

Information/Action

Educator Preparation Committee

Addressing the Teacher Shortage in Career Technical Education

Executive Summary: This agenda item provides an overview of a potential collaborative effort to explore solutions to the challenges surrounding Career Technical Education (CTE) in California and requests the Commission's direction for moving forward to help assure effective teachers for CTE courses.

Recommended Action: That the Commission discuss the proposed plan to collaborate with other agencies to address issues related to CTE including the shortage of CTE teachers and provide direction as appropriate to staff regarding proceeding with this work.

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Strategic Plan Goal:

I. Educator Quality

- b) Develop, maintain, and promote high quality authentic, consistent educator assessments and examinations that support development and certification of educators who have demonstrated the capacity to be effective practitioners.

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Addressing the Teacher Shortage in Career Technical Education

Introduction

This agenda item provides a proposal to engage in a collaborative effort to explore solutions to the challenges surrounding Career Technical Education (CTE) in California and requests the Commission's direction for moving forward to help assure effective teachers for CTE courses.

Background

In recent years, the state and many local education agencies have invested heavily in developing CTE courses and expanding pathways leading, inadvertently, to a shortage of CTE teachers. The preparation and credentialing of CTE teachers is a complex area governed and constrained by the prescriptive nature of California Education Codes Sections 44260 and 44260.1 (see [Appendix A](#)) that require a minimum of three years of recent industry specific experience for the individual to be eligible for a Preliminary CTE teaching credential. The preliminary credential authorizes the individual to teach any course within that industry sector (see [Appendix B](#) for a list of Industry Sectors). In addition to the three years of industry experience, candidates for the Preliminary CTE credential are required to complete nine units of required coursework addressing safety in the classroom, basic teaching pedagogy, and basic information related to teaching English learners. There is no additional assessment of the individual's knowledge of the content he or she will teach beyond the three years of industry experience. In recent years, numerous additional CTE courses have been approved to fulfill A-F academic requirements, which raises the question of appropriate subject matter content knowledge for teachers teaching these blended CTE/academic courses.

The Commission partnered with the California Department of Education (CDE) in 2016 to assemble a group of CTE stakeholders to identify recommendations intended to increase the number of available CTE teachers by developing bridges to and from a CTE teaching credential. At the [February 2017](#) and [February 2018](#) Commission meetings, Commission staff presented recommendations and bridge options that had been developed over the past two years, including streamlined processes for general education teachers or community college teachers wanting to earn CTE credentials. All of the recommendations and options have engendered concerns from both stakeholders and Commissioners, and none have been adopted as of yet. While the issues around CTE credentialing have continued to be discussed, there has been no forward progress on solutions.

Potential New Approaches to Address CTE

Several organizations have contacted Commission staff to see what progress has been made, or to offer their assistance in helping to support ongoing efforts to work on collaborative solutions. A potential source of assistance in moving this work forward might be to work with

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the federally-funded [California Comprehensive Center \(CA CC\) at WestEd](#)¹. A fundamental aspect of this center's mission is to support state and local efforts at finding solutions to educational issues. WestEd has previously worked with the Commission in other areas such as Child Development and the work to update the California Standards for the Teaching Profession (CSTP) and the California Professional Standards for Education Leaders (CPSEL). As an agency, WestEd has been attentive to the issue of the CTE teacher shortage and has offered to work with the Commission to bring together and facilitate a work group to help the Commission and stakeholders focus on key issues and challenges surrounding credentialing in CTE.

