



The State of Career Technical Education
**Increasing Access to Industry Experts
in High Schools**

About Advance CTE

Advance CTE: State Leaders Connecting Learning to Work is the longest-standing national non-profit that represents State Directors and state leaders responsible for secondary, postsecondary and adult Career Technical Education (CTE) across all 50 states and U.S. territories. Established in 1920, Advance CTE supports visionary state leadership, cultivates best practices and speaks with a collective voice on national policy to promote academic and technical excellence that ensures a career-ready workforce. Learn more by visiting <https://careertech.org/>

About The Council of Chief State School Officers

The Council of Chief State School Officers is a nonpartisan, nationwide, nonprofit organization of public officials who head departments of elementary and secondary education in the states, the District of Columbia, the Department of Defense Education Activity, and five U.S. extra-state jurisdictions. CCSSO provides leadership, advocacy, and technical assistance on major educational issues. The Council seeks member consensus on major educational issues and expresses their views to civic and professional organizations, federal agencies, Congress, and the public. Learn more at www.ccsso.org



EXECUTIVE SUMMARY	2
<hr/>	
INTRODUCTION	3
<hr/>	
TRENDS IN STATE POLICY	6
<hr/>	
RECOMMENDATIONS	20
<hr/>	
CONCLUSION	22
<hr/>	
APPENDIX	23
<hr/>	

As interest in Career Technical Education (CTE) continues to grow, the need for experts qualified to help ensure students gain the real-world experiences they need for success increases as well. Individuals with industry expertise provide a perspective to students that traditional academic teachers may be unable to do, and can also help students explore and connect with particular career opportunities.

A scan of headlines across the country reveals that states and local districts are concerned about the shortage of qualified CTE teachers, but beyond that anecdotal evidence, there is little known about the size of this shortage or how states are addressing it, particularly when it comes to examining state policies beyond standard alternative certification policies.

Advance CTE, in partnership with the Center on Great Teachers and Leaders at American Institutes for Research, conducted a survey of 47 State CTE Directors and another survey of 260 local CTE teachers and administrators from across 26 states to learn more about strategies to increase access to industry experts in high schools. Some of the key findings include:

- ▶ This issue is a key priority across the board—98 percent of State Directors stated that increasing access to industry experts in high schools is a key priority area today, and 100 percent stated that it will be an increasingly large priority in the future;
- ▶ Ninety-one percent of states have alternative certification policies in place, the most common strategy being used to address this challenge, but ongoing shortages indicate these policies alone are an insufficient solution;

- ▶ States are increasingly expanding their strategies for bringing experts into the classroom, but results are mixed or not yet proven;
- ▶ The most significant barriers for states and districts are geography, low industry awareness, lack of funding for increased teacher salaries and other incentives, and limited data on how many students currently have or lack access to industry experts; and
- ▶ There is a communications and awareness gap between states and districts, particularly in how each views the role of the other in addressing this challenge.

Based on those findings, Advance CTE identified a set of recommendations for how state leaders can approach this issue in a deliberate and coordinated way. Specifically, state leaders can begin by:

- ▶ Expanding certification policies to facilitate part-time and co-teaching licenses in addition to full-time alternative certification;
- ▶ Formalizing agreements with postsecondary institutions that dedicate postsecondary faculty with industry expertise to teach dual enrollment programs;
- ▶ Developing and championing programs and initiatives that create clear opportunities for industry experts to fill non-instructional roles, including as mentors and career coaches;
- ▶ Engaging with employers to increase their awareness of these opportunities; and
- ▶ Using all of these strategies in a cohesive and coordinated way as a comprehensive strategy.

In 2016, Advance CTE, with support from six other non-profit organizations, released *Putting Learner Success First: A Shared Vision for the Future of CTE*.¹ This document sets out five overarching principles for improving the American education system and achieving career readiness for all students. The principles propose to use the strengths of CTE programs to accelerate and build momentum to transform the U.S. education system. One principle states that “all learning should be facilitated by knowledgeable experts”² a call to action to build and support a pool of industry experts to supplement learning, including bringing experts in as full-time, part-time or adjunct instructors through alternative and dual certification.

This report examines the role of state leaders, as well as the necessary state-level policies and programs, for increasing student access to industry experts in high schools. It also explores the barriers states commonly face, and provides recommendations for overcoming these obstacles and achieving the aspirations articulated in *Putting Learner Success First*.

Who Are Industry Experts?

For the purpose of this paper, we define industry experts as individuals with:

- Substantial industry knowledge and experience, including both technical content knowledge and understanding of how to navigate professional career growth in a specific industry
- Knowledge, skills, and abilities necessary to effectively support students, including collaboration with other educators.
- Part-time or “adjunct” high school instructors,
- Career advisers or counselors,
- Postsecondary faculty who teach dual or concurrent enrollment courses,
- Mentors and career coaches,
- Advisors for Career Technical Student Organizations.

How Can Industry Experts Support Students in the Classroom?

While industry experts may change careers and become full-time high school teachers through traditional or alternative certification routes, there are other ways industry experts may contribute to student experiences at the secondary level. For example, experts may support students’ career pathways in roles such as:

An important distinction between experts that serve as full-time teachers and those who find other ways to contribute is that the latter may still maintain their full-time jobs within industry, thus providing them with more flexibility and allowing them to contribute without changing careers.

Is There a Shortage of Industry Experts in Schools?

The issue of teacher shortages has been an area of concern—and an area of study—for a number of years. In fact, multiple states involved in New Skills for Youth (NSFY), a multi-state grant initiative focused on transforming career readiness systems, have expressed that this is a major challenge to overcome in their transformation efforts. The initiative is a partnership of the Council of Chief State School Officers (CCSSO), Advance CTE and the Education Strategy Group, generously funded by JPMorgan Chase & Co. A report, *Opportunities and Options: Making Career Preparation Work for Students*, released by CCSSO in 2014, formed the basis of the NSFY priorities and included a recommendation for states to more deeply engage with industry in order to build educator capacity.³ As state leaders seek to more fully support career readiness for all students—no matter their interests and future plans—there is a greater focus on offering all students more opportunities to explore careers, as well as access to experts from these fields.

Several states have placed CTE teachers on their critical needs list, including **Virginia** since 2003, and **South Dakota, Iowa** and **New York** since 2008. Deepening the acute supply challenge, the number of CTE-specific teacher preparation programs decreased by 11 percent from 1990 to 2000, and continues to decrease as programs continue to close due in large part to decreased interest in teaching as a profession.⁴ Meanwhile, schools across the country are struggling to manage the wave of teachers preparing for retirement.⁵

Though many districts are working within their existing systems to address this shortage, policymakers at the state level have an important role to play in addressing this challenge. State leaders can create and leverage certification policies, postsecondary partnerships and incentives to provide districts with more options for filling open teacher positions and building in-school capacity. Additionally, states can use their convening power to bring together school districts, teacher preparation programs and industry leaders to make connections and actively work towards a solution. States can also work to identify new strategies that successfully bring industry expertise into the classroom and go beyond the well-established path of alternative certification policies and programs.

