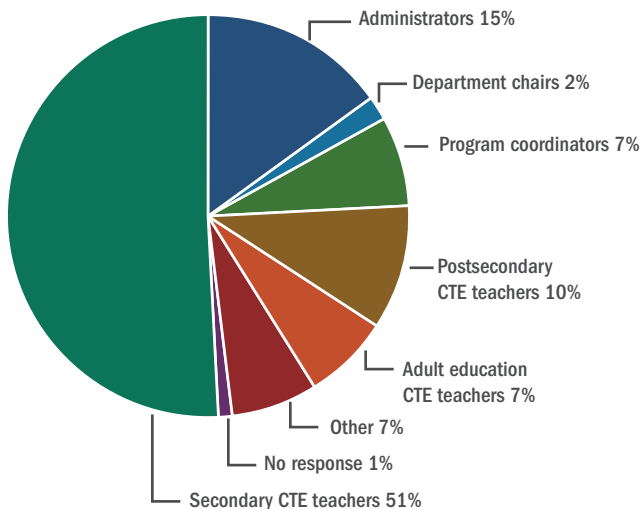# What Career and Technical Education Teachers Really Want for Professional Learning

To better understand the professional development needs of Career and Technical Education (CTE) teachers, the American Institutes for Research® (AIR®) conducted a national survey through the Association of Career and Technical Education (ACTE) to current CTE educators between November 2014 and January 2015. The survey asked 33 questions, inquiring about general demographics, education, industry-specific licensing, and employment information. The questionnaire also surveyed CTE educators' impressions and perspectives related to instructional preparation, professional learning preferences, engagement and obstacles, and overall priorities for professional development needs. Although all of these areas are important, this brief focuses on the section of the survey pertaining to the overall professional development priorities of CTE educators.[1]

In this section, participants shared what they believe are the most important priorities for improving CTE teacher effectiveness through professional learning. The findings provide insight into ways to use professional development to support CTE educators. The 207 survey respondents included an array of CTE educators from 38 states across the country, including administrators (15%); department chairs/program coordinators (9%); and CTE teachers in secondary (51%), postsecondary (10%), and adult education programs (7%). The remaining 8% of respondents are identified as *Other* or did not provide a response indicating their role. The majority of the respondents are individuals who work full time (73%). Of all respondents, the majority (60%) are seasoned CTE teachers who have worked more than 7 years in the field. All of the 16 career clusters[2] are represented by the respondents. Figure 1 shows the distribution of survey respondents by role.

Figure 1. Distribution of Respondents by Role

- Administrators 15%
- Department chairs 2%
- Program coordinators 7%
- Postsecondary CTE teachers 10%
- Adult education CTE teachers 7%
- Other 7%
- No response 1%
- Secondary CTE teachers 51%

16 CAREER CLUSTERS

- Agriculture, Food, and Natural Resources
- Architecture and Construction
- Arts, A/V Technology, and Communications
- Business Management and Administration
- Education and Training
- Finance
- Government and Public Administration
- Health Science
- Hospitality and Tourism
- Human Services
- Information Technology
- Law, Public Safety, Corrections, and Security
- Manufacturing
- Marketing
- Science, Technology, Engineering, and Mathematics
- Transportation, Distribution, and Logistics

Of greatest interest in the survey were questions that asked respondents to share their top professional development priorities for CTE teachers from a list of 59 possible choices which spanned five major categories:

- Planning and Organization
- Instructional Skills and Strategies
- Technical Skills and Strategies
- Technology Integration
- Assessment and Evaluation of Student Learning

The following pages summarize the findings and offer recommendations for professional development consideration. The responses are aggregated by administrators (including department chairs and program coordinators) and teachers (CTE teachers in secondary, postsecondary, and adult education programs). *Administrators*, as an aggregate group, make up 25% of responses, while *teachers* make up 67% of responses.

