Texas residents aged 25 to 34 years



Note: 2006-2008 American Community Survey 3-Year Estimates

Source: U.S. Census Bureau (2010), 2006-2008 American Community Survey 3-Year Estimates, U.S. Census Bureau website <http://factfinder.census.gov/>, accessed July 2010.

First, 20% of young people (aged 25 to 34) in Texas do not obtain a high school diploma or equivalent and will enter the labor market with the skills acquired during their time spent in school (U.S. Census Bureau, 2006-2008 American Community Survey 3-Year Estimates). The share of young people without a high school diploma in Texas is roughly the OECD average (21%), but higher than the US average (13%) and markedly higher than in several OECD countries such as Sweden (9%), the Czech Republic (6%) and Korea (3%) (OECD, 2009b). Those who lack a high school qualification tend to face difficulties in the labor market, with higher unemployment rates and lower income than those who hold a high school diploma or equivalent (Cantu, 2003).

In addition, 27% of young people (aged 25 to 34) in Texas hold a high school diploma or equivalent but have no postsecondary qualification (U.S. Census Bureau, 2010). Some of them never enroll in higher education, while others leave higher education without any credentials. While they may benefit from additional training or informal learning in the course of their career (and some may complete postsecondary education), most of them will rely to a great extent on the skill-set acquired at school.

For those who enroll in higher education some years after high school, the initial skill-set acquired in school will affect their first years of labor market experience. In 2002, for example, 34 % of high school graduates did not enroll in higher education the fall after graduating from high school (EPE RC, 2006). Taking into account graduation rates, this suggests that about 22% of the cohort enrolled in higher education immediately after graduating from high school. At the same time, 29% of 25-34 year olds had some college or associate degree and 24% had a bachelor's degree or higher in 2006-2008. This suggests that many people spend some time in the labor market before enrolling in higher education, and may continue to work while pursuing higher education.

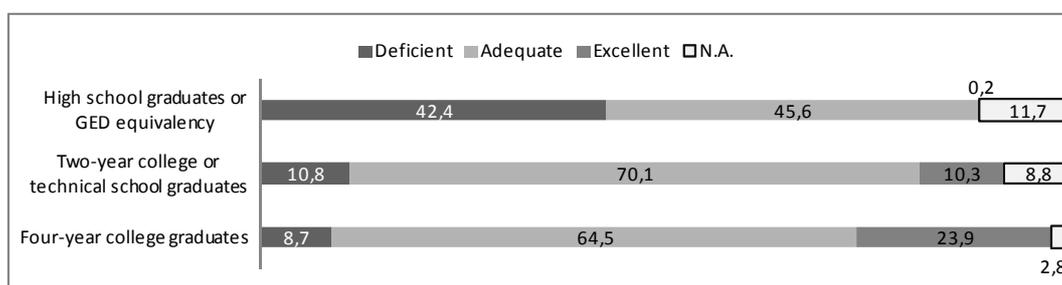
### *Employers are not satisfied with the skill levels of high school graduates*

Young people who enter the labor market with a high school diploma will need to convince employers that they have the right workplace skills. Data on employer

satisfaction are not available for Texas<sup>6</sup>, but according to a US-wide survey (The Conference Board, 2006) 42% of employers rated new entrants with a high school diploma as “deficient” in their overall preparation for entry level jobs (see Figure 2.2). Among high school graduates, all ten skills previously identified as “very important” to workforce success by a majority of employer respondents were rated as “deficient”. Many employers reported deficiencies in basic academic skills – reading, writing and mathematics. Even more employers reported deficiencies in applied skills – written communications, critical thinking and problem solving, professionalism and work ethics. Graduates of two- and four-year colleges were considered better prepared for entry-level jobs, though deficient in written communication and leadership skills.

**Figure 2.2 Employer views on the preparation level of workforce entrants**

2006



1. N.A. selected when company does not hire in selected category.

2. Percentages may not add to 100% due to rounding.

*Source:* The Conference Board (2006), “Are They Really Ready to Work? Employers’ Perspectives on the Basic Knowledge and Applied Skills of New Entrants to the 21st Century U.S. Workforce”.

### *Use of work experience is limited overall and especially among the most disadvantaged*

While basic academic skills can certainly be developed in a school context (see section 2.4), exposure to workplaces is likely to facilitate the acquisition of applied skills, rated by employers as very important but deficient among high school graduates. But the availability of work-based learning opportunities in high school CTE varies greatly across regions and districts. Although state-wide data on participation in work-based learning is not available, interviews suggest that participation in work-based learning often depends on individual schools or teachers.

According to interviews conducted during the review visit, work experience opportunities are more restricted in rural and poor districts. Stakeholders also reported that students who struggle at school are less likely to participate in work experience, as many of them have to re-take a course, which requires additional time. This is a particular problem because students who struggle at high school or come from a disadvantaged background are less likely to enroll in postsecondary education and more likely to seek

6. The Texas Education Agency does collect data on employer satisfaction. Data may be collected at local level by school districts but these are not reported to the state.

employment directly after high school. The implication is that young people who are likely to enter the labor market early on in their life may not be well equipped for doing so, in particular because they lack the substantial work experience that would provide for a smooth transition into work.

In postsecondary CTE the use of work-based learning seems to be more developed. Although there are no statewide compulsory requirements regarding work experience, programs often involve a “capstone” work placement at the end to practice what students learned. In addition, students often participate in forms of work-based learning opportunities during the program and work while studying.

### *Weaknesses in the framework for employer engagement*

Engaging employers and establishing the relationships and partnerships that facilitate workplace learning is a challenge for many districts, colleges and schools. The state requires every CTE program at both high school and postsecondary level to have an advisory board, including employers. While various bodies might in principle bring employers and the providers of CTE (districts, schools and colleges) together, such as local workforce development boards and P-16 councils, the quality of links varies greatly in practice. Stakeholders told the review team that some school districts and schools have strong ties with local employers, while others are disconnected. In sharp contrast, in postsecondary CTE stakeholders reported that partnerships with employers were consistently used across the state.

Broader US evidence suggests that there is room to strengthen employer engagement both with the CTE system, and the education system more broadly. In a US-wide survey (The Conference Board, 2006), three quarters of employers said that K-12 schools were primarily responsible for making new entrants workforce ready, 68% mentioned four-year colleges and universities, and 45% two-year colleges among their top three choices. Half of employers said it is the responsibility of new entrants themselves. Only one in five employers considered workforce readiness primarily the responsibility of the hiring employer and one in ten thought the business community more broadly was responsible. At the same time according to the US Chamber of Commerce, business involvement in issues related to public education and workforce readiness has been increasing. In interviews conducted parallel to the survey, several employers indicated interest in taking on more responsibility, for example by developing “meaningful internships”, which would allow students to develop substantial workplace skills rather than just giving them a glimpse of the work environment. Employers also suggested that business could build stronger relationships with educators in order to communicate business needs.