To examine how states are currently addressing this shortage, Advance CTE, in partnership with the Center on Great Teachers and Leaders at American Institutes for Research, conducted two surveys: one of State CTE Directors and the other of local leaders across the country. Forty-seven State Directors (87 percent) participated in the state leader survey, which collected detailed information about the strategies states are using to address this issue and the effectiveness of each strategy. The local survey, of 260 CTE instructors and administrators responding from 26 states, focused on collecting the local perspective and anecdotal examples happening at the school and district level, that could be used to inform state-level policies and programs. For more information on the methodology of this report, see the Appendix.

Types of Employer Involvement

Even the most motivated industry professionals have competing priorities and limited time to engage with students. Accordingly, schools across the nation have found innovative ways to connect with industry professionals in a manner that balances the experts' capacity and commitment. Some examples of industry engagement include:

Full-time or part-time teaching: Retired or transitioning professionals may make use of state alternative certification policies to enter the classroom full time. However, many professionals may be able to teach only on a part-time basis. Several states—including **Virginia** and **North Carolina**, among others—have passed policies to enable industry professionals to teach for a limited number of hours per week.

Competition judging: Career Technical Student Organizations (CTSOs) host events at the local, state and national level for students to compete with their peers. These events give students an opportunity to practice what they have learned and demonstrate competencies in their chosen career field. Industry professionals can volunteer to judge these competitions, providing much-needed expertise and ensuring that students are being judged using workforce-relevant standards. Similarly, schools and programs that require students to complete a capstone experience may bring industry and community partners in to review and assess students' capstone presentations and portfolios.

Mentoring and advising students: Another way that industry experts can connect and support student learning is by providing mentorship and career advice to students. Many schools host mentoring programs to connect students with industry leaders either during the day or after school hours. Mentoring is a low-touch activity that involves a limited time commitment from industry professionals, but also allows students to benefit from expert career guidance.

Participating in a career day event: Career days allow schools and districts to invite employers to share information about their industry and connect with interested students. Participating in a career day event is another low-touch opportunity for industry experts to share about their field and make connections with future talent.

Guest speaking: Industry experts can also facilitate student learning by guest lecturing. This enables students in CTE and core academic classes alike to make connections between their coursework and real-life careers. Industry professionals can also work with classroom teachers to integrate technical and academic learning in a way that is relevant and motivating for students.

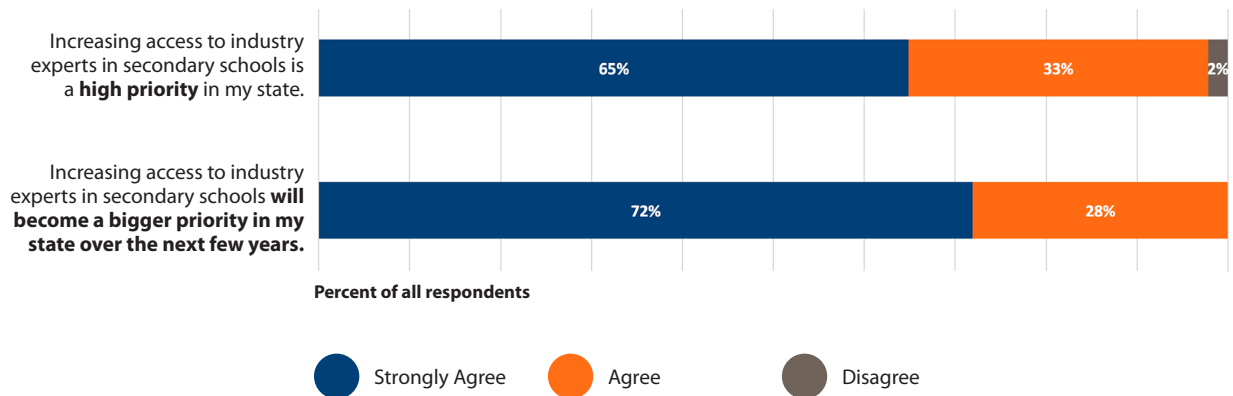
Offering internships and apprenticeships: Industry experts can also engage students by offering more intensive work-based learning opportunities such as internships and apprenticeships, which bring students into the workplace to connect with industry experts and develop career competencies through hands-on experiences.

While states have been using alternative certification policies for some time, other policy innovations explored in this paper are less familiar and less common across states. In fact, very little research has been conducted of these policy innovations to date, beyond alternative certification policies. As such, the data presented is unique in the information that it offers, but it is also somewhat limited given the newness of the topic.

For this paper, the surveys explored multiple topics and key findings include:

- ▶ This issue is a key priority across the board—98 percent of State Directors stated that increasing access to industry experts in high schools is a key priority area today, and 100 percent stated that it will be an increasingly large priority in the future;
- ▶ Ninety-one percent of states have alternative certification policies in place, the most common strategy being used to address this challenge, but ongoing shortages indicate these policies alone are an insufficient solution;
- ▶ States are increasingly expanding their strategies for bringing experts into the classroom, but results are mixed or not yet proven;
- ▶ The most significant barriers for states and districts are geography, low industry awareness, lack of funding for increased teacher salaries and other incentives, and limited data on how many students currently have or lack access to industry experts; and
- ▶ There is a communications and awareness gap between states and districts, particularly in how each views the role of the other in addressing this challenge.

Is increasing access to industry experts a priority in your state?



Priority Level for States

Nearly all surveyed State Directors said that increasing access to industry experts is a priority for their state, including 65 percent who strongly agreed with the statement. All of the state leaders said that over the next few years, this area would become an even bigger priority than it currently is, suggesting this is viewed as a long-term challenge that will not be solved in the short term.

Full-time Alternative Certification Policies

Alternative certification for full-time teachers has been a popular state policy lever to deploy when trying to increase the supply of industry experts. Traditional teacher certification often requires candidates to pursue time-consuming and relatively expensive teacher preparation coursework and training. Alternative certification offers new pipelines into the classroom by creating flexibility for those looking to change careers.

Around 90 percent of State Directors who responded to the survey reported using some form of alternative certification policy to allow industry experts to become teachers, though

the design of the policies varies across states. Many states offer certification pathways for CTE teachers coming from industry, allowing them to use work experience to waive certain education requirements.

State alternative certification policies typically require individuals to still receive teacher training, either through formal coursework or professional development, before they receive full certification. This is to ensure that they gain the necessary pedagogical and instructional skills, in addition to their industry-specific experience, to lead the classroom effectively. While some states require applicants to receive pre-service training before setting foot in the classroom, others allow teachers to receive professional development and training once they have begun teaching.

Alabama, for example, provides a CTE Teacher Certification Program, which is designed to provide the necessary training to teachers who have gained their license through alternative certification. The program takes place over the course of the teacher's first year in the classroom and requires a total commitment of 196 hours, which is primarily completed during school hours. The program covers teaching

In **South Dakota**, individuals wishing to teach CTE courses can qualify for a two-year license if they hold an associate's degree, have at least 4,000 hours of work experience or hold a nationally-recognized certification in their field. Once hired, individuals join a mentorship program, participate in a professional learning community and receive professional development on classroom instruction.⁶ CTE teachers in South Dakota who have industry experience are also eligible to earn specific career pathway and Career Cluster endorsements, which allow them to teach more advanced coursework within their subject area. Earning an endorsement is contingent on completing related coursework, passing a state certification exam or demonstrating work experience in their field.⁷

and classroom management and includes individualized mentorship from an expert teacher who provides coaching and guidance during the new teacher's first year of teaching.⁸ Individuals who complete the program and meet the state's other requirements can qualify for a five-year Bachelor's Equivalent Technical Education license.

