



Project GOALS

Greater Opportunities to Advance Lifelong Success

How to Support Career Technical Instructors to Develop Students' Professional Skills

Research Brief

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Contents

Introduction	1
What Are Professional Skills and Why Are They Important?	2
How Do Students Develop Professional Skills Before and During College?	2
How Did Research and Practice Inform Resource Development?	4
What Strategies Did Faculty Implement and How?	6
What Did We Learn From Co-Development and Implementation?	7
What Do We Recommend for Supporting Integrated Professional Skills Development?	14
Closing	16
References	17



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Introduction

Community college career and technical education (CTE) instructors often hear calls from industry advisors to improve their students' professional skills before they graduate. Skills and mindsets such as teamwork, communication, openness to learning, and adapting to workplace expectations are essential for career opportunities and growth and are often high on the list of skills that employers across industries seek in potential new hires.¹

Yet many instructors have reservations about their capacity to develop such skills and mindsets.² To address this challenge, education researchers collaborated with community college CTE instructors over four school terms, from fall 2021 through fall 2022, to design and prototype a set of professional skills instructional resources. In this brief, we share the insights from this work, called Project GOALS, and describe what it takes for instructors to integrate professional skills instruction into technical courses.

The brief includes several sections. We first define professional skills and their importance to technical careers. We next describe the learning principles and co-development process, and then summarize instructors' and students' responses to classroom pilot-testing. We close by reflecting on what we learned about the constraints of instructors' work conditions and offer recommendations to support community college workforce program leaders and instructors seeking to expand their professional skills programming and outcomes.

Project GOALS (Greater Opportunities to Advance Lifelong Success) studied how to develop a programmatic approach to developing professional skills within technician education programs. The project was co-led by SRI Education, based in Menlo Park, California; Evergreen Valley Community College in East San Jose, California; and the San José – Evergreen Community College District, and was supported by the NextFlex manufacturing institute's workforce education program.

What Are Professional Skills and Why Are They Important?

Professional skills are also known as soft skills, employability skills, and 21st-century skills. They represent an employee's capacity to communicate, work with others, and maintain proactive and constructive mindsets when faced with workplace problems and challenges. Despite the value and importance of these skills, employers report many high school and college graduates lack proficiency in them.³ This gap matters because employers focus on such skills when making important decisions about employees. When hiring, they use "behavioral interview questions" to screen for these skills; when firing, they report most problems stem from a lack of professionalism rather than technical skills; and when promoting, they identify candidates for management roles early, usually based on professional rather than technical skills.⁴

How Do Students Develop Professional Skills Before and During College?

Learning about professional skills can begin in elementary school and evolve through adolescence. For example, K–12 teachers can support students' professional skills by establishing rules for behavior and offering project-based team activities that integrate academic and workplace knowledge.⁵ Work-based learning opportunities, such as those offered through K–12 student clubs and local internships, can also advance the development of professional skills.⁶

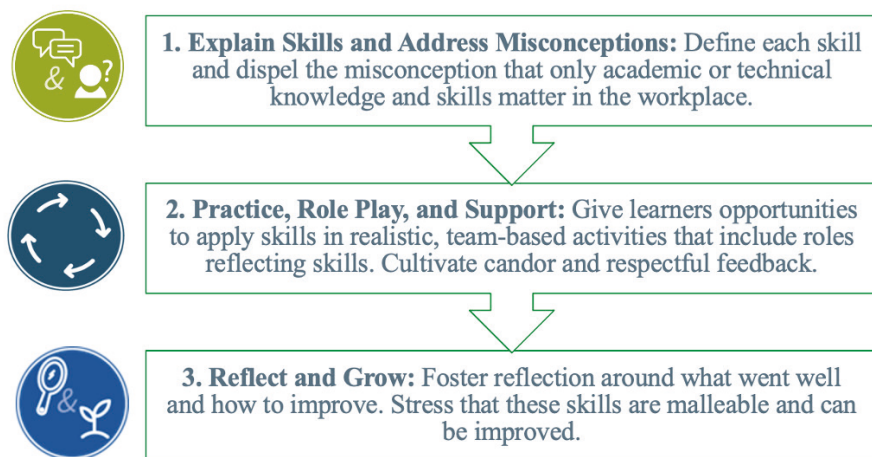
Yet research indicates that pre-college access to programs that develop professional skills varies widely.⁷ As a result, many students arrive at college with the misconception that their career success depends solely on academic or technical know-how.⁸ Most of their college instructors do little to challenge this misconception. They offer programs that devote almost all class time to technical skill development and provide minimal attention to professional skills, such as a one-time workshop with a career counselor.⁹

By contrast, a review of research supports the perspective that developing professional skills takes time and consistent social support.¹⁰ A first step toward meeting this vision involves providing instructional resources that instructors can use in their classes. In our research, we partnered with CTE instructors to co-develop and test a set of instructional resources that complement technical coursework. From this partnership, we have learned it is possible for instructors to integrate professional skills instruction throughout a CTE program, but several systemic challenges need to be addressed to ensure technician students have more consistent access to professional skills support.