### *Recommendation*

**Increase the use of work-based learning opportunities in high school CTE, providing substantial work-based learning opportunities to those following a CTE program of study and those likely to seek employment directly after high school.**

### *Supporting arguments*

This recommendation is advanced to facilitate the transition of young people, including those with disadvantaged backgrounds, into the labor market after high school

completion. In many respects the arguments presented below are relevant for the United States as a whole and similar arguments have been made in the Learning for Jobs review of South Carolina (Kuczera, 2010b). This recommendation is supported by three arguments. Work-based training is not only an effective way of preparing young people for the labor market, but it can also offer good returns to employers. While the relatively limited use of work-based learning in high school CTE may be explained by some structural factors, disadvantaged young people may be left out by the current arrangement and would benefit from substantial work-based learning at high school.

In this section “substantial work-based learning opportunities” refers to training that has a sufficient duration, content and quality to allow the development of career-relevant and occupation-specific skills that can be immediately applied on the labor market, and ideally lead to a qualification recognized on the labor market.

### *Work-based learning can benefit students and employers*

There is abundant international evidence on the benefits of workplace training to students and employers (OECD, 2010a). The benefits to students include:

- **Strong learning environment.** In most country contexts, soft skills such as teamwork and communication are more easily learned in an authentic work environment, while simulating these in workshops is more difficult (Aarkrog, 2005). Workplaces can also help students acquire hard, technical skills. In programs with substantial on-the-job elements (*e.g.* apprenticeships), workplace training plays a key role in developing specific skills, both occupation- and firm-specific skills. This is more difficult to achieve if the workplace element is shorter. In that case, workplace training might be an opportunity for students to apply what they learnt at school and (depending on the duration and quality of the on-the-job element) they may acquire new specific skills.
- **School-to-work transition.** Workplace training allows employers to learn about a potential recruit and vice versa. This can only be achieved if the training is sufficiently long and trainees carry out tasks that help them acquire the competences needed in their occupation.
- **Career guidance and motivation.** Students can learn about the day-to-day reality of an occupation (*e.g.* the type of tasks involved and the working conditions), as well as learning about a particular employer. Short periods of work experience (*e.g.* *Schnupperlehre* in Switzerland, job shadowing) typically serve this purpose. Work-based learning can also increase student motivation and engagement with their program, as it allows students to see how what they learn at school can be used in real life situations.

In addition, workplace training can benefit employers:

- **Recruitment.** Employers can learn about the performance of trainees and recruit the best of them, as well as equipping them with the skills needed by the firm. The prospect of recruiting future employees is a major motive for employers to offer workplace training. This benefit can only be obtained if the period of training is sufficiently long and the tasks performed allow the employers to observe the performance of potential recruits. This benefit also depends on labor market characteristics (discussed below), the costs of hiring external skilled

workers, as well as on the share of trainees/apprentices who stay with the training firm (Wolter and Schweri, 2002).

- **Productive contribution:** Trainees who undertake useful work generate a productive benefit for the employer. This benefit depends on a variety of factors, including the tasks performed (*e.g.* productive vs. unproductive, skilled vs. unskilled tasks), or the wage of skilled and unskilled workers (Wolter and Schweri, 2002). The benefit to employers tends to be important in the case of apprenticeships (see Schweri *et al.*, 2003, Mühlemann *et al.*, 2007 for evidence from Germany and Switzerland). Such a benefit is also possible in more substantial internships, but more difficult to obtain in very short work placements (unless trainees perform only unskilled tasks, but that would be a poor learning experience). Quality standards are essential to ensure that trainees receive high quality training, while being productive in the company.

Finally, workplace training can benefit the CTE system as a whole. Training in a company can be cost-effective, as companies already have up-to-date equipment, together with the personnel able to handle these – many schools cannot afford this. One Danish study (Westergaard and Rasmussen, 1999) found that school-based vocational programs are more expensive to government than those involving workplace training provided by employers, even taking into account the subsidies to training companies. Some shift of the practical training from schools to companies might help schools with the challenge of providing up-to-date equipment, particularly in areas in which technologies are changing rapidly and equipment is expensive (*e.g.* CNC machines). Another system-wide benefit of workplace training is that it sends a signal about labor market needs – employers will be particularly keen to offer workplace training in contexts where they have labor shortages. Such signals from employers can guide schools and colleges in the mix of programs they offer.

*The relatively limited use of work-based learning at high school in Texas may be explained by some structural factors*

OECD countries use different approaches to the preparation of young people for the labor market. Both teenage employment patterns and labor market regulation are relevant structural factors. In Texas (and in the United States) both factors make it more difficult – possibly less crucial – to develop work-based learning at high school than in many OECD countries. First relatively high rates of teenage employment allows many young people to acquire some workplace skills informally before graduating from high school. Second, a relatively deregulated labor market and flexible wages in the United States facilitate school-to-work transition and eventually development of some work relevant skills directly on the job. These two points are developed below.

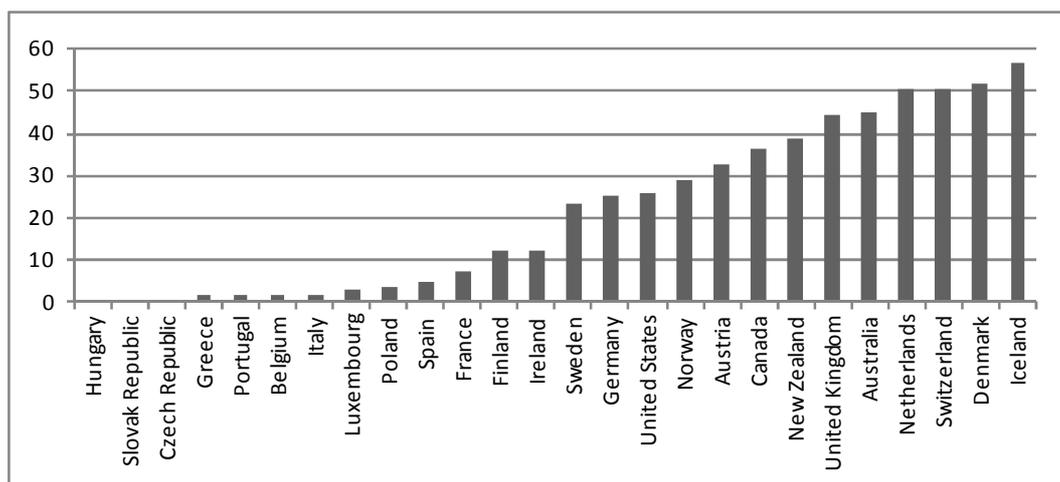
**Many teenage students hold part-time and short-term jobs**

Teenagers may gain work experience either within or outside the school system. Figure 2.3 shows the employment rate of 15 to 19 year-old students in OECD countries – the US rate is close to the OECD average. Employment among teenage students may be explained in different ways depending on the national context. In the United States work-based learning is not extensively used at high school but many teenagers have part-time and short-term jobs. In Austria, Denmark, Netherlands, Norway and Switzerland, apprenticeships are built into secondary education and enroll a substantial proportion of

the cohort. In Australia, Canada and the United Kingdom, the high rate of teenage employment can be explained by a combination of teenagers working during summer holidays and apprenticeship and traineeship arrangements.