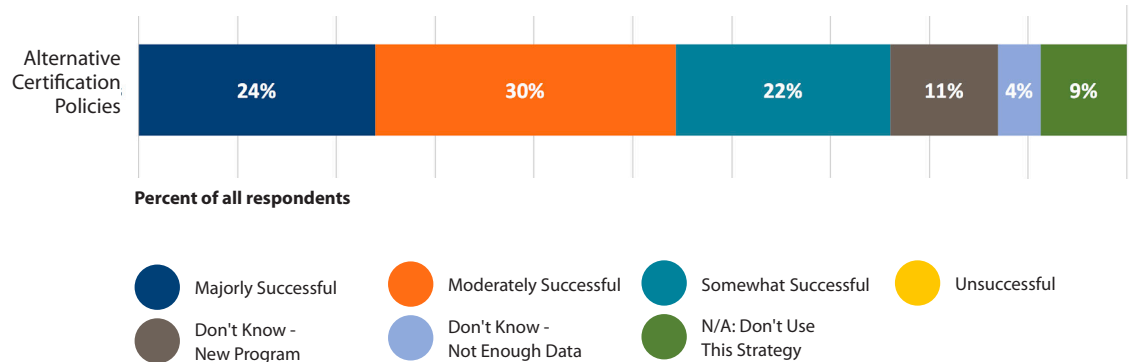
Of the 42 states that identified alternative certification as a way to increase access to industry experts in schools, 24 percent stated that this policy was majorly successful and 30 percent stated that it was moderately successful.

However, of those who believed their alternative certification policies were majorly successful, only two states responded that their overall strategy for increasing access to industry experts has been majorly successful, suggesting alternative certification was not a sufficient solution to this challenge on its own. Such policies may be effective for removing barriers for industry experts already seeking full-time opportunities in the classroom, but they do little to attract those who had not previously considered entering the teaching profession—or those unprepared to leave their positions in the workforce.

Further, alternative certification carries its own challenges related to instructor quality, as teachers who go through the alternative process by definition begin with less education training than other candidates. Alternative certification must maintain a delicate balance between flexibility and quality in hiring practices. While alternative certification policies provide industry experts with a flexible pathway into the classroom, it can be at the expense of instructional expertise that comes with more traditional teaching preparation. Thirty percent of State Director respondents cited concerns about the quality or effectiveness of industry experts as teachers, and 17 percent suggested that the amount of induction, professional development and other supports provided to industry experts was currently insufficient.

In **Arizona**, the Department of Education has worked to address this barrier through a partnership with the Arizona Association for Career and Technical Education to provide a 15-course professional development program called the Premier Program Series.⁹ The series, which provides high-quality training on instructional practices, has helped to improve the quality and effectiveness of industry experts receiving alternative

How successful was this strategy in increasing access to industry experts?



certification. Not all states require induction and mentorship for new teachers, and in many states, the responsibility to provide such training typically lies with local districts and school boards. This not only puts pressure on local administrators, who must use limited resources to provide training and mentorship for new teachers, but also requires industry experts themselves to expend time and money to prepare for the classroom.

Other Strategies and Their Impact

Part-time Teaching, Co-teaching and Non-instructional Roles

In addition to policies that allow for alternative certification for full-time teachers, some states offer other alternative certification options, such as licensures for part-time instructors and co-teaching. Over half of states (58 percent) reported having policies that certify industry experts to teach only part-time, similar to an adjunct faculty position at the postsecondary level. However, in many of the states, this option is built into a more traditional alternative certification program, serving as a midway point in the process. In these states, experts can earn provisional or

part-time teaching licenses while they work to complete the rest of the coursework required for full alternative certification. In **Iowa**, for example, the Board of Educational Examiners allows industry experts to teach part-time through an internship model where experts work alongside more experienced teachers. As a result, students still receive instruction from a qualified and experienced teacher while also being exposed to the industry expertise they need.

Of the 26 State Directors who reported using part-time certification policies, just nine indicated that their part-time teaching and co-teaching policies are separate from their full-time alternative certification policies. In these states, the option to teach part-time or to co-teach is not seen as a step on the way to full certification but rather separate strategies. Part-time teaching and co-teaching licenses are generally specialized to specific sectors or school needs, and require less time and training than other certification policies.

In **Arkansas**, individual school districts can apply to the State Board of Education for waivers that allow industry experts to work as part-time teachers as needed. Additionally, the Arkansas Department of Career Education provides permits for industry personnel to

teach certain high school CTE courses. The state indicated that this policy has been moderately successful in its goals, though they also cited ongoing challenges with reaching all schools and students. **Alabama** and **Kentucky** both offer adjunct teaching licenses for CTE teachers, similar to the way postsecondary institutions use adjunct faculty for limited specialty courses.

Almost 30 percent of states have initiatives underway to recruit industry experts as co-teachers, where the experts work alongside a certified teacher of record. Many states engage their state-level relationships with industry partners, sometimes through state advisory boards, to identify and recruit experts for specific lessons and work-based learning experiences. The effectiveness of this engagement varies across states.

More than 55 percent of state respondents stated that they are engaged in initiatives to recruit industry experts into other roles, including career advisers, mentors and guest speakers as part of their overall strategy to increase access to industry experts. For many states, this involves using state and local advisory boards as a source of guest speakers and mentors. These initiatives appear to represent a mix of formalized and ad hoc programs, with most of the established initiatives related to work-based learning.

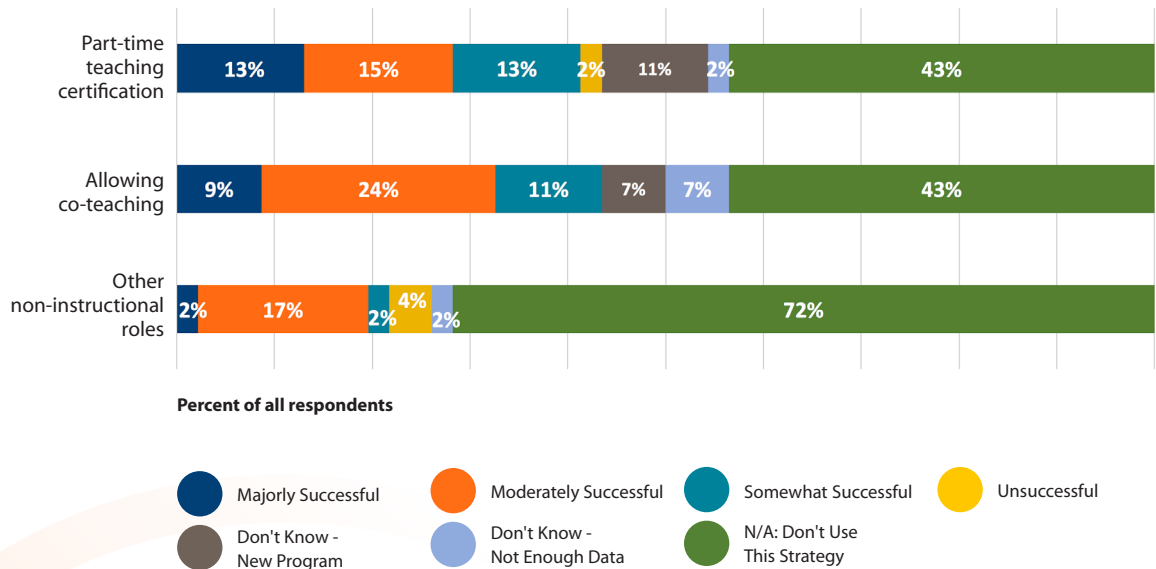
There are a few ways these efforts can play out. For example, in **Illinois**, **Indiana** and **Minnesota**, the business-funded Creating Entrepreneurial Opportunities (CEO) Program pairs students with industry experts on specific projects over the course of a year and allows the expert to serve as a mentor and guest speaker at the secondary level. The program takes place in local businesses, rather than in a traditional classroom, and provides high school juniors and seniors with the experience of being in a real workplace. A non-profit organization called the Midland Institute assists communities in implementing CEO Programs.¹⁰