Overall Top Priorities, Among 59 Priorities

Among the five categories from which respondents were asked to identify their top professional development priorities, respondents selected a maximum of 23 (out of 59) priorities across all five categories. This process forced them to make decisions about what they believed was most important for professional development. Table 1 shows the five most frequently selected priorities across the five categories, along with the selection rates of these priorities by administrators and teachers. Both groups selected three of the Top 5 Overall priorities at a high rate: "designing authentic or simulated learning experiences requiring real-world use of industry-specific technologies," "aligning curriculum, instruction, assessment, and evaluation," and "improving business/industry engagement." The two groups differed, however, on their views of the other two priorities. Administrators selected "incorporating critical thinking and problem-solving skills" among their top priorities, while teachers opted for "motivating students."

The following are highlights of the most frequently selected priorities overall and among the subcategories of the survey. Tables 2–6 show the top three priorities within each of the subcategories to bring your attention to the selections that were selected at least 31%. Beyond that, there were significant drops in priority selection, so priorities beyond these are not displayed.

Table 1. Top 5 Priorities Selected Overall and by Teachers and Administrators

Priority	Category	Frequency Selected Overall (207 responses)	Frequency Selected by Administrators (51 responses)	Frequency Selected by Teachers (139 responses)
Designing authentic or simulated learning experiences requiring real-world use of industry-specific technologies	Technology Integration	150 (72%)*	35 (69%)*	103 (74%)*
Aligning curriculum, instruction, assessment, and evaluation	Planning and Organization	139 (67%)*	37 (73%)*	94 (86%)*
Improving business/industry engagement	Technical Skills and Strategies	121 (58%)*	25 (49%)*	84 (60%)*
Motivating students	Instructional Skills and Strategies	118 (57%)*	22 (43%)	88 (63%)*
Incorporating critical thinking and problem-solving skills	Instructional Skills and Strategies	110 (53%)*	27 (53%)*	72 (52%)
Developing and using multiple measures to assess learning	Assessment and Evaluation of Student Learning	98 (47%)	24 (47%)*	62 (45%)
Implementing industry standards	Planning and Organization	108 (52%)	22 (43%)	80 (58%)*

*Indicates Top 5 priorities for each group of respondents (overall, administrators, and teachers).

Planning and Organization (11 Priorities)

The category of Planning and Organization included professional development needs that focused on the preparation needed to deliver content successfully and skillfully. This category was intended to capture needs in the areas of curriculum and curriculum development, CTE and academic standards alignment and implementation, lesson planning, and student goals and goal-setting. Respondents were permitted to select up to a total of five priorities. The most selected priorities appear in Table 2. "Aligning curriculum, instruction, assessment, and evaluation" was chosen frequently enough to rank in the Top 5 Overall (Table 1). Administrators and teachers varied little in their opinions of the Top 3 priorities of this category. There was a tie in the third most selected priority for administrators, with the priorities of "developing curriculum" and "mentoring and induction of new teachers," both at 41%.

Table 2. Top 3 Priorities Selected by Teachers and Administrators in the Planning and Organization Category

Priorities	Frequency Selected Overall (207 responses)	Frequency Selected by Administrators (51 responses)	Frequency Selected by Teachers (139 responses)
Aligning curriculum, instruction, assessment, and evaluation**	139 (67%)	37 (73%)*	94 (68%)*
Implementing industry standards	108 (52%)	22 (43%)*	80 (58%)*
Developing curriculum	101 (49%)	21 (41%)*	70 (50%)*
Mentoring and induction of new teachers	80 (39%)	21 (41%)*	50 (36%)

*Indicates Top 3 priorities for administrators and teachers in relation to overall responses.
**Indicates priority is also among the Top 5 most frequently selected priorities across all categories.

Instructional Skills and Strategies (18 Priorities)

The category Instructional Skills and Strategies included professional development needs that relate to the approaches, methods, and specific techniques teachers use with their learners. This category is one of the largest, and respondents were able to select up to 6 priorities from a total of 18 options. Table 3 displays the results. The top two priorities were selected frequently enough to be included in the Top 5 most frequently selected priorities across all categories (see Table 1).