**Figure 2.3 Percentage of enrolled 15-19-year-olds who work**

2006



Note: Figures include short-term and part-time jobs, as well as apprenticeships.

Source: OECD (2009a), *Jobs for Youth*: United States, OECD, Paris.

In the United States, part-time and short-term jobs allow many teenagers to learn about the world of work and develop soft skills, required and valued by employers. Such work experiences are undoubtedly useful but they may not be long and structured enough to develop the entry-level skill-set expected by employers. Second, some groups of young people are less likely to hold part-time and short-term jobs, as argued below.

### Deregulated labor market and flexible wages facilitate school-to-work transition

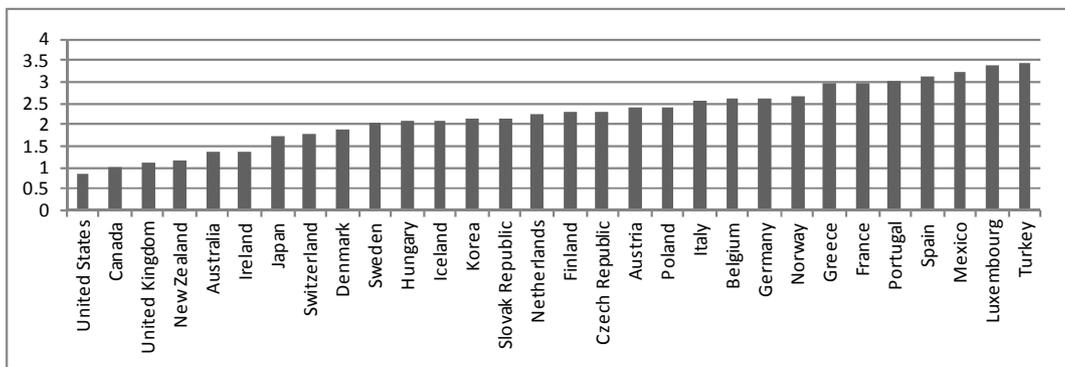
The extent to which it is necessary to build formal work-based learning into the school system also depends on labor market regulations. High school vocational programs with extensive work-based learning are more important in systems where wages are compressed and strict labor market protection privileges those already in regular employment. Under these circumstances, young people would face difficulties in integrating into the labor market without formal pathways to employment, like apprenticeships.

Quintini and Manfredi (2009) analyze school-to-work transition pathways in the United States and Europe. In Italy and Spain, more than a third of young people end up in unemployment or inactivity. In these countries labor markets are strongly regulated but work-based learning is not extensively used as part of formal schooling. This contrasts with countries with regulated labor markets but with strong apprenticeship systems. For example, in Germany about 80% of school leavers successfully integrate into the labor

market<sup>7</sup> and vocational high school graduates have the same employment rate as tertiary graduates at the beginning of their career – although their employment prospects worsen over time in comparison to tertiary graduates (OECD, 2010b). In the United States a relatively deregulated labor market and weak employment protection (Figure 2.4) mean that employers are less constrained in firing and hiring decisions than their counterparts in other OECD countries. Youth entry jobs are often low paid, so the cost of employing young people is not a barrier to employment. Employers might be able to recruit young people into low-paid entry jobs, train them on-the-job and retain the most productive ones as long-term employees. This transition pathway may displace the formal apprenticeship system that might be found in other countries.

**Figure 2.4 Overall strictness of employment protection**

2008



Note: Indicators of employment protection measure the procedures and costs involved in dismissing individuals or groups of workers and the procedures involved in hiring workers on fixed-term or temporary work agency contracts.

Source: OECD labor data, <http://stats.oecd.org/Index.aspx>.

*Disadvantaged young people may be left out by the current arrangement and would benefit from substantial work-based learning at high school*

These structural factors partly explain the limited use of work-based learning as part of high school education in the United States. In Texas, young people would ideally gain work experience through part-time or summer jobs while they are in school, they would find employment upon graduation and receive training on the job. In the context of the US and Texas labor markets and education systems, an extensive high school apprenticeship system enrolling a large proportion of the cohort (as in Germany and Switzerland) may not be the right path to follow (see for example Harhoff and Kane, 1997). But while the current arrangement is, to a great extent a sensible adaptation to the national and state context, some young people do not follow the “ideal” pathway and find school-to-work transition difficult.

First, young people from minority and low-income backgrounds are less likely to gain work experience through summer or part-time jobs than their white and more affluent

7. 90% were in employment over five year period.

peers. For example, in the United States only 19% of low-income black teenagers worked during 2007 versus almost half of white and more affluent teenagers. Overall, Hispanic and black teenagers were considerably less likely to work than white teenagers (Sum *et al.*, 2008). Teenage employment rates in the United States have been declining, in 2009 the youth participation rate in the labor force was the lowest July rate since 1955 (Bureau of Labor Statistics, 2009). Males, minorities and low-income youths are increasingly shut out of the summer labor market. The question arises whether young people want to work more than they do. According to estimates from the US Bureau of Labor Statistics a substantial pool of young people wished to work but were left jobless, or were employed part-time although they were looking for full-time jobs (Sum *et al.*, 2008).

Another way of developing workforce skills would be through training for young employees. But young people in the United States receive less on-the-job training than their peers in many OECD countries. In the United States 10% of 18-22 year-old employees received job-related training, compared with over 15% in Sweden, Belgium, Switzerland and Norway, and over 20% in Austria, France and the Slovak Republic. In addition, as in other OECD countries, the low-skilled young people who are most in need of training, are least likely to receive it (OECD, 2009a). According to the National Longitudinal Survey of Youth 1997 (NLSY97) among 20 year-old employees without high school qualifications only 2.5% are enrolled in some form of training compared to 4.6% of high school graduates (Bureau of Labor Statistics, 2008).

Providing students with substantial work experience while they are still in school could develop their career readiness and enhance their employment prospects. This would be particularly beneficial to disadvantaged students. One US study (Neumark and Rothstein, 2003) evaluated outcomes of different forms of work experience. In the 90s the federal government launched the “School-to Work Opportunities” initiative, which aimed to improve school to career pathways through stronger connections with employers and work-based activities, among other things. An evaluation of the five year program looked at the effect of job shadowing, mentoring, cooperative education, school enterprise, tech prep, and internship/apprenticeship on college attendance and employment with NLSY97 data. It showed that participation in a school enterprise has a positive effect on college attendance and that participation in cooperative education and internship/apprenticeship boost employment after high school, especially among African-Americans and those with less educated parents. In addition, these programs had a positive effect on college attendance of students with lower test scores<sup>8</sup>. Conversely, job shadowing had no impact on getting a job overall.

### **Implementation**

As argued in section 2.4, sound general skills and in particular literacy and numeracy are essential in modern workplaces and underpin lifelong learning. The question arises whether offering more work-based learning at school might undermine the acquisition of general skills, which are essential in modern workplaces. With this point in mind we do not argue for replacing courses dedicated to core general skills with workplace training. But as part of the optional content of graduation plans, there is room to expand opportunities for work-based learning. This is consistent with one of the goals of “Achieve Texas”, which aims to ensure that all students take part in “extended learning experiences such as service learning, internships, apprenticeships, and work-based

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8. Test scores from the Armed Services Vocational Aptitude Battery.

learning” (see Box 1.2). Participation in some form of work-based learning might be encouraged through enhancing those work-based training opportunities (with appropriate quality control) that lead to CTE credits. This would not imply any radical change to the existing system in Texas but rather an adjustment to strengthen pathways with substantial work experience. Efforts could be targeted at those who are most likely to need it and benefit from it – disadvantaged young people who are likely to seek employment with high school level skills.