South Dakota uses the SDMyLife Network to connect employers and students directly.¹¹ Through this web portal, students can explore career options and pathways, including learning about South Dakota companies in different fields. The companies are able to provide information about themselves and the skills and competencies they look for in future employees. Additionally, employers can use the portal to volunteer to become a career coach, provide work-based learning experiences, and send messages directly to students with questions about their chosen field.¹² This portal helps the state, which faces large geographical barriers, connect students with industry experts.

The **Pennsylvania** Department of Education may issue Resource Specialist Permits at the request of an employing public school entity. The permit may be issued in lieu of a teaching certificate to a competent specialist in any area of knowledge to enable schools of the Commonwealth to utilize non-certified personnel for supplemental instruction in a course of study directed by a certified teacher. The service must be part-time and may not exceed 400 clock-hours during a school year.

Instructors in Pennsylvania also have access to local Occupational Advisory Committee members, who may be invited to teach certain lessons and specific tasks. These members are not certified as teachers, but rather help co-teach for specific topics with which they are experienced.

How successful were these strategies in increasing access to industry experts?



When asked about the effectiveness of these strategies, State Directors were mixed in their responses. They rated strategies around part-time teaching, co-teaching and non-instructional roles as moderately successful in achieving their goals, but were limited due in part to their lack of scale. Some respondents stated that the programs were too new to measure effectiveness, and others cited a lack of data to be able to measure success either way.

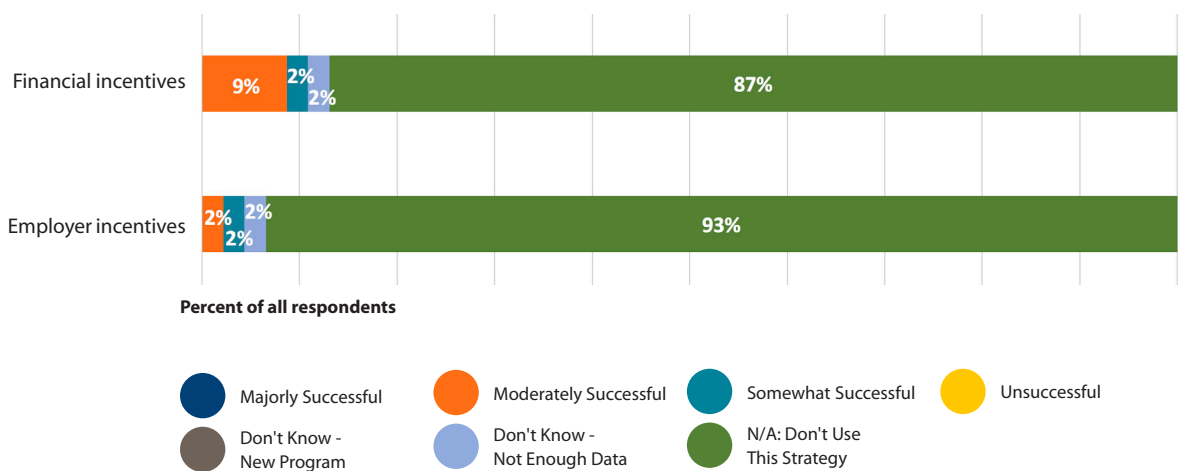
Providing Incentives

Very few states cited incentives as a strategy they used to increase industry experts' engagement in secondary CTE programs. Less than 15 percent of states said that they use financial incentives to recruit experts from industry, and seven percent reported using incentives for employers to "donate" their employees' time for mentorship, instruction or advising.

Tennessee is one of the few states to employ an incentive strategy. The state has various alternative funding models, one of which allows industry experts to have their years of industry experience count as years of teaching experience for salary purposes. As a result, experts may enter the teaching profession at a higher salary, which is hopefully closer to what the expert made in their prior position. **Alabama** also uses financial incentives to attract industry experts from certain career sectors by supplementing salaries through a statewide grant.¹³

Of the six states using financial incentives, four cited moderate successes, one was somewhat successful, and a sixth reported insufficient data. This moderate success for the few states employing these strategies might be due to the limited amount of incentives states are able to offer. Even if states are able to put policies in place that reward industry experts with salaries higher than those of entry-level teachers, they still may not be able to reach the level that some industries pay. Additionally, financial and other incentives, whether they be to individuals or their employers, do not necessarily make up for the other requirements of a transition from industry to education, including required coursework and training. Finally, if not paired with a robust communications and outreach effort, such incentives may go underused.

How successful were these strategies in increasing access to industry experts?



Leveraging Postsecondary Partnerships

Since the barriers for industry experts to enter into postsecondary teaching positions are often less restrictive, particularly in adjunct positions, states may support partnerships between secondary and postsecondary programs to share faculty and increase access to industry experts in high schools. More than half of states (55 percent) reported offering guidance about leveraging articulation and dual credit agreements to share faculty between secondary and postsecondary institutions. More than 40 percent of state respondents reported using efforts and initiatives to support secondary students' access to experts teaching at the postsecondary level through tuition support, virtual instruction technology, funding for transportation and other strategies. For example, **North Carolina's** dual enrollment initiative, Career and College Promise, allows community colleges and secondary education to share faculty and some facilities.¹⁴

