

Content Specific Professional Development

Enhancing CTE Teaching: The Role of Content-Specific Professional Development

An Action Research Plan

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The purpose of this study is to examine how ongoing, content-specific professional development influences Career and Technical Education (CTE) teachers' instructional strategies and student learning outcomes. While professional learning communities (PLCs) have become a common structure in many academic subject areas, they are often absent or underdeveloped in CTE programs. Many CTE teachers work in small, specialized departments where they may be the only instructor for their subject, which limits opportunities for collaboration, reflection, and shared problem-solving with peers who teach similar content. As a result, CTE educators frequently lack the built-in professional learning support that are available to their colleagues in core academic areas.

This action plan aims to address that gap by exploring how structured, ongoing, and content-specific professional learning can give CTE teachers the collaborative and reflective benefits that PLCs provide in other disciplines. Its goals are to strengthen instructional practice, boost student engagement through real-world connections, and keep classroom instruction aligned with industry standards, while also highlighting the need for sustainable professional learning communities in CTE.

Fundamental Research Question

My research question is, *How does participation in ongoing, content-specific professional development influence high school CTE teachers' instructional strategies and student learning outcomes?* This research question is important because it addresses the lack of ongoing, content-specific professional development for CTE teachers, linking teacher growth to

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student engagement and achievement while ensuring instruction stays aligned with evolving industry standards to prepare students for real-world careers.

Summary of the Literature Review

The literature review explores the impact of ongoing, content-specific professional learning on Career and Technical Education (CTE) teachers' instructional practices and student outcomes. Research shows that professional learning is most effective when it is sustained, collaborative, and directly tied to teachers' content, enabling educators to deepen subject-matter knowledge, apply new strategies in the classroom, and improve student engagement (Darling-Hammond, Hyler, & Gardner, 2017; Desimone, 2009; Ruhland & Bremer, 2002). Job-embedded learning, instructional coaching, mentoring, and industry-based experiences further support teacher growth by offering opportunities for reflection, feedback, and practical application (Vangrieken, Meredith, Packer, & Kyndt, 2022; FutureEd & CALDER, 2023). Despite these benefits, barriers such as limited time, funding, and access, as well as the lack of established professional learning communities in CTE, hinder widespread implementation and reduce potential impact (Guskey, 2002; Institute of Education Sciences, 2014). Overall, the literature underscores the importance of structured, content-specific professional learning in strengthening CTE instruction while highlighting the need for further research to measure its direct effects on student learning and to develop sustainable support structures for teachers.

Study Information

Research Design

I selected a mixed-methods design because my study seeks to explore both the measurable outcomes of professional learning and the experiences and perspectives of participating teachers. Professional learning influences teacher practice and student learning in

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intricate, interconnected ways that can't be fully understood through quantitative data alone. By using both qualitative and quantitative data, I can look at the results from different angles, which helps make the findings more accurate and meaningful (Mertler, 2019). This will help determine whether participation in professional development and shifts in instructional strategies are linked to measurable gains in student performance.

Data Collection and Analysis

Months 1–2 (Planning & Early Implementation): Collect baseline student data, begin formative assessments, conduct initial classroom observations, and track professional learning participation.

Months 3–5 (Midpoint Data Collection): Continue gathering formative and project-based student data, observation notes, and teacher reflections during mentoring/coaching cycles.

Months 6–7 (Ongoing Implementation): Collect additional assessment and project outcomes, complete observation cycles with feedback, and record PD engagement.

Month 8 (Final Data Collection): Gather summative measures (e.g., certification scores), administer final teacher surveys, and complete last classroom observations.

Month 9 (Analysis & Reporting): Analyze and compare all data points, identify themes, and prepare action plans for sharing results.

Analysis Plan

I plan to analyze the data using a mixed-methods approach, combining quantitative measures such as student assessment results with qualitative data from teacher reflections,

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surveys, and observations. Quantitative results will be examined through descriptive statistics, while qualitative responses will be thematically coded to identify patterns in teacher practices and perceptions (Mertler, 2019). Finally, I will use triangulation to connect both sets of findings, ensuring stronger validity and showing how professional development influences both instructional strategies and student outcomes.

Sharing and Communicating Results

I plan to share my research results with CTE teachers, administrators, district leaders, and professional development coordinators, as each group plays a key role in shaping and supporting CTE instruction. Teachers will receive findings in PLC or department meetings to apply strategies directly, while administrators will get a summary report and presentation to guide resource allocation and scaling decisions. PD coordinators and instructional coaches will use the results to design more effective, content-specific professional learning, ensuring the study has practical impact and long-term value for CTE programs.

Final Reflection

Once the study concludes, I plan to reflect on the whole process by looking at both the results and how the research was carried out. I'll think about what worked well, what challenges arose, such as any gaps in data or unexpected hurdles, and how those might be handled differently next time. I'll also consider what I've learned as a researcher and teacher, especially about effective professional development, collaboration, and keeping students engaged. Finally, I'll pull together key takeaways and ideas that could help administrators, instructional coaches, and other teachers create more meaningful, content-specific professional learning in CTE programs.

References

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https://www.academia.edu/90551758/Teacher_communities_as_a_context_for_professional_development_A_systematic_review

Appendix

CTE Teacher Professional Development Survey

Purpose:

This survey is designed to gather your feedback on ongoing, content-specific professional development and its impact on your instructional strategies, student engagement, and alignment with industry standards. Your responses will remain anonymous and will be used for research purposes only.

Section 1: Background Information

1. Years of teaching experience in CTE:
 - ☐ 0–3 years
 - ☐ 4–7 years
 - ☐ 8–15 years
 - ☐ 16+ years
2. CTE content area (e.g., health science, welding, business, IT, etc.):

Section 2: Professional Development Participation

3. How often do you participate in ongoing, content-specific PD?
 - ☐ Never
 - ☐ Once or twice a year
 - ☐ Every few months
 - ☐ Monthly or more
4. The PD sessions I attend are relevant to my specific CTE content area.
 - ☐ Strongly Disagree
 - ☐ Disagree

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- ☐ Neutral
 - ☐ Agree
 - ☐ Strongly Agree
5. PD opportunities provide practical strategies I can use immediately in my classroom.
- ☐ Strongly Disagree
 - ☐ Disagree
 - ☐ Neutral
 - ☐ Agree
 - ☐ Strongly Agree

Section 3: Impact on Instruction

6. PD has improved my ability to align lessons with current industry standards.
- ☐ Strongly Disagree
 - ☐ Disagree
 - ☐ Neutral
 - ☐ Agree
 - ☐ Strongly Agree
7. PD has increased my use of instructional strategies that engage students in real-world applications.
- ☐ Strongly Disagree
 - ☐ Disagree
 - ☐ Neutral
 - ☐ Agree
 - ☐ Strongly Agree

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8. PD has helped me incorporate more collaborative or project-based learning strategies in my classroom.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly Agree

Section 4: Student Outcomes

● As a result of PD, I have observed improvements in student engagement.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly Agree

● As a result of PD, I have observed improvements in student performance (formative/summative assessments, projects, certifications).

Strongly Disagree

- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly Agree

Section 5: Reflection and Feedback

11. What has been the most useful aspect of the PD you've participated in?

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12. What challenges have you faced in applying PD strategies in your classroom?
13. What kind of PD would be most beneficial to you as a CTE teacher moving forward?

Thank you for your time and valuable feedback!