As part of the work in reviewing potential solutions to the CTE teacher shortage and in exploring how external entities may assist the Commission, the Commission and CDE staff have identified the following five questions specific to credentialing that need to be addressed in order to develop an appropriate and responsive approach to staffing CTE programs:

1. What are the knowledge and skills that a CTE teacher needs? Does this change if the course is also getting academic (A-F) credit? How does this knowledge and skill differ across industry sectors?
2. Currently, the CTE credential is focused on the 15 Industry Sectors (Appendix B). An individual with three years or 3,000 hours of industry experience in one Industry Sector is eligible for a Preliminary CTE credential. Fifty-eight (58) industry pathways have been identified within these 15 sectors. Would there be a benefit to structuring the CTE credential around the 58 Pathways rather than the 15 Industry Sectors?
3. Across the 15 Industry Sectors, what types of K-12 courses are offered? It would be important to understand the content of the courses to be able to ensure that the CTE teacher is prepared for the particular courses taught.
4. Are there appropriate "bridges" between the CTE and general education teaching credentials, and, if so, what would these "bridges" consist of?
5. Should there be a CTE credential renewal requirement that districts provide current CTE teachers with professional development or time for additional industry hours in order to ensure they stay current with industry standards?

In addition to these five questions above, WestEd has identified an extensive list of "Potential Areas of Exploration" ([Appendix C](#)) for this work group to consider that would provide important context and background for determining some potential actions that could be taken by the Commission and CDE. The CA CC is excited about the opportunity to facilitate a work group with the CTC and CDE to help find collaborative solutions to the shortage of CTE teachers in California.

¹ The role of the federally funded California Comprehensive Center (CA CC) is to provide the State Board of Education (SBE), the California Department of Education (CDE) and the California Commission on Teacher Credentialing (CTC) with high-quality, relevant, and useful information, resources, tools, and consultative expertise so that they can lead and sustain state-level initiatives that result in improved outcomes for students.

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Commission Discussion

Staff requests that the Commission discuss the proposal to work with WestEd and the CDE, along with other constituents, to identify possible approaches to addressing issues related to CTE including the shortage of teachers. Staff also requests that the Commission review the “Potential Areas of Exploration” identified by WestEd (all in [Appendix C](#)), and provide staff direction about those that would be of the highest priority in this work.

Next Steps

If the Commission directs staff to move forward with the proposed plan to collaborate with WestEd, the CDE, and other stakeholders to address any or all of the questions identified in this agenda item, staff would develop a work plan, move forward with this activity, and provide updates to the Commission on the progress and outcomes of the work.

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Appendix A

Education Code Sections 44260 and 44260.1

44260.

The minimum requirements for the three-year preliminary designated subjects career technical education teaching credential shall be all of the following:

- (a) Three years or the equivalent of adequate, successful, and recent experience in, or experience and education in, the subject named on the credential.
- (b) Possession of a high school diploma or the passage of an equivalency examination as designated by the commission.
- (c) Satisfaction of the requirements for teacher fitness pursuant to Sections 44339, 44340, and 44341.
- (d) Notwithstanding subdivision (a), the holder of a credential described in this section shall satisfy the minimum experience requirements established by the local educational agency for each course he or she is assigned to teach.

44260.1.

The minimum requirements for the five-year clear designated subjects career technical education teaching credential shall be all of the following:

- (a) A valid three-year preliminary designated subjects career technical education teaching credential.
- (b) Two years of successful teaching, or the equivalent, as authorized by the designated subjects preliminary career technical education teaching credential.
- (c) Completion of a program of personalized preparation as approved by the commission. It is the intent of the Legislature that the program of personalized preparation be consistent with whether the credential holder performs full-time or part-time service.
- (d) The study of health education as specified in subparagraph (A) of paragraph (4) of subdivision (c) of Section 44259.
- (e) Completion of two semester units or passage of an examination on the principles and provisions of the United States Constitution, as specified in Section 44335.
- (f) The study of computer-based technology, including the uses of technology in educational settings.
- (g) Notwithstanding subdivision (b), the holder of a credential described in this section shall satisfy the minimum experience requirements established by the local educational agency for each course he or she is assigned to teach.