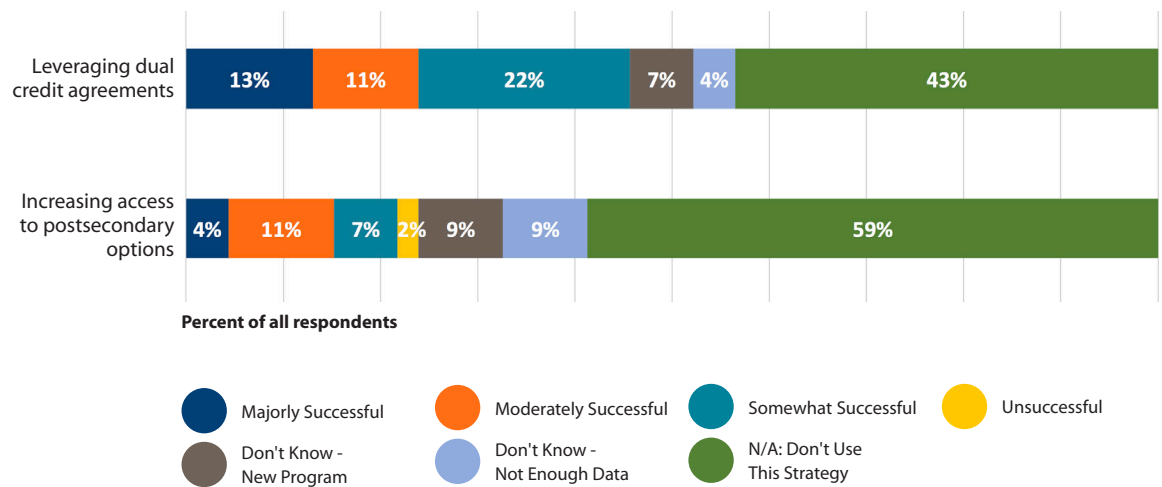
However, it was unclear from the responses if most of the states are building and leveraging their relationships with postsecondary specifically to increase access to industry experts or whether access to industry experts is simply a byproduct of the existing partnerships.

In any case, this represents an opportunity for any states with dual credit and articulation agreements to use these partnerships with a deliberate objective of providing secondary students with increased access to experts teaching in the postsecondary field. This could be an effective strategy for states' rural regions or other areas that lack available experts at any level of education. Experts could be shared between systems, depending on what agreements are in place with postsecondary institutions, as well as teacher and faculty unions.

Nebraska's strategy for increasing access to industry experts includes an array of coordinated policies and activities that work together to address the issue. The state has a CTE teaching permit through alternative licensure, as well as Transition to Teaching, a program that allows individuals to teach while they complete their requirements for full licensure. The State Director also works with the Nebraska Industry Councils to increase access to industry experts in other ways. These councils are networks of employers in key state industries, including advanced manufacturing, health services, and software and technology. Relationships with the councils are facilitated by the state departments of education, labor and economic development.

The councils help identify individuals with industry expertise who are willing and qualified to work with high school students, and the state then shares that information with local districts. This partnership with the departments of labor and economic development has allowed Nebraska to increase its focus on building relationships with industry. In fact, a majority of the State Director's day-to-day responsibilities have shifted to managing these partnerships.

How successful were these strategies in increasing access to industry experts?



Overall Strategy for Increasing Access to Industry Experts

While the different strategies for addressing this issue saw varying levels of success, only seven percent of State Directors felt that their overall strategy for increasing access was majorly successful. Another 33 percent stated that they did not know the success of their overall strategy, due either to a lack of data or the newness of programs. Additionally, there was not much correlation between the effectiveness of individual strategies and the State Directors’ perceptions of the overall strategy’s success, indicating that they may perceive each strategy as separate efforts, rather than part of a cohesive, coordinated plan.

Barriers Facing States

Regardless of the strategy used to increase access to industry experts, states faced a number of similar barriers. While some of

these barriers may seem common across education, such as funding issues and geographic challenges, the impact on this particular issue and the solutions states employed were unique.

Lack of Industry Awareness

Nearly 60 percent of State Directors reported low industry awareness of engagement opportunities as a significant barrier, drawing further attention to the need for a more focused approach to recruiting industry experts. Some states have focused their recruitment efforts on transitioning or retiring workers, developing marketing campaigns and partnerships with industry associations. While these workers might be more receptive to an appeal to share their expertise in the classroom, they may be unaware that such opportunities exist. **New Jersey** and **Virginia**, for example, have started working with statewide industry associations and workforce development groups to raise awareness. However, many states cited a lack of resources

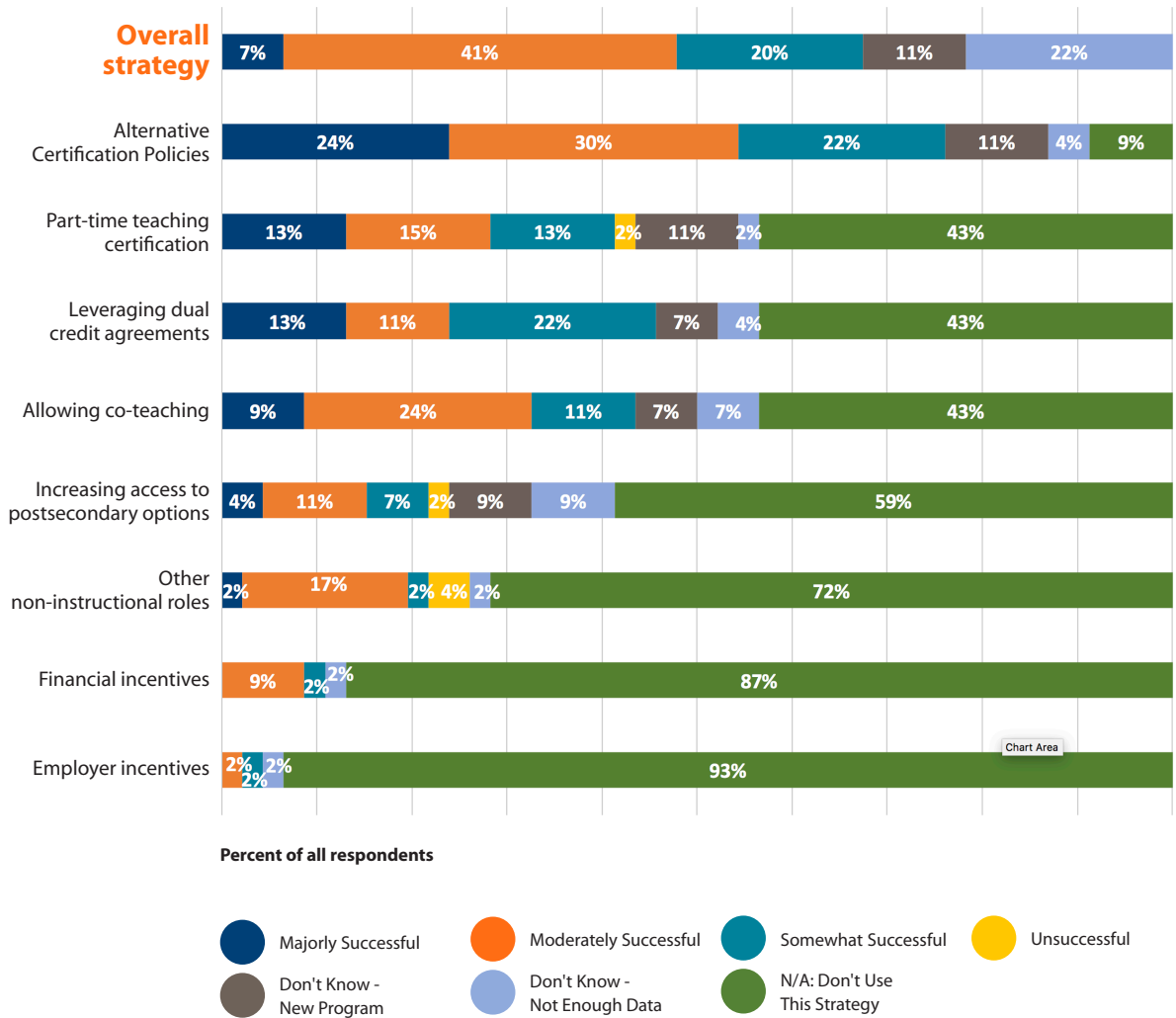
to promote alternative certification pathways and other opportunities to bring industry experts into the classroom.