Table 2.1 shows the extent to which countries use work-based learning in their vocational programs and the availability of different pathways. In some countries (e.g. Denmark, Norway and Switzerland) most vocational students receive extensive (in terms of time) training in a real work environment. Some other countries (e.g. Austria, Finland, France and Germany) offer different vocational pathways: in some vocational programs (e.g. apprenticeships in Austria and Germany) students spend a large part of their time in training with employers while in other programs work experience is of limited duration. Among countries presented in Table 2.1 there are some with a comprehensive school system and late tracking (e.g. Australia, Finland and Norway), as well as countries with early tracking offering separate school pathways for vocational and academic students (e.g. Austria, Germany and Switzerland). This shows that work experience can be of use in a wide range of education and training systems.

**Table 2.1 Time spent by vocational students in work experience**

	Students in work placement with employers, by the work experience duration			
	75% or more of program length in work experience	Between 50% and 75% of program length in work experience	Between 25% and 50% of program length in work experience	Less than 25% of program length in work experience
Australia <sup>1</sup>	■ ■	-	-	-
Austria	■ ■	-	-	■ ■ ■ ■
Czech Republic	-	-	-	■ ■ ■ ■
Denmark	-	■ ■ ■ ■	-	-
Finland	■	-	-	■ ■ ■ ■
France	■	-	-	■ ■ ■ ■
Germany <sup>2</sup>	-	■ ■ ■ ■	-	■
Netherlands	-	■	■ ■ ■ ■	-
Norway <sup>2</sup>	-	■ ■ ■ ■	-	-
Sweden <sup>2</sup>	-	-	-	■ ■ ■ ■
Switzerland <sup>1</sup>	■	■ ■ ■ ■	-	-
United States	-	-	-	■ ■ ■ ■

Note: Estimated percentage of vocational students: - 0%; ■ 1-25%; ■ ■ 26-50%; ■ ■ ■ 51-75%; ■ ■ ■ ■ 76-100%.

1. In Australia and Switzerland the amount of workplace training depends on the institution and program.
2. Some data are missing, not all programs are represented.

Source: Kuczera, M (forthcoming), *The OECD International Survey of VET Systems*, OECD, Paris.

In Texas access to work experience is often constrained by geographical limitations – in some districts, especially in poor and rural areas work experience opportunities are limited. Transportation costs can be high and become a serious obstacle for less well-off districts and students. Texas might pilot schemes facilitating work experience opportunities to the most needy students. Different solutions could be considered, such as a subsidy to cover travel costs and provision of work experience in blocks during summer

holidays. Students in work experience of longer duration could receive an allowance from employers.

Countries use a variety of tools to provide vocational students with workplace training. The federal “School-to-Work Opportunities” initiative in the United States was one example. In some countries there are special bodies that aim to facilitate apprenticeships by matching employers with students looking for workplace training (see Box 2.7). They also take care of the administrative duties involved in apprenticeship training (this is particularly important for small and medium enterprises). They may also employ trainees/apprentices and hire them out to host employers. In Texas, regional education service centers or local workforce development boards might play an active role by facilitating connections between schools and employers.

### Box 2.7 External bodies involved in apprenticeship training

**Australia:** Group training organizations (GTOs) are not-for-profit organizations supported by public authorities, with some charges to host employers. GTOs employ apprentices and hire them out to host employers, sometimes focusing on a particular industry or region. Their tasks include selecting apprentices adapted to the needs of employers; arranging and monitoring training both on- and off-the-job; taking care of administrative duties; and ensuring that apprentices receive a broad range of training experience – sometimes by rotating them to different firms.

For research papers on GTO see: National Centre for Vocational Education Research (NCVER) (2010), [www.ncver.edu.au/publications/bytheme.html](http://www.ncver.edu.au/publications/bytheme.html).

**Norway:** Training offices (TO) (*opplæringskontor*) are owned by companies and usually relate to specific trades. They aim to identify possible new training companies and establish new apprenticeship places, to supervise companies with apprentices, and to train staff involved in the tutoring of apprentices. Many TOs organize the theoretical part of the apprentices’ training. They often sign the apprenticeship contracts on behalf of smaller training enterprises, thereby becoming accountable for completion of the training and its results.

Source: Norwegian Directorate for Education and Training (2008), “Responses to the National Questionnaire”, Learning for Jobs: OECD Reviews of Vocational Education and Training, unpublished.

**Switzerland:** Vocational training associations (*Lehrbetriebsverbände*) are groups of firms that share apprentices, reducing thus financial and administrative burden on each firm. Firms that do not have the capacity to take on an apprentice on their own, can thus provide apprenticeships. In each association one firm takes formal responsibility for the apprentices. Switzerland subsidizes these associations during the first three years, contributing to the initial costs of establishing a joint training program. An evaluation (OPET, 2008) found this model effective, as without it the majority of the participating firms would not have engaged in apprenticeship training.

## 2.4 Literacy and numeracy among CTE students

### *Challenge*

*Texas has achieved progress in academic performance among secondary students, but challenges remain*

Over the past 15 years Texas has achieved large improvements in student performance, as indicated by results in the state assessment (TAAS and TAKS). Between 2003 and 2007, Texas achieved one of the biggest improvements, relative to other US states, in the National Assessment of Educational Progress (NAEP) in reading and math, grades 4 and 8 (Habash Rowan, Hall and Haycock, 2010). But there is still much room for improvement. In PISA assessments, the United States performed at the OECD average in reading (OECD, 2004b) but below the OECD average in science and mathematics (OECD, 2007) – in mathematics, at the same level as Azerbaijan and Croatia, and below countries like the Slovak Republic and Lithuania. In science, the US performed below Slovenia, Macao-China and Hungary. Achievement in Texas is close to the US average, according to 2009 NAEP results. Texas students in grade 4 and 8 performed very close to the US average– slightly below in reading, and slightly above in math, science and writing (*nces.ed.gov*).

Some groups of students have particularly weak performance, as indicated by TAKS (Table 2.2). Although low-income and minority students in Texas perform better than their counterparts in most other US states (Habash Rowan, Hall and Haycock, 2010), the achievement gap for these students is still close to the national average and closing it remains a challenge. According to NAEP scores, the achievement gap did not change in most respects<sup>9</sup> between 1992 and 2005 either in Texas or in the United States (EPE RC, 2006).

**Table 2.2 Student performance on the Texas Assessment of Knowledge and Skills**

Percent met standard, Grade 10, Date of testing: Spring 2009

	English Language Arts	Mathematics	Social Studies	Science
All students	88	65	90	66
Economically disadvantaged	82	55	85	53
Current LEP	45	31	59	19
ESL participants	44	30	59	19
At Risk	78	40	81	42

Source: Texas Education Agency (2009), “Texas Assessment of Knowledge and Skills. Summary Report, Test Performance, Spring 2009.”