How Did We Develop an Integrated Professional Skills Curriculum?

There were two phases of research. First, Project GOALS researchers reviewed classroom studies and interviewed both employers and CTE instructors. This phase identified three sets of learning principles (see Figure 1) that reflect how to develop students' professional skills.¹¹

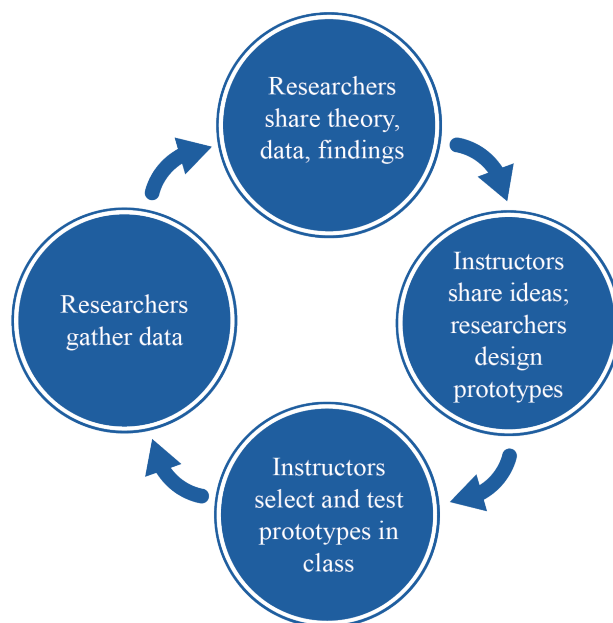
Figure 1. Learning principles for developing professional skills



Second, we partnered with CTE instructors in three different fields—advanced manufacturing, automotive, and computer-aided design—to co-design and test a set of instructional practices reflecting these principles. During and after testing, the instructors and their students shared what worked, what did not, and what adaptations were needed. The co-development research cycle is depicted in Figure 2. We went through four rounds of this cycle: Fall 2021 (Term 1), Spring 2022 (Term 2), Summer 2022 (Term 3), and Fall 2022 (Term 4).

The collaborative nature of this work invited CTE instructors to bring their local needs and past practices into the co-development cycle. As a result, researchers tailored our prototypes and data collection processes to the instructors' course conditions. For example, early in our partnership, instructors said they already had a set of instructional materials for developing students' professional skills,¹² so they asked us to focus on developing assessments. The initial two academic terms of the co-development cycle centered on these assessments. In the first of these terms, researchers brainstormed with instructors and developed prototypes of what came to be called "reflection tools," and then instructors tested them and provided feedback. In the second term, researchers revised the prototypes, and the instructors retested them and provided more feedback.

Figure 2. Co-development research cycle for instructional materials



After these two terms, CTE instructors came to realize there were gaps in what their students were learning about professional skills. They then asked researchers to help co-develop additional instructional resources, which began with a preliminary round of class observations and interviews in the third term. Insights from those preliminary observations informed a summer co-development workshop. In the fourth and final round of codevelopment cycle, the instructors tested some of these new resources.

How Did Research and Practice Inform Resource Development?

Each round of co-development began with researchers sharing data or learning principles, and then instructors shared their own needs and ideas. Below, we summarize how those contributions informed the resource development.

Reflection Tools. In the first round of co-development, Project GOALS researchers shared that previous classroom researchers had found it difficult to gather objective data on professional skills and recommended addressing that problem by triangulating ratings on students' professional skills from multiple perspectives—those of individual students, peers, and instructors.¹³ In response, CTE instructors expressed two needs. First, they wanted rubrics that defined specific professional behaviors on a scale. Second, they asked researchers to avoid using the term “assessment” because it might lead students to become defensive, which would be counterproductive to supporting candor and growth around the professional skills. Instead, they preferred the term “reflection.”

Based on these foundational guidelines and consulting the research literature to identify useful rating frameworks and tools,¹⁴ researchers developed a prototype rubric, and three survey-based reflection tools focused on four high-priority professional skills: communication, teamwork, lifelong learning, and adapting to workplace expectations. The three reflection tools included one for students to self-reflect on their performance of these skills, one for students to rate their peers' performance within a team, and one for the instructor to observe and rate individual students' performance on one or more professional skills during class labs.