As part of its broader employer engagement activities, **Arizona** has targeted its outreach to the employer community by identifying younger retirees and employees who have been recently laid off. The state provides

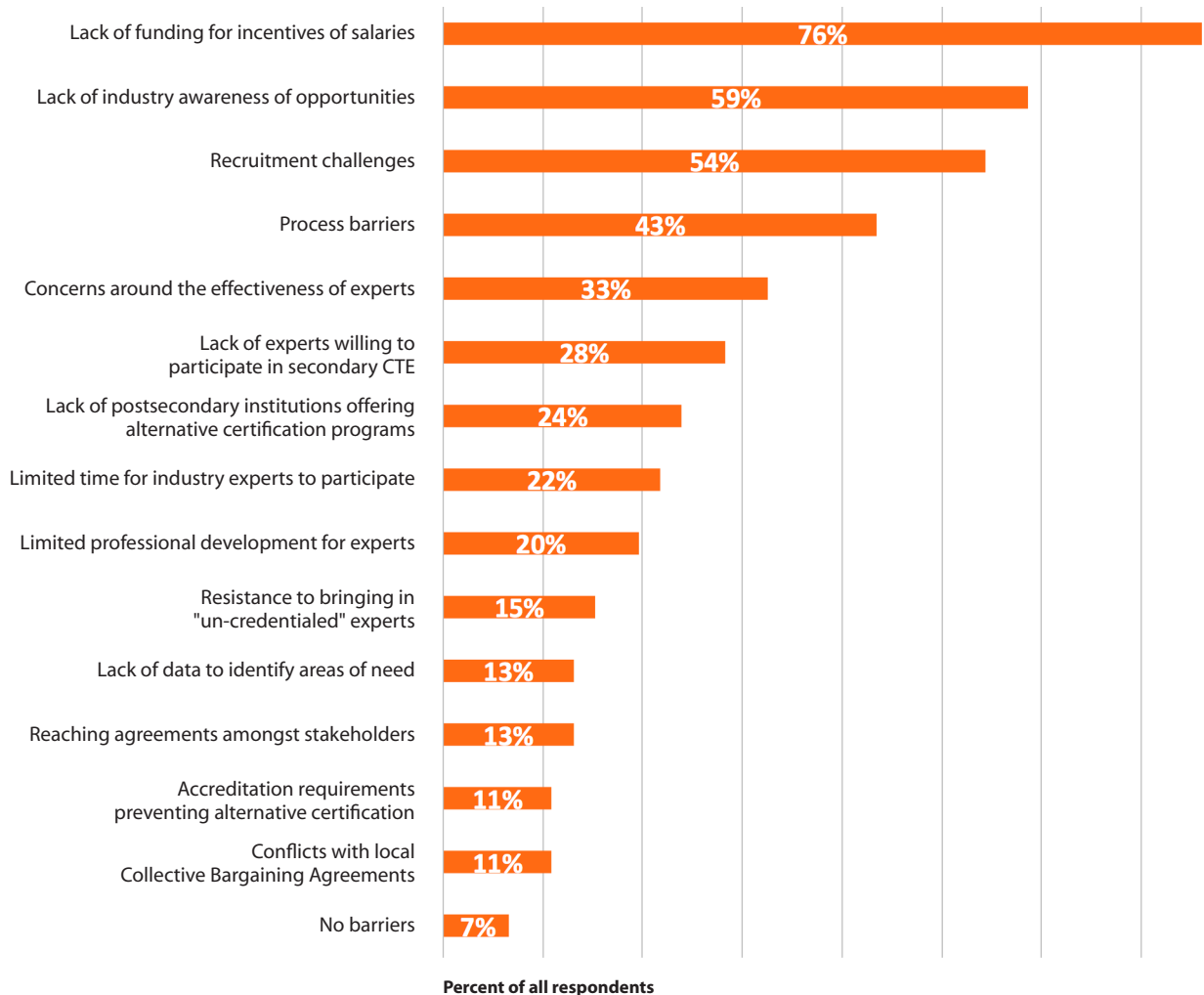
seminars about teaching opportunities. This deliberate targeting for the purpose of teacher recruitment allows the state to expend fewer resources to reach potential candidates.

Local district and school administrators may be uniquely positioned to conduct targeted outreach, given their awareness of the regional context and the ability to form

How successful were these strategies in increasing access to industry experts?



What barriers, if any, has your state experienced related to increasing access to industry experts in secondary schools?



Addressing Access in Rural Communities

Many states cited geography as a challenge to recruiting industry experts into high school CTE classrooms. Even when industry experts have a clear pathway into the classroom through alternative certification, the dearth of industry representation in rural areas can be a major obstacle. While geography limits the pool of available industry experts, states like **West Virginia** are exploring new strategies to bridge this divide through virtual instruction. West Virginia recently launched an initiative using the video conferencing program Skype to connect business representatives with students in CTE classrooms. This initiative allows experts—many of whom live and work too far away to visit the classroom in person—to provide ongoing mentorship and guidance to students in the state’s Simulated Workplace classrooms.¹⁵

personal relationships with business and industry leaders. In the survey given to local CTE leaders, respondents reported using the following strategies, among others:

- Posting open teaching positions on industry job sites;
- Leveraging relationships with industry stakeholders—such as chambers of commerce, unions, local employers, and CTSOs—to advertise opportunities and recruit experts into the classroom;
- Hiring school-based or district-based staff to build relationships and conduct outreach;
- Targeting industry experts who are retiring from their field; and
- Inviting members of the employer community to observe CTE classrooms or evaluate students’ projects or capstone presentations.

Lack of funding

Lack of funding was the most cited barrier—identified by more than three-quarters of State Directors—in particular providing competitive salaries to industry experts. Even among the six states that use financial incentives as a strategy to recruit teachers, four of those states still listed lack of funding as a barrier.

Given the prevalence of this barrier and the recent national trends on education funding, this barrier is likely to remain a challenge.¹⁶

As discussed earlier, states have begun to realize that recruiting experts as teachers is not the only option for giving students access to their expertise or to meeting capacity challenges. Experts who are still employed within industry can donate their time as mentors and coaches. Experts can also work as co-teachers and part-time teachers for lower salaries than those of full-time teachers. While the salary barrier is a major one, it need not stop the recruitment work of states.