[http://ritter.tea.state.tx.us/student.assessment/reporting/results/summary/2009/taks\\_spr09\\_g10.pdf](http://ritter.tea.state.tx.us/student.assessment/reporting/results/summary/2009/taks_spr09_g10.pdf), accessed May 2010.

9. Black vs. White and Hispanic vs. White achievement gaps did not change among grade 4 and grade 8 students. School lunch eligible vs. non eligible achievement gaps did not were closing for grade 4 students and did not change for grade 8 students.

The U.S. Census Bureau projects a rise in the share of minority students in Texas over the next decade. The Latino population aged 5-24 is expected to increase by 29% between 2006 and 2020, and the number of African American students by 15% (The Education Trust, 2009). This means that it is crucial to ensure that low-income and minority students can catch up with their peers, on grounds of both equity and ensuring a well-skilled labor force overall.

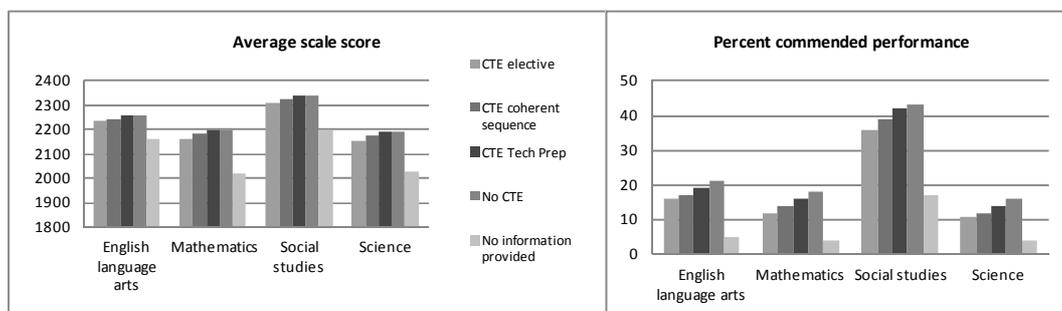
The average high school graduation rate in the United States remains below the OECD average, although the gap has been decreasing over the past 10 years (EAG 2009). In comparison to other US states, the “on-time” high school graduation rate<sup>10</sup> in Texas is slightly below the national average (71.9% and 73.9% respectively in 2006/07 (Stillwell, 2009). At the same time, the share of adults with at least upper secondary education is above the OECD average (this holds for 25-64 year olds as well as for different age groups within). This suggests that second chance programs help many people acquire a high school diploma.

### *Academic performance among CTE participants and non-CTE participants*

On average the results of CTE participants are about at the state average, as indicated by TAKS results (grade 10 and 12). A more nuanced examination of CTE students shows relatively small performance differences between CTE participants and non participants (Figure 2.5). Those who take CTE as an elective or follow a coherent sequence perform somewhat below non CTE participants, while Tech Prep students perform slightly above. On the other hand, the share of those achieving “commended performance”<sup>11</sup> is higher among non CTE participants than CTE participants.

**Figure 2.5 Student performance among CTE participants and non participants in Texas**

TAKS results, Grade 10, Date of testing: Spring 2009



Source: Texas Education Agency (2010d), “Texas Assessment of Knowledge and Skills. Summary Report, Test Performance, Spring 2010”, <http://ritter.tea.state.tx.us/student.assessment/reporting/results/summary/2010/taks-spr10-g10.pdf>, accessed July 20 10.

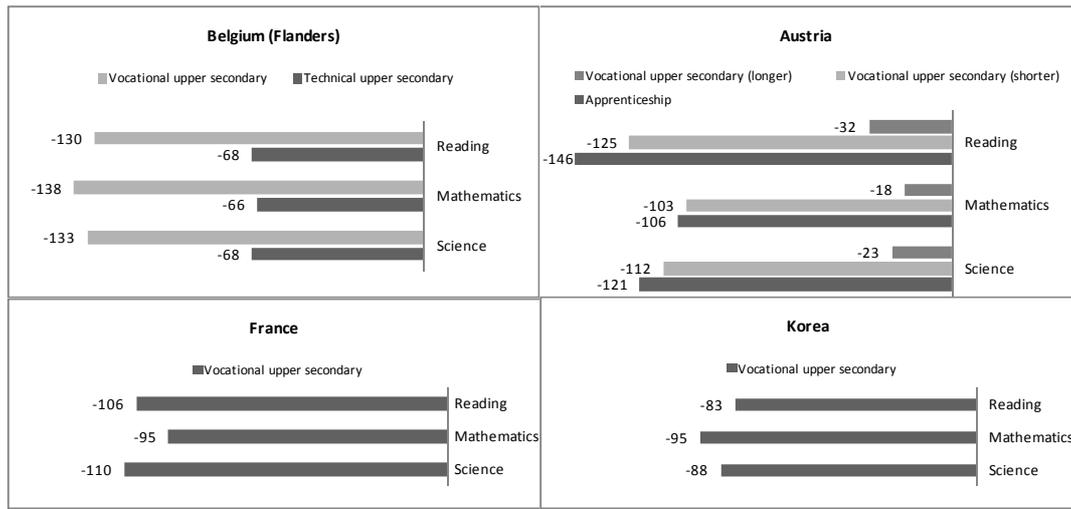
This is strikingly different from many OECD countries, where vocational tracks often concentrate students with weak academic results. Figure 2.6 and 2.7 show the difference

10. Public school averaged freshman graduation rate.
11. “Commended performance” refers to high academic achievement; considerably above state passing standard; thorough understanding of the relevant Texas Essential Knowledge and Skills curriculum ([http://portals.tea.state.tx.us/index3.aspx?id=3222&menu\\_id=793](http://portals.tea.state.tx.us/index3.aspx?id=3222&menu_id=793)).

between CTE/VET participants and non participants in selected OECD countries (based on PISA results) and Texas (based on TAKS results)<sup>12</sup>. In the four selected OECD countries the performance difference is much larger – ranging between 18% and 146% of the standard deviation. In Texas, participants in elective CTE or in CTE as a coherent sequence score between 15% to 19% standard deviation below non participants, while CTE Tech Prep participants perform even slightly better than non participants<sup>13</sup>.

**Figure 2.6 Difference in performance between vocational and general tracks in selected OECD countries**

Difference between mean student performance in the vocational track and in the general track as a percentage of standard deviation, 15-year-olds



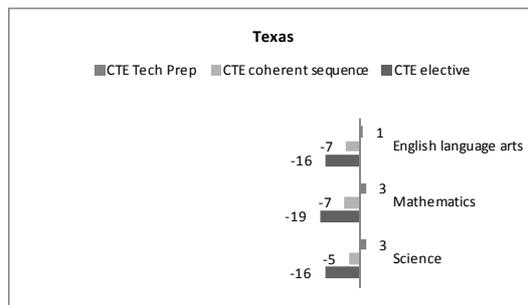
Note: The value zero corresponds to mean student performance in the general upper secondary track in each country. Standard deviation across OECD countries.