Through testing over the first two rounds of co-development, researchers confirmed the validity and reliability of these three reflection tools and revised the instructor tool to make it easier to rate students individually. The classroom data indicated students and instructors consistently disagreed on students' performance of these skills. Students rated themselves higher than instructors did, and they rated their peers highest of all. Statistical testing found the differences were nonsignificant, but the disagreement was consistent across all students, instructors, and terms. Students also showed no consistent improvement in professional skills between the pre and post self-reflection surveys, partly owing to the high number who rated themselves near the top of the scale at baseline. These findings are consistent with research documenting challenges of rater bias in self-report surveys and social acceptability expectations in peer surveys.¹⁵

Instructional Resources. In summer 2022, Project GOALS researchers conducted preliminary observations of classroom instruction, which then informed two summer workshops where Project

GOALS researchers and CTE instructors co-designed a set of instructional strategies, resources, and tools. For example, one instructor found it challenging to explain why the professional skills were critical and suggested developing videos with testimonials from young managers and recent graduates about the importance of the skills to workplace success. Researchers created three such videos. Researchers and instructors also developed slides to support lectures about the skills and guidance on how to create team roles for technical labs that emphasized specific professional skills. One instructor modeled a way of assigning roles to members of technical lab teams so that each member could contribute to the team using specific types of professional skills. Also, a career mentor who counseled students applying for internships and jobs recommended that students create STAR stories from their lab experiences. In their STAR stories, students share examples of how they used professional skills to address a specific team challenge: They describe a workplace Situation and Task, how professional skills were used as part of a solution Action, and how those skills led to an effective Result.

Ultimately, the collaboration with CTE instructors resulted in the development of eight instructional strategies aligned with the three sets of learning principles, as illustrated in Figure 3. We discuss this alignment further below the figure. For a more detailed description of each strategy, visit the [Project GOALS curriculum webpage](#) to access the free instructor handbook, student handbook, instructor-facing and student-facing rubrics, and reflection tools.

Principle Set 1: Explain Skills and Address Misconceptions

This set of instructional strategies introduces professional skills to students through **lectures with slides** that define what professional skills are; describe their importance to employers; show their relevance to students; and address common misconceptions about their importance, such as the idea that technicians need to focus only on technical skills. The strategies also include **video testimonials** in which class guests, instructors, or others describe how important these skills were in their own careers.¹⁶

Principle Set 2: Practice, Role Play, and Support

This set of instructional strategies includes **labs with team roles** that provide ways for students to practice the professional skills and play some of the common workplace roles associated with these skills while they learn academic or technical content. During these team activities, instructors support students as they learn about how to perform these skills using **instructor reflection surveys**.¹⁷

Figure 3. The eight instructional strategies aligned with the three sets of learning principles

Explain Skills & Address Misconceptions	Lectures with Slides
	Video Testimonials
Practice, Role Play & Support	Labs with Team Roles
	Instructor Reflection Surveys
Reflect & Grow	Self-Reflection Surveys
	Peer Reflection Surveys
	Rubrics
	STAR Stories

Principle Set 3: Reflect and Grow

This set of instructional strategies centers decisions about how to set goals and evaluate progress with students, using **self-reflection surveys** and **peer reflection surveys** while referring to rubrics that describe the core behaviors and subskills associated with each professional skill. This set also engages students in developing a portfolio of **STAR stories** in which they characterize their professional skills. Students can use these stories in job interviews and resumes.

What Strategies Did Faculty Implement and How?

This brief focuses on the fourth and final round of the co-development cycle, in which CTE instructors selected one or more of the instructional resources to implement. During the term, seven faculty members taught or co-taught five sections of four courses in advanced manufacturing (1), automotive (3), and computer-aided design (1). The instructors incorporated some resources more readily than others. For example, most adopted most of the lectures and video testimonials, designed and incorporated team roles into student group work, and asked students to complete self-reflection surveys, but they did not choose to implement instructor reflection surveys or STAR stories. Researchers and instructors agreed not to implement peer reflection surveys again because this strategy had already been tested in earlier terms. In this section, we review the frequency of implementation and review responses from both faculty and students.

Which Instructional Resources Did Instructors Use and Not Use?

For a basic description of the implementation data collection methods, see the data collection and analysis methodology information box. Table 1 displays instructors' usage of the instructional resources in the first two and fourth co-development cycles. We have collapsed the first two terms that focused on reflection tools.

Table 1. Frequency of instructional strategy implementation

Instructional Strategies	Terms 1 and 2 N class sections = 11 N unique students = 82	Term 4 N class sections = 5 N unique students = 39
Data Collected	N of Usage Instances	N of Usage Instances
Explain Skills and Address Misconceptions		
Lectures with Slides		4
Video Testimonials		4
Practice, Role Play, and Support		
Labs with Team Roles		5
Instructor Reflection Surveys	7	0*
Reflect and Grow		
Self-Reflection Surveys	7	3
Peer Reflection Surveys	8	0†
STAR stories		0
Rubrics		1

* Researchers engaged four faculty members after the fourth term in testing.