Lack of data

Only 13 percent of states listed an inability to gather data to identify areas of need as a specific barrier. However, another question within the survey indicated that data collection on this issue is inconsistent across states, and potentially poses a greater barrier than some State Directors suggested. When asked what data states use to inform decisions on recruitment of industry experts, 41 percent responded that they currently did not use any data for this purpose. This disparity makes it unclear whether State Directors have access to this type of data but are not using it, or whether the data is unavailable. Further, 43 percent of states reported that they are able to track the number of experts who work as full-time teachers, though there appeared to be discrepancies in how states defined “expert” for the purposes of data collection. Even fewer states track and analyze how many experts serve as part-time teachers or mentors, even though many of those states have initiatives underway to recruit experts into both roles.

While some states do have and are using some data to track industry experts in classrooms, questions remain about the quality of that data and the definitions used. If states only track the number of full-time, part-time or co-teaching licenses granted, they may miss other non-instructional roles that experts might play. If they only track the number of students who participate in dual enrollment, rather than the qualifications of the dual enrollment instructors, states are not actually measuring how many students have access to industry experts. Additionally, any data on experts working in non-instructional roles would likely be self-reported by districts, creating a need for more quality control of the data at the state level in order to accurately examine state trends.

All states that responded to the survey agreed that recruiting industry experts would become an even higher priority in future years, but very few states are currently leveraging data

to better understand this issue. This lack of data may become an even greater barrier moving forward, as states try to assess the effectiveness of their various initiatives and make decisions about new strategies.

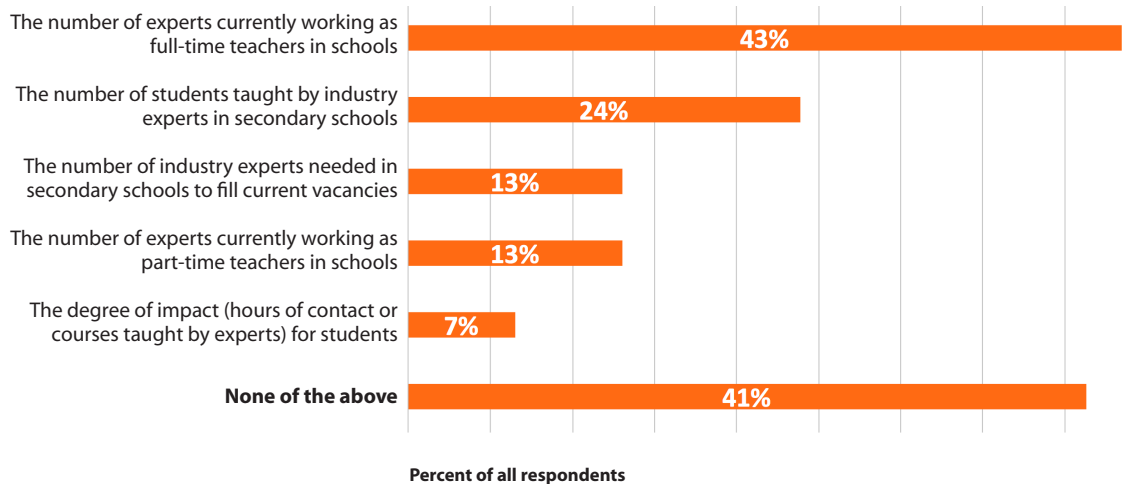
Communications Gap between States and Districts

While state leaders have a clear role to play, much of the work to increase access to industry experts—as well as hiring decisions and industry engagement—takes place at the district or school level. In an ideal scenario, state and local leaders would recognize the role each must play to ensure industry experts are recruited into and engaged in secondary classrooms and work collaboratively to connect state and local efforts.

In fact, about half of State Directors (52 percent) believe the division of responsibility for ensuring students have access to industry experts is shared, with the state responsible for creating policy and guiding local implementation while promoting local flexibility and customization. A quarter (26 percent) of State Directors identified the state as the primary driver of policy and implementation in this space and the remaining 22 percent noted that efforts in their state to increase access to industry expertise were predominantly locally driven.

However, the survey of local respondents told a slightly different story. Over one-third of local respondents said that the state plays no role in their efforts to increase access to industry experts, though it should be noted that these respondents did not represent all states. Though states have begun to do more work in this area beyond passing alternative

What data does your state collect and use to inform efforts related to increasing access to industry experts?



certification policies, not all local leaders may be aware of those efforts or how they affect local initiatives.

This lack of communication flows both ways, as 44 percent of State Directors stated that they did not know of any activities happening at the local level in this area. State leaders therefore can do more to close this gap by communicating about their strategy, however nascent, and the role districts play in achieving that strategy. Districts can actively participate by leveraging opportunities within state policy, participating in state initiatives, and developing their own innovations and customizations.

Additionally, some local respondents indicated a desire for support and assistance from states outside of policies and funding. For example, many respondents requested that state leaders and the employer community assist in building relationships with industry. While some schools and districts have been able to build relationships with regional employers, others requested state assistance in identifying and convening employers in high-demand fields.

Given that only seven percent of State Directors felt that their overall strategy for increasing access to industry experts were majorly successful, opportunities for improvements and new strategies exist. These strategies include state leaders providing additional support through innovative policy, funding and partnerships.

Set a Vision, Determine Goals and Create a Baseline

In the short-term, states should determine their objective or vision for recruiting industry experts. Beyond simply trying to fill CTE teacher shortages, states must decide if their goal is to provide in-depth experiential learning, more opportunities for career exploration and exposure, or more capacity for teachers already in the classroom. It is likely that any state vision will include a mix of different priorities and strategies, but knowing that balance is important for state success because different goals require different interventions. Depending on their goals, states may decide to pursue strategies that increase the number of experts working as full-time or part-time teachers instead of strategies that recruit experts as engaged mentors and guest speakers.

Once clearly defined goals have been established, states must then work to understand the challenges and barriers that need to be overcome. They should set a baseline of qualitative and quantitative analyses to define industry expertise, and then determine how many students—or at least districts or schools—currently have access to that expertise. Only then can the state definitively know the size of any shortage and the geographic regions and career sectors of greatest need. It is insufficient to simply count the number of teachers who have obtained alternative certifications because that ignores the other types of industry engagement. States must also try to measure the many other ways that students can interact with experts, the quality of those interactions and the levels of effectiveness across types of engagement. Additionally, states should examine the retention rates for industry experts in various roles.

Choose Effective Strategies

Once a state has defined its goals and the level of challenge in achieving those goals, there are several strategies a state should consider. First, states should examine their current alternative certification policies to determine what flexibilities might already exist when it comes to providing either short-term or part-time teaching licenses with fewer requirements. Then states should consider how to proactively communicate with school districts and employers to promote available opportunities. States can also assess existing state relationships with employers to identify areas where experts can be engaged and activated, including through state advisory boards and partnerships with workforce development boards and industry associations. They should also provide guidance to districts about how to better leverage local employer relationships to connect experts with high schools. These steps can happen relatively quickly and produce some early wins for the state as it works more intensively on other longer-term strategies.