Source: Calculations based on OECD (2007), *PISA 2006, Science, Competencies for Tomorrow's World*, OECD, Paris.

12. PISA is an internationally standardised assessment administered to 15-year-olds in schools. It measures mathematical, scientific and reading literacy. TAKS is a standardised assessment used in Texas to measure student attainment in English language arts, mathematics, social studies and science. The data used here refer to 10<sup>th</sup> graders, typically aged 15-16. Both figures show the difference in performance as a percentage of the standard deviation, to illustrate the difference regardless of the scale used.
13. The weakest performers are those who did not provide information on CTE enrolment, but even in their case the gap is not as large as in many vocational tracks in the countries presented in the figure.

**Figure 2.7 Difference in performance between CTE participants and non participants in Texas**

Difference between mean student performance among different types of CTE participants and non participants as a percentage of standard deviation, Grade 10



1. The value zero corresponds to mean student performance among non CTE participants.
2. Data exclude students who took the Braille version or the make-up form of the test.
3. The figure excludes students who did not provide information on CTE participation. These students represented 0.1% of test takers.

Source: Calculations based on Texas Education Agency (2009c), “Texas Assessment of Knowledge and Skills, Scale Score Frequencies, English, Mathematics and Science, All Students, Grade 10, April 2009”, [www.tea.state.tx.us](http://www.tea.state.tx.us)

One reason for this pattern may be that in Texas participating in CTE does not imply following a separate vocational track with limited academic content and many CTE participants take only a small number of CTE courses. Unlike in the United States, in most OECD countries vocational subjects are offered in separate educational tracks. While in some countries (*e.g.* Norway, Sweden) students are free to choose between vocational and general tracks, in many countries students are directed to vocational tracks because of their weak academic performance. Typically these tracks dedicate a smaller number of hours to core academic education. Both of these factors contribute to the academic performance gap between upper secondary VET students and their peers in general upper secondary education.

### *Literacy and numeracy problems among some postsecondary CTE students*

Despite the academic strengths of high school CTE, many students still enter postsecondary CTE without the academic skills needed for college-level studies. Across the state, community and technical colleges systematically address this challenge by identifying weaknesses and offering developmental education. Students who do not meet Texas Success Initiatives standards in math, reading and writing must take developmental education in their deficiency areas. All public colleges offer developmental education and 97% of community and technical colleges require students to take college readiness assessments prior to enrolment (THECB, 2010a). In Texas 21% of university entrants and 64% of community college entrants in 2007 were not college-ready in math, reading or writing (THECB, 2009). In the United States, 42% of first-year students at community colleges enroll in at least one developmental course (Parsad and Lewis, 2003).

Students who enter postsecondary education without being college-ready are at a higher risk of drop-out. Among those who entered two-year institutions in fall 2005, of those who required developmental education only 8% graduated within three years and

31% persisted – for those not requiring developmental education the figures were 16% and 41% respectively (THECB, 2010b).

### ***Recommendation***

**Sustain the effort to improve literacy and numeracy in high school, enhancing teacher quality and promoting good practices.**

**Sustain the effort to make postsecondary education available to all, by ensuring that all high school graduates are college-ready and, while that is not yet achieved, supporting students who are not college-ready.**

**Assess whether the current balance between support for basic skills in school as opposed to developmental postsecondary education represents an optimal use of resources.**

### ***Supporting arguments***

This recommendation is supported by six arguments. Modern labor markets require sound basic skills. Maintaining a strong core set of academic courses for all students helps to limit performance gaps between CTE participants and non participants. Avoiding negative selection into CTE is beneficial to the status of CTE. A variety of approaches may be used to help students in the school system and Texas might explore these. Helping students early on is clearly more efficient than developmental education in postsecondary institutions – while some form of developmental education is necessary in the short-term, relative investment into primary and secondary vs. developmental postsecondary education might be reconsidered.

### ***Modern labor markets require sound basic skills***

In the United States, the change in terminology from “vocational education” to “career and technical education” is designed to reflect the reality of modern labor markets – CTE no longer prepares young people for a lifetime occupation. Instead, CTE graduates face a labor market shaped by technological change, globalization and increasingly knowledge-based economies. They will have to adapt to changing requirements in their own occupation and many will need to change occupations in the course of their career. Strong literacy and numeracy skills are needed to underpin such flexibility. Autor, Levy and Murnane (2003) argue that an increasing number of jobs require problem-solving skills and complex communication skills, and the development of these skills is underpinned by sound literacy and numeracy (Levy and Murnane, 2004). The International Adult Literacy Survey (conducted in 1994) found that, across all the countries surveyed, including the United States, people with weak literacy skills are more likely to be unemployed, even if other background variables (educational attainment, age, gender) are taken into account (OECD and Statistics Canada, 2000).

While equipping young people with specific skills is important to facilitate a smooth transition into the labor market (see section 2.3), sound general skills are particularly profitable in the long run. A study of individual self-perceptions of skills use in Germany (Ludwig and Pfeiffer, 2005) found that, over a period of 20 years, the human capital of apprenticeship graduates depreciated more quickly than that of university graduates. In Switzerland, employment rates of vocational graduates diminish more strongly with age than those of tertiary graduates, and earnings raise more slowly (CSRE, 2006). Some of

the differences in long-term employment outcomes may be due to differences in the ability to benefit from lifelong learning – university graduates with sound general skills may be more able to participate in continuing education than vocational graduates with more specific skills. In a theoretical paper Gervais, Livshits and Meh (2008) argue that focusing on specific skills pays off in economies with little uncertainty, while general skills are more profitable during turbulent times.

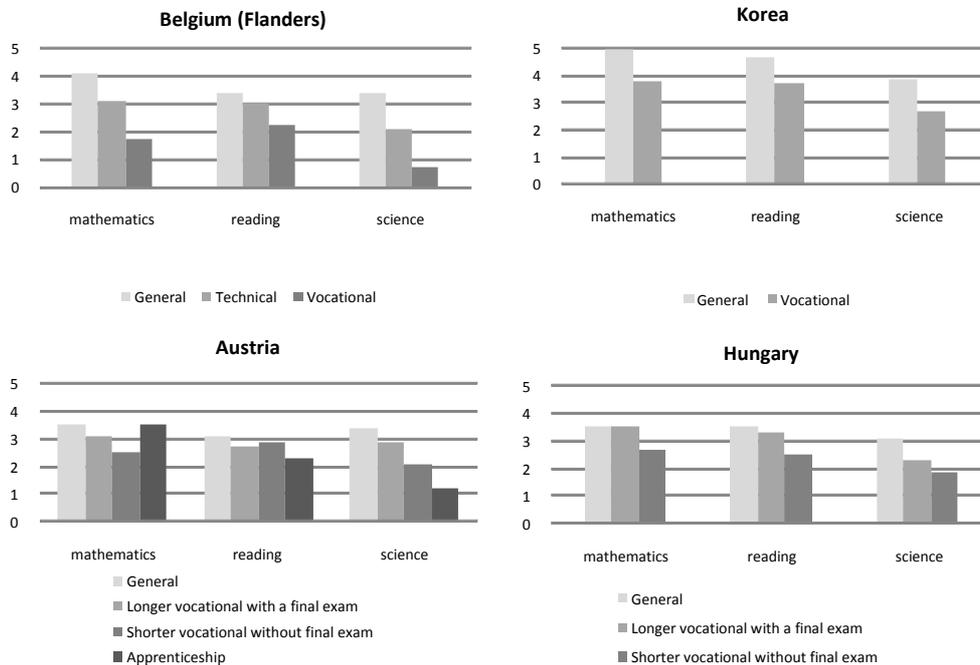
*Maintaining a strong core set of academic courses for all students helps limiting performance gaps*