† Researchers and instructors agreed not to implement this strategy. It had already been tested.

What Did We Learn From Co-Development and Implementation?

In this section, we draw from observational and interview data from instructors and students to describe how the Project GOALS instructional resources evolved. We also address the implications of these findings.

Lectures, Videos, and Testimonials

Observed Usage. Most instructors easily embraced the role of **lecturing** to students about the definitions and importance of professional skills, as well as showing **video testimonials** conveying these ideas.

Explanations in Interviews. Instructors tended to favor and feel most confident with lectures and video testimonials, but little discussion took place around these presentations in most classes that researchers observed. While the instructors and students that researchers interviewed appeared to share the view that professional skills are relevant and important, students still emphasized the importance of technical knowledge and skills as most important to getting a job after college.

Team Roles and Instructor Reflection Surveys

Observed Usage. Most instructors also integrated workplace-relevant **team roles** into technical lab activities so students could practice professional skills. No instructor, however, opted to use **instructor reflection surveys** during those labs.

Explanations in Interviews. While teamwork was common, instructors reported some challenges with facilitating constructive student teamwork that was supportive of professional skills development. Instructors reported that group work was an inherent feature of both community college technical classes and K–12 classes that students had experienced previously, making for

Data Collection and Analysis Methodology

Seven instructors implemented the instructional strategies they chose in 5 course sections in the fourth co-development term. Four researchers interviewed selected students and instructors about their views of the instructional strategies. Researchers observed instructional strategy implementation at two points in the course—the first week and later in the term. These points were chosen as instructors chose to implement “Explain” strategies at the beginning of the course and “Practice” strategies later in the course. Instructors sometimes chose to administer “Reflect” strategies at the beginning of the course or later in the course. Researchers documented strategies selected, how instructors introduced the strategies, content of class discussions, and how students responded to the strategies. Using data from both observations and interviews, researchers coded the implementation levels and student engagement.

[I like] how hands-on we get with the material, not just sitting in lecture watching YouTube videos for the whole time, actually working with cars and, most importantly, working with active voltage, safety equipment, simulating what you would do as a tech, training for that and building knowledge.

– Student

easy incorporation of team roles into their courses. Instructors said that designing constructive team roles to be integrated with technical course content was time-consuming. Instructors generally did not systematically observe students' performance of professional skills, but used the roles as a way to add realism to lab activities. Instructors also did not engage students in reporting back on how effective they were in performing their roles.

Researchers interviewed students enrolled in an automotive program, who generally enjoyed the hands-on experiences the program offered, including being in the labs and working with actual cars. They spoke highly of the instructors, particularly their vast knowledge of the field and willingness to share their experiences, describing them as “cool” to be around.

Students said instructors demonstrated how to perform tasks during lab activities and allowed students to struggle and learn through doing. However, when asked about classroom support for learning professional skills, only one student described specific supports they had received, such as being encouraged to ask questions and practicing communication skills during teamwork. This feedback contrasted with how most students said instructors were overall supportive when it came to providing insight into the industry.

Self-Reflection Surveys, Peer Reflection Surveys, Rubrics, and STAR Stories

Observed Usage. Most CTE instructors engaged students in reflecting on their performance of professional skills using **self-reflection** and **peer reflection surveys**, but they did not consistently use **rubrics**. No instructors engaged students in creating **STAR stories**.

Explanations in Interviews. Instructors shared numerous challenges they experienced with trying to facilitate student reflection tools. The response rate to the testing of student self-reflection tools varied across terms, from 81% in the first term and 94% in the second term to 62% in the fourth term. From the instructors' perspective, one challenge was a relative lack of motivation and engagement with the reflection surveys if students did not see the value or purpose. One instructor raised concerns

If [the team] saw ... a weakness in whatever somebody was doing or somebody needed assistance, the team, not just the leader, but the team [members] recognize that and step in to say, 'Ah, how can I help?' ... a manager needs to understand that, but you don't want to ... throw someone under the bus, you need to figure [it] out. ... So I make them reflect on the idea that if you've got a teammate who's not doing anything, it's probably not all on them, there's probably something you as a team leader or you as a team member can do.

– Instructor

If you haven't really prepared [students] ... if they don't understand the why, they don't care ... like [the reflection survey] is just something that they have to fill out and they're not going to be as intentional and thoughtful about it ... they've got to see a value, seeing their journey through that process.

– Instructor

[The data] that are the most valuable are your open-ended questions and ... somebody has to read those, and interpret them, and understand them, and it's a lot more work to ... put that together.