In the longer term, states should focus on the set of strategies and policy levers that align with its goals. No single policy will completely address the shortage, and multiple policies must be coordinated to affect program design and implementation. A cohesive set of strategies that align with a clear vision allows all involved stakeholders to understand the state's approach and prevents confusion and conflicting information. These strategies should include:

- Expanding certification policies to facilitate part-time and co-teaching licenses in addition to full alternative certification;
- Formalizing agreements with postsecondary institutions that dedicate postsecondary faculty with industry expertise to teach dual enrollment programs;
- Developing and championing programs and initiatives that create clear opportunities for industry experts to fill non-instructional roles, including as mentors and coaches;
- Engaging with employers to increase their awareness of these opportunities;
- Using all of these strategies in a cohesive and coordinated way;
- Establishing policies to collect and interpret data related to industry experts; and
- Aligning and clarifying state and district roles.

The state role is not just about setting policy, although removing policy barriers is important. States must also provide guidance to districts about building strategic partnerships with regional employers and postsecondary institutions, as well as

leveraging available flexibility in policies to encourage innovation. Relatedly, states should collect promising local initiatives to inform state policies and practices, and ensure that statewide strategy and local innovations are aligned with each other, and paired with technical assistance to foster greater alignment.

Plan for Sustainability

A clear communications strategy is key to the success and sustainability of any effort. The state must first develop a coordinated and deliberate method of communicating with and engaging stakeholders, including school districts, employers and students. States might be driving very promising initiatives forward, but their success is contingent on districts and industry partners knowing about and taking advantage of such efforts. States also need to implement open and consistent lines of communications from districts and industry partners back to state leadership in order to properly understand the barriers they are facing and the support they need.

States must also be strategic in their data collection and planning efforts. With coordinated data collection, states can anticipate challenges before they occur and mitigate risks accordingly. They can also share the results of their analysis and plans for new efforts and initiatives with districts and employers, so that every stakeholder understands the state's direction and how they might be implicated. With feedback loops in place, stakeholders can also signal which parts of those plans might be problematic in practice, and the state can adjust.

For many years, states have used alternative teacher certification policies as the primary strategy for increasing students' access to industry experts in high schools, but the effectiveness of such policies can be limited. As a result, states have begun to explore new policies and initiatives to address this challenge in recent years.

While this is largely a new area of focus for many states—with limited research to support state efforts—it is clear that a piecemeal approach is insufficient to meet the goal of all students having access to industry experts. Rather, a cohesive strategy that combines multiple activities and policies—with input and ownership shared by state leaders, local districts and industry partners—is necessary to address this multi-faceted challenge.

What can industry partners do?

The responsibility of increasing access to experts in high schools cannot fall solely on the education system in a state. Industry partners and employers also play a critical role in supporting these goals and driving efforts forward. Employers should begin by seeking out partnerships with state education leadership or local school districts to learn more about current efforts, areas of need and opportunities for involvement. Such partnerships can be leveraged to create pathways for industry experts to transition into the classroom, identify the competencies industry experts need in the classroom and provide students with opportunities such as job shadowing. Industry associations can also help states communicate about these efforts to employers and assist in recruiting other industry partners. These intermediaries often have direct channels to multiple employers, and stronger relationships, so their efforts in communicating to their colleagues are crucial assistance for state leaders.

Industry partners should also give serious consideration to the time and resources they can reasonably devote to assist in this work; it is not helpful to a state for an industry partner to pledge much more than they can ultimately provide. There are a variety of activities that require less resources but still provide benefits. Industry partners can donate time in the classroom through guest lectures, student mentorships and career awareness activities. Providing flexibility during the workday or work week can help expose students to experts while also giving employers valuable face time with potential future employees. A number of companies have corporate responsibility programs that offer employees time off for volunteering, and programs such as these could be leveraged to deliberately send employees to work in schools.

Methodology

This report employed a mixed-methods approach that included the collection of both quantitative and qualitative data from several sources. The quantitative aspect of this study involved a survey of the State Directors in August and September 2016, requesting responses to a series of sixteen questions. Forty-seven states, or 87 percent, responded to the survey request. Although full participation was not met in this survey, the response rate was substantial enough to warrant interpreting its results as representative of overall national trends. State Directors were asked to describe which strategies their states used to increase access to industry experts, and were then asked to rate the success of those strategies using the following categories:

- **Majorly successful:** It has contributed to major improvements in access to industry experts
- **Moderately successful:** It has contributed to moderate improvements in access to industry experts
- **Somewhat successful:** It has contributed to small improvements in access to industry experts
- **Unsuccessful:** It has contributed to no improvements in access to industry experts
- **Don't know:** There is no local data or information about impact available to state staff
- **Don't know:** The policy, strategy or program has been launched within the last year

Additionally, 260 local CTE administrators and teachers from 26 states responded to a separate survey of nine questions. The number of respondents from each state varied, and the data from the local survey is not intended to be nationally representative. This survey data was then supplemented by independent online research and interviews with select respondents. An extensive review of existing literature on the presence of industry experts in high schools was also conducted and these sources have been cited throughout this report.

State Directors predominantly are based in state departments of education, but most have a postsecondary counterpart and often a close working relationship. Although many State Directors engaged their postsecondary counterpart directly for the survey, it was not a requirement to respond.

- 1 For more information, read *Putting Learner Success First: A Shared Vision for the Future of CTE* at <https://careertech.org/vision>
- 2 Ibid.
- 3 For more information, read the full *Opportunities and Options: Making Career Preparation Work for Students* report at <https://careertech.org/sites/default/files/CCSSOTaskForceCareerReadiness120114.pdf>
- 4 Wilkin, T., Ed.D., & Nwoke, G. I., Ph.D. (2011). Career and Technical Education Teacher Shortage: A Successful Model for Recruitment and Retention. *Journal of sTEM Teacher Education*, 48(1). Retrieved August 08, 2016, from <http://scholar.lib.vt.edu/ejournals/JSTE/v48n1/wilkin.html>
- 5 Asunda, P. A., Ph.D. (2011). Career and Technical Education Teacher Preparation Trends: A Pilot Study. *Online Journal for Work Force Education and Development*, V(3), 1-27. Retrieved August 08, 2016, from <http://opensiuc.lib.siu.edu/cgi/viewcontent.cgi?article=1107&context=ojwed>
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- 7 For more information, see: <http://www.sdlegislature.gov/rules/DisplayRule.aspx?Rule=24:15:10>
- 8 For more information, see: <http://www.alsde.edu/sec/cte/CTE%20Teach%20Cert/CTE%20TCP%20Master%20Schedule.pdf>
- 9 For more information, see <https://www.acteaz.org/premier-series/>
- 10 For more information, see <http://www.midlandinstitute.com/What-Is-CEO>
- 11 For more information, see <http://sdmylife.com/>
- 12 For more information, see <http://sdmylife.com/network/>
- 13 For more information on the salary levels and their equivalent certifications, see <https://www.alsde.edu/sec/cte/CTE%20Teach%20Cert/Degree%20Equivalent%20-%20Technical%20Education%20Certification.pdf>
- 14 For more information, see <http://www.nccommunitycolleges.edu/academic-programs/career-college-promise>
- 15 For more information see <https://wvde.state.wv.us/simulated-workplace/>
- 16 Gillette, L. M., & Cornman, S. (2016, January 25). *Financing education: National, state, and local funding and spending for public schools in 2013*. Retrieved September 15, 2016, from <http://nces.ed.gov/blogs/nces/post/financing-education-national-state-and-local-funding-and-spending-for-public-schools-in-2013>

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