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Appendix B

Career Technical Education Industry Sectors and Pathways

Industry Sectors (15)	Industry Pathways (57)		
Agriculture and Natural Resources	1. Agricultural Business 2. Agricultural Mechanics 3. Agriscience	4. Animal Science 5. Forestry and Natural Resources	6. Ornamental Horticulture 7. Plant and Soil Science
Arts, Media, and Entertainment	8. Design, Visual, and Media Arts	9. Performing Arts 10. Game Design and Integration	11. Production and Managerial Arts
Building and Construction Trades	12. Cabinetry, Millwork, and Woodworking 13. Engineering and Heavy Construction	14. Mechanical Systems Installation and Repair	15. Residential and Commercial Construction
Business and Finance	16. Business Management	17. Financial Services	18. International Business
Education, Child Development, and Family Services	19. Child Development 20. Consumer Services	21. Education	22. Family and Human Services
Energy Environment & Utilities	23. Energy and Power Technology	24. Environmental Resources	25. Telecommunications
Engineering and Architecture	26. Architectural Design	27. Engineering Technology 28. Engineering Design	29. Environmental Engineering
Fashion and Interior Design	30. Fashion Design, and Merchandising	31. Interior Design, Furnishings, and Maintenance	32. Personal Services
Health Science and Medical Technology	33. Biotechnology 34. Patient Care 35. Healthcare Administrative Services	36. Healthcare Operational Support Services 37. Public and Community Health	38. Mental and Behavioral Health
Hospitality, Tourism, and Recreation	39. Food Science, Dietetics, and Nutrition	40. Food Service and Hospitality	41. Hospitality, Tourism, and Recreation
Information and Communication Technologies	42. Information Support and Services Networking	43. Software and Systems Development	44. Games and Simulation
Manufacturing and Product	45. Graphic Production	46. Machining and Forming	48. Product Innovation and

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Industry Sectors (15)	Industry Pathways (57)		
Development	Technologies	Technologies 47. Welding and Materials Joining	Design
Marketing, Sales, and Services	49. Marketing	50. Professional Sales	51. Entrepreneurship/Self-Employment
Public Service	52. Public Safety	53. Emergency Response	54. Legal Practices
Transportation	55. Operations	56. Structural Repair and Refinishing	57. Systems Diagnostics and Service

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Appendix C

Potential Areas of Exploration to Inform CTC's Approach to Career and Technical Education Credentialing

The California Comprehensive Center (CA CC) at WestEd has reviewed background about the CTE credential and identified the following as dimensions to the issue of the CTE teaching workforce in CA:

- Projections about the CTE teaching workforce
- Credentialing
- Recruitment and Retention of CTE teachers
- On-going training and professional development
- Salaries
- STEM
- Collaboration between CTC, CDE and COEs

Following are potential questions that may inform CTC's work to identify options for approaching the CTC credential. The CA CC is available to support further exploration. Once specific questions are selected the CA CC can work with CTC to develop a project prospectus, which captures key project outcomes and activities to support CTC's capacity development.

Projections about the CTE teaching workforce

1. What are current projections about the supply and demand for CTE teachers in CA?
2. Are there specific fields in which the demand is not currently being met?
3. Are there specific fields in which the demand is projected to not be met in the next five years?
4. Are there reasonable and documented explanations for what contributes to anticipated shortages?
5. Are there any fields in which there is an abundance of CTE teachers? What is happening with those teachers? (Difficulties in finding placements, serving as substitutes, etc.) *This is probably not an issue, but we can't presume.*
6. Given projected shortages, what plans, policies, legislation exist to address the issue of shortages?

Credentialing: Context and Status

7. What has been done in the past eight years to improve CTE teacher credentialing?
8. Are the requirements for CTE credentials prohibitive, do they deter aspiring CTE teachers?
9. Are the costs of credentialing prohibitive, do they deter aspiring CTE teachers?
10. Are the requirements for CTE credentials prohibitive, do they deter business and industry professionals from transitioning into teaching?
11. Are the costs of credentialing prohibitive, do they deter business and industry professionals from transitioning into teaching?

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12. Are there specific fields in which the requirements need to be upgraded (e.g., science, technology, and engineering)?
13. Are there specific fields in which there is a significant decrease in applicants for the credential? What are those and why (e.g., field in which the “trade” has changed significantly)?
14. How do CA credentialing requirements compare to those of other states?