– Instructor

about redundancy that students would experience if they used the same surveys in similar ways across courses. They also said students sometimes felt exam-like time pressures when completing surveys. Using reflection tools to provide students with constructive feedback was also sometimes a challenge. Instructors said some students struggled with receiving feedback without perceiving it as hurtful judgment. Another challenge some instructors described was not having the bandwidth to facilitate reflection surveys, given the numerous other tasks and responsibilities before, during, and after lessons.

The instructors' decision not to adopt the instructor reflection surveys reflected their concerns around finding time during classes to conduct individual observations. They preferred to conduct such ratings retrospectively, based on observations over the term.

What Adaptations Did Instructors and Researchers Make to Support Professional Skills Instructional Resources?

Lectures, testimonials, and videos are useful and important instructional strategies for explaining professional skills and addressing potential student misconceptions about what those skills are. At the same time, relying solely or mostly on these types of direct instructional strategies is insufficient for students to fully engage with and retain information, even if they initially consider the information relevant and important.¹⁸ Bringing more personal sharing into the classroom helps to humanize and contextualize professional skills, increasing students' understanding of both the importance of professional skills and the ways to improve them over time.¹⁹

During the testing of instructional resources, Project GOALS researchers and CTE instructors continued to adapt the resources based on instructors' needs. In one case, an instructor implemented a new instructional strategy—**personal lessons learned**—in which the instructor normalized the process of reflecting on professional skills and improving them over time by sharing an experience of learning a skill from their own career. When the instructor used this strategy, researchers observed an increase in student engagement in the topic of professional skills.

When researchers observed instructors facing challenges in leading discussions around professional skills, they developed two additional instructional resources—**discussion prompts** that provide ideas for leading class reflections and **shared survey data reviews** that help instructors share their aggregate ratings of class skill performance as a point of comparison with individual students' self-ratings.

Based on instructors' preference for retrospectively rating students' professional skills, researchers asked instructors to try the instructor reflection surveys after the end of the third term. Four of the seven final term instructors agreed to participate. The surveys had been revised based on instructor needs identified in the second term of testing: Researchers shortened the surveys, gave instructors flexible options for selecting rating items based on specific professional skills that they wanted to develop, and made the surveys easy to complete through a mobile-based Qualtrics application. In the post-term testing, all instructors reported the revised reflection surveys were easy to use and gave them a way to document implicit assessments that they made of their students' professional skills. Further, researchers developed workarounds to provide students with feedback to help them reflect on their professional skills and set goals for future growth.

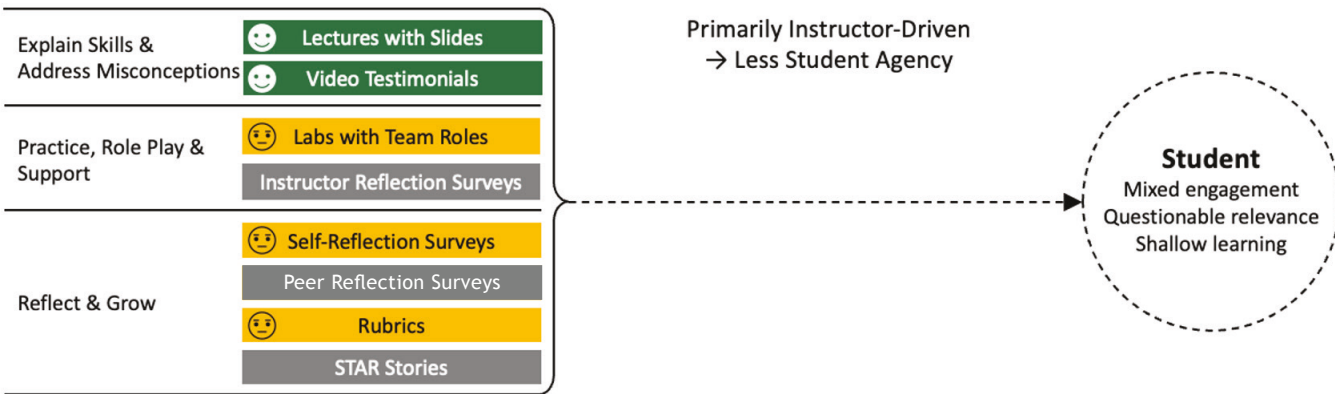
This feedback came in the form of Qualtrics reports emailed to students privately that cited the types of behaviors associated with their self-ratings and describing ways to strengthen the skills.

Finally, in interviews after the term, all instructors discussed different ways to integrate the professional skills curriculum. Some preferred having the curriculum begin in entry-level courses for certification programs, with different instructors then offering a series of opportunities for students to practice the skills and reflect on them over time. They embraced the idea of having students in CTE programs develop a portfolio of STAR stories and reflection ratings over time that they could use when working with career mentors and counselors to prepare for job interviews and compose resumes. Other instructors preferred offering such instruction in an intensive capstone course just before students received technical skill certification.