One of the main differences in the perceptions of administrators and teachers is seen in this category. The top priority in this category, "motivating students," was chosen by 63% of teachers but only 43% of administrators. Teachers' high rate of selection lands this priority among the Top 5 priorities across all categories, as this priority is not in the Top 5 list for administrators independently. The two groups also differed in their selection rates of "project-based learning" as a priority. Only 39% of administrators compared with 50% of teachers selected this priority. Administrators and teachers chose "incorporating critical thinking and problem-solving skills" at similar rates.

Table 3. Top 3 Priorities Selected by Teachers and Administrators in the Instructional Skills and Strategies Category

Priorities	Frequency Selected Overall (207 responses)	Frequency Selected by Administrators (51 responses)	Frequency Selected by Teachers (139 responses)
Motivating students**	118 (57%)	22 (43%)*	88 (63%)*
Incorporating critical thinking and problem-solving skills**	110 (53%)	27 (53%)*	72 (52%)*
Project-based learning	97 (47%)	20 (39%)	70 (50%)*
Integrating math skills	93 (45%)	22 (43%)*	62 (45%)

*Indicates Top 3 priorities for administrators and teachers in relation to overall responses.
**Indicates priority is also among the Top 5 most frequently selected priorities across all categories.

Technical Skills and Strategies (13 Priorities)

The Technical Skills and Strategies category included professional development needs that allow teachers to better support skills required in particular careers or industry sectors. This category was intended to capture skills such as supporting students' transition along a career pathway through articulated programs leading to certifications; staying current with industry standards, equipment, requirements, and procedures; determining employers' needs; and increasing engagement with employers. Respondents were instructed to select up to 5 priorities among 13 possible priorities. The top results appear in Table 4. "Improving business/industry engagement" is among the Top 5 most frequently selected priorities by both respondent subgroups across all categories (see Table 1), and is the only priority in the category of Technical Skills and Strategies that ranks this high. It was a top choice for both groups of educators, yet large differences can be seen in the other priorities between the two groups: 55% of teachers chose "staying current on technical skills" compared with 39% of administrators; and 53% of teachers selected "transitioning students to the next level in the pathway or to career," while only 35% of administrators selected this. Although they agreed with teachers on the top priority (improving business/industry engagement), administrators identified two entirely different priorities as their other top choices: "Determining employer needs" was chosen by 45% of administrators, and

"offering and preparing students for industry-recognized certifications" was selected by 41%.

Table 4. Top 3 Priorities Selected by Teachers and Administrators in the Technical Skills and Strategies Category

Priorities	Frequency Selected Overall (207 responses)	Frequency Selected by Administrators (51 responses)	Frequency Selected by Teachers (139 responses)
Improving business/industry engagement**	121 (58%)	25 (49%)*	84 (60%)*
Staying current on technical skills	103 (50%)	20 (39%)	76 (55%)*
Transitioning students to the next level in the pathway or to career	102 (49%)	18 (35%)	74 (53%)*
Determining employer need	88 (43%)	23 (45%)*	61 (44%)
Offering and preparing students for industry-recognized certificates	81 (39%)	21 (41%)*	48 (35%)

*Indicates Top 3 priorities for administrators and teachers in relation to overall responses.
**Indicates priority is also among the Top 5 most frequently selected priorities across all categories.

Technology Integration (5 Priorities)

The Technology Integration category included professional development needs that support the use of technologies aligned with industry and career needs. It was intended to capture a variety of needs, such as using technology to make effective presentations or teach online, as well as using technologies in ways that mirror industry-specific uses. Technology integration is the smallest of the five categories. It has a total of five possible priorities, from which respondents were permitted to select up to three. "Designing authentic or simulated learning experiences requiring real-world use of industry-specific technologies," the most frequently selected priority across all categories, was selected by 72% of respondents. It was the top choice for both teachers and administrators (see Table 1). Table 5 shows that teachers and administrators agreed on all three top priorities for technology integration.