Recruitment and Retention of CTE Teachers

15. What are the most pressing issues related to recruiting CTE teachers in CA?
16. What efforts have been launched in the last 10 years to improve recruitment of CTE teachers in CA?
17. What has been the result of those efforts?
18. Research has shown that students of color and girls are more likely to pursue a field of study if they have teachers from their same background. What efforts have been launched in the last 10 years to improve recruitment of teachers of color, bilingual teachers and women as CTE teachers in CA?
19. What has been the result of those efforts for each of those groups?
20. What are the most pressing issues related to retaining CTE teachers in CA?
21. What efforts have been launched in the last 10 years to improve retention of CTE teachers in CA?
22. What has been the result of those efforts?
23. What efforts have been launched in the last 10 years to improve retention of teachers of color, bilingual teachers and women as CTE teachers in CA?
24. What has been the result of those efforts for each of these groups?

On-going Training and Professional Development

There are significant issues in on-going training for CTE teachers and their non-CTE peers: milieu of the typical high school vs. business and industry; providing on-going professional development (PD) for CTE teachers to keep up with industry standards; industry standard hours and education hours.

25. For industry and business partners, what guidance is given to districts and schools to provide two-way PD so that both teachers/administrators and industry personnel understand each other’s contexts?

Providing on-going PD for CTE teachers to keep up with industry standards

26. What are the most pressing issues related to training and PD for CTE teachers in CA?
27. What efforts have been launched in the last 10 years to improve training and PD for CTE teachers in CA?
28. What has been the result of those efforts?
29. What has been done to improve PD for non-CTE teachers to effectively team teach with CTE teachers?

Industry standard hours and education hours

30. What if any efforts may be needed to combine industry standard hours for training with education hours for CTE teachers?
31. In what fields is this need most pressing?

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Salaries

32. Low teacher salaries compared to business and industry salaries has been argued as a dis-incentive for mid-career professionals to move into teaching. What, if any, efforts have been made to address this issue?
33. What has been the result of those efforts?
34. The high costs associated with obtaining a CA credential, combined with the comparatively low teacher salaries is often cited as a deterrent to potential CTE teachers. Is this true? What evidence addresses this issue?

STEM

35. What are current projections about the supply and demand in CA for STEM/CTE teachers, especially those in Engineering and Technology?
36. Are there specific fields in which the demand is not currently being met?
37. Are there specific fields in which the demand is projected to not be met in the next five years?
38. Are there reasonable and documented explanations for what contributes to anticipated shortages?
39. Are there reasonable and documented explanations for what contributes to anticipated shortages?
40. Given projected shortages, what is plans, policies, legislation exists to address the issue of shortages?
41. What are the most pressing issues related to recruiting STEM/CTE teachers in CA?
42. What efforts have been launched in the last 10 years to improve recruitment of STEM/CTE teachers in CA?
43. What has been the result of those efforts?
44. Research has shown that students of color and girls are more likely to pursue a field of study if they have teachers from their same background. What efforts have been launched in the last 10 years to improve recruitment of teachers of color, bilingual teachers and women as STEM/CTE teachers in CA?
45. What has been the result of those efforts for each of those groups?
46. What are the most pressing issues related to training and PD for CTE teachers in CA?
47. What efforts have been launched in the last 10 years to improve training and PD for STEM/CTE teachers in CA, particularly in the areas of Engineering and Technology?
48. What has been the result of those efforts?
49. What has been done to improve PD for non-CTE teachers to effectively team teach with STEM/ teachers?

Collaboration between CTC, CDE and LEAs

50. What collaborative efforts between CTC, CDE and LEAs have addressed the following:
 - Projections about the CTE teaching workforce
 - Credentialing
 - Recruitment and Retention of CTE teachers
 - On-going training and professional development
 - Salaries
 - STEM
 - Collaboration between CTC, CDE and LEAs