What Do Instructors’ Implementation Challenges Say About Their Needs for Support?

In reviewing the testing data, we hypothesize in Figure 4 how the level of observed and reported instructional effort varied in implementing different Project GOALS instructional resources, and we characterize how integrating these resources affected students’ observed outcomes in developing professional skills. In this figure, green with a smiley face signifies instructional resources that were easiest to implement, yellow with a neutral face signifies those that were harder to implement, and gray with no face signifies those that were not implemented.

Figure 4. Instructional effort involved in implementing professional skills instructional resources



Observed Student Outcomes

CTE instructors implemented strategies that conveyed important and relevant information to students by exposing them to professional skills and creating opportunities to practice them. Overall, though, instructors’ implementation of these strategies was primarily instructor-driven, with relatively little student agency and input. We suggest that the challenges instructors experienced and the instructor-driven nature of students’ experience with the strategies in the classroom potentially limited student outcomes. The model above

represents this with dotted arrows from the strategies to observed student outcomes in terms of mixed engagement, questionable student relevance, and relatively shallow learning of professional skills.

In interviews, students noted that professional skills seemed important but still regarded technical knowledge and skills as “most” important to getting a job after college. They also said that while they liked hands-on labs, they did not feel their instructors supported them to reflect on their professional skills through the role-playing activities. Finally, even though instructors said they felt uncomfortable engaging students in reflection activities or discussions around professional skills because of an observed “lack of student motivation,” students’ “struggles” with receiving feedback, and limited time, researchers noted that, over the three focal terms, 75% of students completed the surveys.

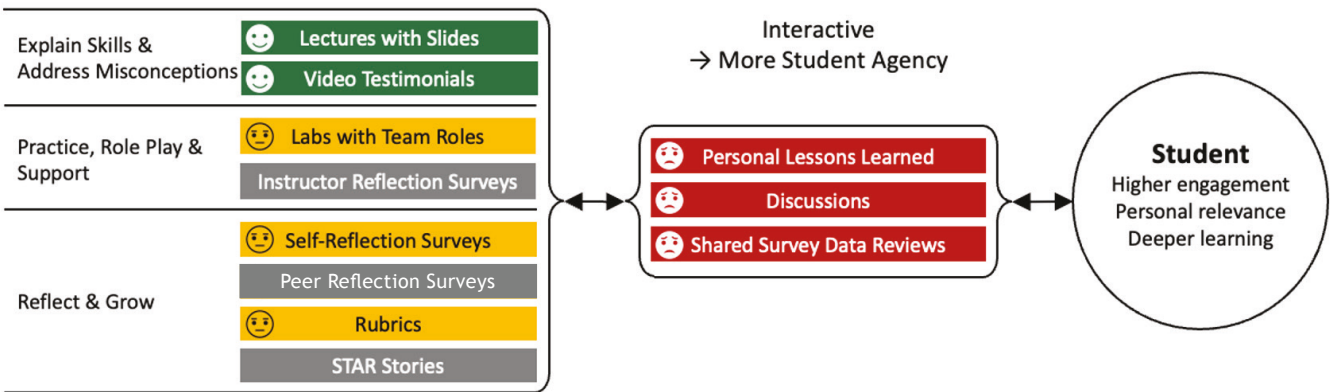
Based on classroom observations and instructors’ interviews in the fourth term, researchers saw wide variation among instructors regarding their comfort and confidence in implementing the instructional resources. Two instructors demonstrated high comfort, three showed mixed comfort, and two showed low comfort. In observations, instructors varied widely in their capacity to elicit discussion in their classes: Some easily engaged students’ attention verbally and nonverbally, and others struggled to establish a connection through even basic eye contact. Lab activities also varied in the degree to which students followed step-by-step instructions as a team (such as automotive activities based on workbooks) as opposed to making dynamic decisions (such as advanced manufacturing activities to design a standard process for producing paper airplanes). In the former, role playing became simplified to fit the task, such as one student doing the hands-on adjustments and the others documenting the work in a workbook. In the latter, there was more potential for role playing. Students decided within their teams who should play the roles of design engineer, manufacturing engineer, and testing engineer. The instructor said he wanted students to understand that every person contributed something of value and that teamwork is about drawing from team members’ strengths. He instructed students to consider matching their personalities with appropriate roles but did not provide any other guidance. To researchers’ knowledge, while instructors asked students to complete the self-reflection surveys, there was no follow-up discussion.