Table 5. Top 3 Priorities Selected by Teachers and Administrators in the Technology Integration Category

Priorities	Frequency Selected Overall (207 responses)	Frequency Selected by Administrators (51 responses)	Frequency Selected by Teachers (139 responses)
Designing authentic or simulated learning experiences requiring real-world use of industry-specific technologies**	150 (72%)	35 (69%)*	103 (74%)*
Using industry-specific technology effectively	101 (49%)	23 (45%)*	69 (50%)*
Designing research activities that require students' effective use of computers, the Internet, and other technologies	91 (44%)	16 (31%)*	63 (45%)*

*Indicates Top 3 priorities for administrators and teachers in relation to overall responses.
**Indicates priority is also among the Top 5 most frequently selected priorities across all categories.

Assessment and Evaluation of Student Learning (12 Priorities)

The final category, Assessment and Evaluation of Student Learning, included professional development needs that addressed monitoring student progress through a variety of

formative and summative assessments as well as using those data to evaluate results, provide constructive student feedback, make decisions, and inform instruction. The category was meant to capture training needs in the areas of developing and administering performance or skills-based assessment, using and evaluating student portfolios, developing and using rubrics, using industry standards to inform assessment, checking for understanding, and other related areas for assessment and evaluation. This category presented a total of 12 possible priorities from which respondents were able to select 4. Although this is an important category for professional development, none of the 12 priorities in this group received more than 100 selections. Therefore, none of the priorities in this category appeared among the Top 5 Overall. "Developing and using multiple measures to assess learning" was selected by 47% of respondents and it was also the top choice for both teachers and administrators. The biggest differences between administrators and teachers are seen in this category. Teachers believed that "providing timely and constructive feedback to students" was among the Top 3 priorities. They selected it at a rate of 42%. In contrast, only 22% of administrators selected this response. Administrators placed "using formative assessment data to inform instruction" among their top priorities for this category, selecting it at a rate of 35%. However, only 17% of teachers selected this option as a priority (Table 6).

Table 6. Top 3 Priorities Selected by Teachers and Administrators in the Assessment and Evaluation of Student Learning Category

Priorities	Frequency Selected Overall (207 responses)	Frequency Selected by Administrators (51 responses)	Frequency Selected by Teachers (139 responses)
Developing and using multiple measures to assess learning	98 (47%)*	24 (47%)*	62 (45%)*
Checking for understanding/monitoring student progress	96 (46%)*	19 (37%)*	72 (52%)*
Developing and administering performance or skills-based assessments	72 (35%)*	16 (31%)	51 (37%)
Using formative assessment data to inform instruction	41 (20%)	18 (35%)*	23 (17%)
Providing timely and constructive feedback to students	71 (34%)	11 (22%)	58 (42%)*

*Indicates Top 3 priorities for administrators and teachers in relation to overall responses.

Recommendations

Based on the findings and highlights discussed above, it is clear that several key areas remain for future consideration of CTE teacher professional development. While this brief only presents a subsection of the overall survey on professional learning needs, the following are recommendations for consideration and implementation among CTE leaders:

1. **Recognize that real-world industry experience is just as important for CTE educators as it is for students.** Both CTE administrators and teachers indicated that their greatest priority from among all 59 options was "designing authentic or simulated learning experiences requiring real-world use of industry-specific technologies." Administrators and teachers also agreed that "improving business/industry engagement" is a top priority. Business can provide resources and guidance that can give students the opportunity to gain more real-world experience. Given requirements of the 21st century workforce

and educators' desire to prepare students to compete successfully for the most in-demand careers, *it is recommended that states and local programs focus on identifying the industry-specific technologies used in these careers for their constituents. Further, it is recommended that administrators quickly begin to invest in the* resources *(people, equipment, and materials) needed to ensure that CTE teachers are equipped with the skills and knowledge on how to use these technologies to provide real-world learning experiences for students.*