For all the reasons just noted, all students need sound basic skills. This is recognized in high school graduation requirements in Texas and the 4x4 approach, which requires students to take courses for four years in the four core areas. International evidence suggests that spending more hours in regular lessons does make a difference. Across all 55 countries participating in PISA 2006, students who spend more time studying in regular science lessons at school performed better in the PISA science assessment than those who spend fewer hours. In addition, the United States is one of the seven OECD countries in which disadvantaged students benefit more than their more advantaged peers from attending compulsory general science courses (OECD, 2010c).

In countries with separate vocational tracks, vocational students spend fewer hours studying mathematics, reading and science than their peers in general education (see Figure 2.8). Once students are in a vocational track, it is typically difficult to change to the general track. This means that for many students in vocational tracks it is virtually impossible to take advanced general courses, even if they want to change their career plans. In Texas the system allows for more flexibility. Students may choose to take CTE classes without advanced mathematics or science, but this decision does not exclude the option of taking advanced mathematics later on. In practice there may be some issues of scheduling, or changing schools if the student is in a career academy, but the course structure and the absence of rigid pathways leaves options open.

**Figure 2.8 General education in general and vocational tracks**

Average number of hours per week spent in regular lessons in mathematics, reading and science (2006)



Source: OECD (2007), *PISA 2006, Science, Competencies for Tomorrow's World*, OECD, Paris.

### *Avoiding negative selection into CTE is beneficial to the status of VET*

The relatively small performance difference between CTE participants and non-participants is an admirable feature of the Texas system. Texas avoids the risks associated with selecting students into academic and VET/CTE tracks based on academic results. Such selection mechanisms would risk stigmatizing CTE by sending a signal to employers, teachers and students that CTE is for the least able. In the light of these risks, the Learning for Jobs review of Sweden (Kuczera *et al.*, 2008) recommended maintaining the country's non-selective arrangements for high school programs. In Texas, even though the status of CTE may not always be as high as stakeholders would like, a non-selective system and relatively small differences in performance between CTE participants and non-participants are likely to benefit the status of CTE.

### *Diverse approaches may be used to help students in the school system*

Texas has made considerable efforts to integrate CTE and academic content, also encouraged by the Perkins Act. Research evidence shows that integrating academic and CTE content is a very promising approach (*e.g.* Jenkins, Zeidenberg and Kienzl, 2009; Kamil, 2003; NCTE, 2006). Engaging students with content related to their interests is a very effective way of improving literacy and numeracy, and helping them make connections between basic skills and the real world can be motivating.

At the same time effectively implementing an integrated approach is very challenging. It requires careful planning, additional resources and preparation. For example, a study of math and CTE (Stone *et al.*, 2006) identified some factors that

teachers considered key to success, such as allowing sufficient time away from teachers' regular tasks, partnerships between math and CTE teachers preferably in the same building with joint planning periods. Thorough professional development was also considered critical, while the traditional methods of dissemination (mailing CDs with lesson plans and supplemental materials, two-day workshops) were relatively ineffective.

Texas could support schools and districts by facilitating opportunities for professional development in the area of contextual teaching. TEA is currently developing in-service training for teachers that will include the integration of academics and CTE. This initiative is welcome and teachers who use this approach should be encouraged to participate. Also, sharing successful experiences and identifying key factors that make integrated teaching work would be helpful. Existing tools, such as the "Best Practices Clearinghouse" could facilitate this. This might also facilitate the identification of contexts in which academic content and CTE can be effectively integrated, and other contexts when other approaches might be more suitable.

Exploring alternative approaches, Texas could usefully draw on experience from other countries and identify good practices. The Finnish approach to learning difficulties (Box 2.8) offers a sequence of intensifying interventions, which draw back into the mainstream those who fall behind.

### Box 2.8 Tackling learning difficulties in Finland

The **teacher** is responsible for identifying students falling behind. The teacher works with such students one-on-one, or in groups of two to four, to correct the problem.

The **teacher's assistant**, a person with some limited training, works under the direction of teachers. They may sit beside a student to answer questions and motivate those whose attention flags. Sometimes they work with students, individually or in small groups, on specific topics on which students need help.

Qualified **special needs teachers** work in consultation with regular teachers, typically focusing on literacy and numeracy. They work with students who need support beyond what is provided by the teacher and their assistant. They help students with severe disabilities who attend special schools, students with minor disabilities who are mainstreamed, and students who have not been specifically diagnosed but simply need additional help.

**Multi-disciplinary teams** support students who have home or social problems. The team consists of the teacher, the special needs teacher, the school's counselor and individuals outside the school (*e.g.* psychologist, social worker, representatives of the public housing system where relevant).

These approaches to minimizing the number of students falling behind display two features: intensification (more time by more instructors) and alternative approaches (rather than "more of the same"). The outcomes of this set of procedures, alongside other positive features of the Finnish education system) are remarkable. Only 1.1% of Finnish students performed below Level 1 (the lowest level of performance) in mathematics in PISA 2006, compared with 9.9% in the United States and an OECD average of 7.7%. The Finnish results for science are even better.

*Source:* Abridged quotation from Grubb, N., *et al.* (2005), *Equity in Education Thematic Review, Finland*, Available at: [www.oecd.org/dataoecd/49/40/36376641.pdf](http://www.oecd.org/dataoecd/49/40/36376641.pdf); OECD (2007), *PISA 2006, Science, Competencies for Tomorrow's World*, OECD, Paris.

Texas should pay particular attention to teacher quality. Among the factors that affect student learning and are open to policy influence, evidence from many countries, including the United States, shows that teacher quality is the most important school factor

(see for example reviews by Santiago, 2002; Schacter and Thum, 2004; Eide *et al.*, 2004)<sup>14</sup>. For example, a paper using data from Texas (Rivkin, Hanushek and Kain, 2005) found that moving one standard deviation up the teacher quality distribution would bring more benefits than a costly ten students reduction in class size.

Rivkin, Hanushek and Kain (2005) argue that teacher quality is particularly important in improving the performance of low-income and minority students. Their analysis shows that experience affects student learning in the first years of teachers' careers: there are important gains in teaching quality in the first year of experience, followed by smaller gains over the next few years; there is little evidence that improvements continue after the first three years. In Texas low-income and minority students face higher teacher turnover and are taught more often by novice teachers (Hanushek, Kain and Rivkin, 2004). Of the state's 50 largest school districts, 43 have the highest concentration of novice teachers in their poorest schools. In the light of their findings on the effectiveness of novice teachers, the authors argue that policies should aim to keep more senior teachers in the classrooms of disadvantaged students and mitigate the impact of inexperience (Habash Rowan, Hall and Haycock, 2010).