We suggest that the lack of interaction around the instructional activities contributed to students’ sense that while professional skills are nominally “important,” they did not have much to improve, as evidenced by their consistent high self-ratings compared with the ratings they received from their instructors. Students’ “mixed-engagement response” aligns with instructors’ reports that they perceived students had “low motivation” around self-reflection on their professional skills. From the researchers’ and the instructors’ perspectives, students may have been signaling some personal discomfort around discussing these skills and some doubts that the skills really mattered as much as technical skills for their careers. Based on these findings, we have characterized the student professional skills development outcomes attained during the final term as resulting in mixed engagement, questionable student relevance, and relatively shallow learning of professional skills.

Instructional Strategy Adaptations to Strengthen Implementation

In Figure 5, we incorporate the instructional adaptations that developed in the third term of co-development. All adaptations offered ways to facilitate more interactive strategies to support students' development of professional skills. These are depicted in red with a sad face as they appeared to be most challenging for instructors to learn.

Figure 5. Adaptations involved in implementing professional skills instructional resources



These adaptations require CTE instructors to interact with students in more personal ways that are different from the lecture mode many are used to. The adaptations also require additional relationship-building and creating a classroom environment that encourages mutual sharing and participation. Instructors said relationships and a positive classroom environment are important parts of supporting professional skills development. Students said that instructors' personal stories helped them understand the industry better and that they liked learning the "tricks of the trade" their instructors had acquired from years of working in their fields. In classroom observations, students perked up and became more attentive when their instructor shared a personal story.

At the same time, instructors described considerable challenges with implementing these adaptations, particularly instructors who experienced hesitancy and vulnerability as they tried to engage students in discussions around professional skills. Some instructors expressed discomfort with sharing personal stories, saying they found it difficult to develop authentic relationships with their students and noting there was not enough time in a course to get to know students. Some instructors suggested that students who are primarily motivated by grades and test scores may be incentivized to engage mostly in activities that are scored or graded and less motivated to participate broadly in ways that contribute to cultivating a healthy classroom culture.

[The instructor] is always telling me all his experiences working at dealerships, and that also really sticks in my head. Also problems he had that we could avoid. Things like that really will help.

– Student

What Systemic Beliefs and Practices Might Hinder Instructors' Capacity to Develop Students' Professional Skills?

Our research suggests the difficulties instructors may experience when teaching professional skills may be traced to systemic structures and patterns beyond their immediate control. For example, students' beliefs, values, and expectations about their learning have been shaped by their many years of K–12 school experiences.²⁰ Instructors bring their own beliefs, values, and expectations, also influenced by their past school experiences and their professional identities.²¹ The learning environments where students and instructors encounter each other are resourced and constrained by the broader community college system.²² For example, such systems rely on adjunct instructors who may not always have sufficient teaching experience,²³ industry-based course materials primarily focused on technical knowledge and skills,²⁴ and administrative and budgetary practices that limit professional learning opportunities.²⁵

More specifically, lecture and video presentations are established and expected parts of a college course,²⁶ which can explain why instructors feel more confident and prefer those strategies. Group work and verbal and written presentations of work are expected parts of community college coursework and are prevalent throughout K–12 education.²⁷ At the same time, instructors may not get training in how to facilitate these activities well or establish the culture of support needed to implement them. K–12 practices related to communication and group work are not necessarily aligned with the workforce-relevant behaviors that convey professionalism. The cultural and structural focus on individual achievement that characterizes K–12 and community college participation is also a potential obstacle to developing teamwork skills. Students may be concerned about whether their group-work efforts will be fairly evaluated if other group members contribute less, for example, and instructors may find group work challenging for similar reasons.

Everyone gets their feelings hurt. The difficult ones are not open. They get very upset. We walk that fine line between helping the student and not getting in trouble.

– Instructor

Their motivation is pretty poor in my experience ... so you know you have to sort of find ways to connect with them and with limited time that can be challenging.

– Instructor

What Do We Recommend for Supporting Integrated Professional Skills Development?

Below, we provide recommendations for integrating instructional strategies to develop students' professional skills given the constraints of community college systems. Our recommendations are based on insights from our research, our own past experiences with instructor support, related research literature, and suggestions from the CTE instructors and students involved in this research. We take into consideration the roles and actions that community college administrators can take to support each of the three sets of instructional resources, organized by learning principle.

Explain Skills and Address Misconceptions

- **Gradual introduction of professional skills:** Introduce professional skills one at time and allow time for student questions and discussion.
- **Student opportunities to share and ask questions:** Provide opportunities for students to share their ideas about, experiences with, or questions about professional skills.
- **Personal examples:** Plan examples to share how you learned different professional skills, including positive experiences as well as mistakes, to humanize the skills and highlight their relevance and importance.
- **Illustrative stories:** Plan stories to tell, personal or from other sources, that exemplify and contextualize how professional skills made a difference in someone's job search process, workplace, or career trajectory.
- **Documentation of and intentionality about misconceptions:** Document student misconceptions as they come up. It is not necessary to address them immediately. Take time during the lesson or before the next lesson to plan a constructive way to address the misconception, either during lecture or by engaging students in whole-class or small-group discussion about it.