2. **Understand that administrators are from Mars and teachers are from Venus.** The results tell us that administrators and teachers see professional learning priorities differently in many areas. Differences between administrators and teachers' perceptions of professional development needs are seen in other research as well. Cannon, Kitchel, and Duncan (2010) found that "teachers may perceive that an item is not an in-service need, whereas others in the profession such as state administrators or university teacher educators could arrive at a different conclusion" (also see Cannon, Tenuto, and Kitchel [2013]). It is important to honor those differences and focus on professional learning needs where priorities most closely align. Consequently, we recommend that *time be allocated to collaborate and agree on where to start with implementing the professional learning.* Be sure everyone is on board with what is needed and what is offered.

3. **Use this information to plan future professional learning.** It is clear from the results of the survey that there are several significant areas that need to be addressed for CTE educators in the area of professional learning. Teachers and administrators agreed that "aligning curriculum, instruction, assessment, and evaluation" was another top priority in addition to bringing real world learning experiences to the classroom. Some of our findings even echo those of other studies: Cannon et al. (2013) also found that administrators feel that teaching critical thinking skills and motivating students are prime areas where professional development is needed. We recommend that you *use this brief to build awareness of professional learning needs throughout your state or local program and incorporate the findings into your ongoing professional development plans.* These findings can be used as a guide to create professional development plans where there are none or to strengthen existing plans. While this brief did not address the details on the preferred training delivery methods, determining that will provide a strategy to focus the professional development ultimately offered.

4. **Make sure this story represents your state or program.** We recommend that *CTE state and local leaders use this research as a starting point to find out what their teachers want in order to inform how to best meet this need.* While this is a national survey, we recognize that the sample size is small and may not represent the unique needs and nuances within your program or state. Use these results to help you gather state or local data to determine where the gaps are in providing professional development for CTE teachers. Further, part- time and full-time teachers may have different professional development needs and, consequently, may need differing types of support. Ruhland and Bremer (2002) emphasize in their research that teachers have a wide range of backgrounds and have varying styles, needs, and problem-solving strategies. It is therefore important to adequately identify those needs and provide diverse options for professional development.

5. **Reassess needs on a continuous basis.** The CTE field is continually changing as are those who deliver CTE instruction. With this constant change, it is critical to get ongoing input and feedback from those closest to students. Once this is done, it is important to respond immediately to the results of that input. It is therefore recommended that *state and local CTE leaders work with and use the existing professional development resources available to find the most efficient and cost-effective ways to provide CTE educators with the training they need.* This survey was conducted by AIR, in partnership with ACTE. Both organizations offer consistently high-quality, research-based professional development for CTE educators. Many opportunities currently exist to support this need, and this survey points to new areas where professional development support is needed in the future. For assistance, see the Additional Resources below.

Conclusion

The results from this survey and analysis provide a starting point for understanding the needs of CTE teachers. The information provided can inspire conversations toward an increased understanding of CTE teachers' needs and how best to meet them. Both groups believe some priorities are important, and some priorities are ranked high, based on the respective roles of administrator or teacher. It is hoped that the results of this research will provide an opportunity to re-examine what and how CTE teachers receive professional development, with a goal of modifying and adjusting based on this research, to better meet the current needs of CTE teachers' professional development.

Additional Resources

American Institutes for Research (AIR): www.air.org

Association of Career and Technical Education: www.acteonline.org

California Adult Literacy Professional Development Project (CALPRO)—A state leadership project administered by AIR on behalf of the California Department of Education: www.calpro-online.org

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Endnotes

1. Additional details about the survey results may be requested by contacting AIR at 916-286-8817 or www.air.org.
2. For details, see the National Association of State Directors of Career and Technical Education consortium website: http://www.careertech.org/career-clusters.

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