### *Helping students early on is more efficient than postsecondary developmental education*

In postsecondary programs, research suggests that developmental education (sometimes also termed remedial education) can be effective. A number of large-scale multi-institutional studies suggest that when students successfully complete developmental education, their outcomes in terms of credit attainment, graduation and transfer are similar to those who did not need remediation. Bettinger and Long (2004) found that successful developmental math students in public 4-year colleges in Ohio were only slightly less likely to complete a 4-year degree than those who were college-ready. Attewell *et al.* (2006) studied community college students who successfully remediated in English and found no differences between them and college-prepared students in terms of graduation. Bahr (2008) found that those who successfully complete developmental math have similar outcomes in terms of credit completion and transfer as those who did not need developmental education. A national initiative aimed at helping community college students succeed (Achieving the Dream) followed up a cohort, which entered participating community colleges for the first time in 2002. This study found that among students who were referred to developmental education, those who completed all their requirements during the first year attained the best results. Those who partially completed their developmental courses attained less good results, and those who did not complete any were the least successful – the share of students persisting to their second year was 80%, 65% and 45% respectively (Achieving the Dream, 2008).

At the same time, postsecondary developmental education faces some challenges. Overall, students referred to developmental education have weaker outcomes than those who are college-ready. The “Achieving the Dream” study found that students with no developmental needs were more likely to persist, attain or transfer; more than twice as likely to complete credentials than those with high developmental needs (Achieving the Dream, 2007). In addition, many students do not complete their developmental courses. Bahr (2008) in a multi-institutional study found that three out of four students do not

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14. For an OECD review on teacher policy see OECD (2005).

complete developmental courses and these students have very weak outcomes: more than four in five do not complete a credential and do not transfer.

*Developmental education is necessary in the short-term but relative investment into primary and secondary vs. developmental education might be reconsidered*

Postsecondary developmental education faces some objections on grounds of efficiency and equity. Making all students college-ready by the end of high school would be more efficient than costly postsecondary developmental education – offering high school level courses to those who are already high school graduates implies paying twice for the same. Greene (2000) estimated that the cost of postsecondary developmental education to postsecondary institutions and employers in Michigan is USD 600 million per year. Extrapolating these estimates to the United States suggest an annual cost of USD 16.6 billion. In Texas, the total estimated expenditures for developmental education for 2010-11 is USD 392 million, including state appropriations, tuition and fees paid by students and additional money spent by colleges (THECB, personal communication August 2010). In addition, there is an opportunity cost for students – they will spend time following secondary level education, instead of postsecondary education or being in employment.

There are also equity arguments for giving priority to primary and secondary education relative to developmental education. While developmental education in postsecondary institutions may fill literacy and numeracy gaps for some people who missed out at high school, it does not reach those who do not enroll in postsecondary education – many of whom have weak basic skills, which undermines their success in the labor market throughout their working life. Better quality primary and secondary education would reach all young people, including those who are left out by the current arrangement.

In the light of the efficiency and equity arguments for strong primary and secondary education, earlier intervention to make nearly all high school graduates college-ready would be the optimal solution. But as reforms in primary and secondary education take time to bring noticeable results, some form of developmental education will continue to be necessary at least in the medium term. In the mean time Texas could reconsider its relative investment into primary and secondary education compared with developmental education, assessing whether giving more priority to primary and secondary education would lead to a more optimal use of resources.

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## **Annex A**

### **Program of the Review Visits and Meetings**

#### ***Preparatory visit, 13-20 January 2010***

##### **Wednesday 13 January, Austin**

Meeting with officials from the Texas Education Agency  
Visit to a community college and Tech Prep Consortium

##### **Thursday 14 January, San Antonio**

Meeting with local stakeholders  
Visit to a high school  
Visit to a community college

##### **Friday 15 January, San Antonio**

Visit to a high school  
Meeting with local stakeholders  
Visit to a company employing apprentices

##### **Tuesday 19 January, Houston, Sealy**

Meeting with local stakeholders  
Visit to a high school in Houston  
Visit to a community college  
Visit to a high school in Sealy

##### **Wednesday 20 January, Austin**

Meeting with officials from the Texas Education Agency

#### ***Policy visit (held via videoconference), 21-23 April 2010***

##### **Wednesday 21 April**

Meeting with CTE Policymakers from the Texas Education Agency  
Meeting with representatives of Family, Career and Community Leaders of America and Texas FFA Association  
Meeting with representatives of the Texas Workforce Investment Council, Office of the Governor, Texas Workforce Commission's Labor Market & Career Information Center

**Thursday 22 April**

Meeting with representatives of the Texas Business & Education Coalition, Seton Healthcare Network, Jobing Technology Services and Texas Bioscience and Middle College Program

Meeting with CTE policy makers in data and monitoring from the Texas Education Agency and Texas Higher Education Coordinating Board

Meeting with stakeholders in counseling: college and career guidance specialist from Texas Initiatives, Texas Education Agency and a director of counseling from a school district

Meeting with researchers

Meeting with trade union representatives

**Friday 23 April**

Meeting with school district officials from six districts

Meeting officials from the Texas Higher Education Coordinating Board

**Friday 27 May**

Meeting with officials from the Texas Education Agency



# Learning for Jobs

## OECD Reviews of Vocational Education and Training

### United States: Texas

For OECD member countries, high-level workplace skills are a key means of supporting economic growth. Systems of vocational education and training (VET), or career and technical education (CTE) in the United States, are now under intensive scrutiny to determine if they can deliver the skills required. Based on reviews in 16 countries, *Learning for Jobs* is an OECD study designed to help countries make their VET systems more responsive to labour market needs.

In Texas, secondary level CTE is provided within a comprehensive high school framework. Texas has encouraged a wide variety of innovative learning initiatives, established good articulation between high school CTE and postsecondary programs and benefits from a strong network of community colleges and universities. At the same time the state faces some challenges in ensuring minimum quality standards in CTE, in providing sufficient good quality career advice, and providing an adequate range of workplace learning opportunities.

Among the review's recommendations:

- Establish a state-wide CTE quality assurance framework to increase attention to the quality of career-specific learning.
- Strengthen and develop career guidance.
- Increase the use of work-based learning opportunities in high school CTE.
- Maintain efforts to ensure that all adults without basic skills have an opportunity to develop their knowledge and skills.

The OECD has completed VET policy reviews in Australia, Austria, Belgium (Flanders), the Czech Republic, Germany, Hungary, Ireland, Korea, Mexico, Norway, Sweden, Switzerland, the United Kingdom (England and Wales), and the United States (South Carolina and Texas). A report on Chile and a report on the People's Republic of China have also been published. The final comparative report was published in August 2010.

The OECD has now launched a new review of postsecondary vocational education and training, entitled *Skills beyond School*.

Further information and documents, including a downloadable version of this report, are available at [www.oecd.org/education/vet](http://www.oecd.org/education/vet).