Practice, Role Play, and Support

- **Sharing:** Begin a course by devoting some time for students to share about themselves, such as their career interests and experiences, what they have questions about, and what professional skills mean to them.
- **Modeling:** Model personal sharing by sharing an example of a personal lesson learned from your own career or experiences in the industry.
- **Discussion:** When responding to student questions, encourage discussion rather than simply providing answers.
- **Interest:** Show interest in students' ideas and experiences.
- **Curiosity:** Be curious about what skills, unique experiences, or questions students bring to the classroom. Having some knowledge about each student also helps to avoid slipping into "deficit"

thinking when students appear disengaged or struggling to understand course content.

- **Hands-on learning:** Embed a variety of hands-on, student-relevant learning experiences such as project-based or experiential learning activities or ways for students to experience different perspectives through rotating team roles or engaging in role playing.
- **Problem-focused teamwork:** Build teamwork skills by creating activities in which students must tackle a problem together and solutions require collaboration and input from every role on the team.
- **Clear communication:** Clearly communicate student roles and expectations for teamwork. Make sure to change team roles and/or members to avoid individual students dominating.

Reflect and Grow

- **Introduction of reflection and feedback:** Introduce reflection and feedback practices to students by emphasizing that professional skills are malleable rather than fixed traits, and that learning about these skills is a lifelong process.
- **Value and purpose:** Help students see the value and purpose of reflection and evaluation tools.
- **Constructive conversations:** Use insights from reflection data to inform constructive conversations with students, not just for evaluation.
- **Student growth:** Use reflection tools at the beginning and end of a class or throughout the course to track student growth. Note, however, that sometimes students' self-ratings go down when they learn more because more knowledge may translate to more accurate insights into their skills as well as greater awareness of what they still need to learn.
- **Student portfolios:** Have students use portfolios to document and track their professional skills development throughout their courses, including STAR stories that they can use in resumes and job interviews.
- **Narrative versus raw data:** Provide students with summaries of class self-reflections, rather than raw data, and guide them to reflect on how they individually compare with the rest of the class, to inform constructive feedback. Focus on the rubrics and behaviors rather than scores since using numbers can be off-putting and undermine instructor–student relationships.
- **Clear definitions:** Provide students with clear definitions of professional skills to aid their self-reflections. This helps each student make reasonable value judgments about their own skills and provides a better foundation for comparing students.
- **Observations:** If it is not possible to observe all student groups to document teamwork and communication skills in one lesson, consider observing one group at a time over consecutive lessons.
- **Efficiency:** Leverage existing lesson structure components for observing or teaching professional skills, such as limited report writing, presentations, regular instructor check-ins, and so on.

System-Level Recommendations

As described earlier, community colleges are often underfunded, even though they are a critical part of the education ecosystem. As a result, community colleges rely on a high ratio of adjunct instructors who often have less teaching experience than full-time faculty, have insufficient resources for professional learning opportunities for instructors, and use curricula and course materials that often do not provide instructional support for teaching professional skills or other ways to connect technical course content to life and careers outside the classroom. Even the most innovative and hard-working instructor has relatively little influence over the funding and resource allocation decisions that shape and constrain the conditions of their work. For administrators, policymakers, and other professionals with the leverage, connections, or power to influence organizational or systemic change, we suggest the following recommendations.

- **Coaching and professional learning:** Fund and support opportunities for faculty coaching and professional learning related to student-oriented pedagogies, culturally responsive instruction, and building positive classroom cultures.
- **Communities of practice:** Fund and support instructor communities of practice where they can exchange ideas and improve their professional skills instruction.
- **Collaborative course and lesson development:** Fund and support collaborative course and lesson development for instructors to adapt existing curricula or create new lesson activities to incorporate professional skills.
- **Student industry field visits:** Fund more frequent student visits to industry workplaces.
- **Student professional skills support:** Provide resources and infrastructure for students to get in-course or extracurricular support for developing professional skills through, for example, activities focused on resume writing, job interviews, and career planning. This might include engaging students in keeping a portfolio of their experiences and stories about their professional skills development in both courses and internships.

Closing

The Project GOALS co-development research has led to the creation of classroom-tested instructional resources based on learning principles proven to develop professional skills and mindsets. At the same time, it has identified implementation challenges that require system-level support. In future work, we seek to understand ways to leverage the insights of CTE administrators, lead faculty, and industry partners to build a community of practice for integrating professional skills development opportunities throughout occupational certification programs.

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