GUIDE

New Teaching Strategies for the Skilled Trades

Interplay Learning

Forward-thinking trades educators are transforming classrooms with hands-on, student-centered strategies. Drawing on real-world insights from industry leaders, this guide explores new teaching strategies that engage students and improve outcomes.

Most trades instructors are masters of their trade and know their craft inside and out. However, many aren't trained in classroom instruction. These instructors need extra support and training as they create lesson plans and determine the most effective way to teach the content they already know so well.

In this guide, we'll demystify two emerging teaching strategies, constructivist pedagogy and competency-based learning, and break down what they are, why they work, and how you can implement them in the classroom.

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Why the Skilled Trades Need Fresh Teaching Strategies

Like many fields, educators for the trades have traditionally relied on lectures, textbooks, and labs as the primary modes of teaching students new content. Here's why it's time for a fresh approach.

Higher Student Expectations

Today's learners, especially Gen Z, want to know the "why" behind what they're learning and prefer hands-on, experiential approaches over passive lectures.

Ever-Evolving Technology

Advances in simulation, virtual reality (VR), and online learning platforms are transforming both the classroom and the lab. This opens possibilities for new teaching strategies both inside and outside the classroom.

Increasing Industry Demands

Employers look for graduates who can think critically, adapt, and demonstrate job-ready skills from day one. Unfortunately, most construction and skilled trades employers say they can't find qualified workers.

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Constructivist Teaching: Building Knowledge Through Experience

Constructivist teaching (a.k.a. constructivist pedagogy) is an educational approach rooted in the theory that learners actively construct their own understanding and knowledge of the world, rather than passively receiving information from a teacher.

Instead of simply memorizing facts, students engage in hands-on activities, exploration, and reflection, building new knowledge by connecting it to their prior experiences and understanding. This could take place through a simulation, hands-on activity, or role-playing in the classroom.

Here are the main components of constructivist teaching and why it's effective:

Active Learning

Within constructivist teaching, active learning encourages students to process and engage with material, either mentally or physically, as they learn. This active approach strengthens retention by engaging multiple pathways of a student's brain, from auditory to visual to sensory. An active approach encourages critical thinking and problem-solving skills, allowing students to see real or simulated consequences of various actions.

Flipped Classroom Approach

With a flipped classroom approach, instructors use pre-class work to introduce content through assigned reading, video modules, or simulations. This approach frees up classroom time for discussions, one-on-one coaching, or hands-on lab time. This maximizes in-class engagement and instructor time and allows students to explore concepts in more depth.

Group Work and Peer Collaboration

Finally, group activities allow students to build a constructivist approach by supporting each other through discussions, problem-solving, and completing projects.

Not everyone loves group work. In traditional group contexts, one or two confident students take the lead while introverted or less engaged students sit back passively and miss out on the learning benefits. By taking a constructivist approach requiring active troubleshooting or simulations, you can keep every student engaged while keeping the benefits of peer learning and collaboration.

You can also structure your curriculum to assess students' competence individually by completing an online knowledge check or graded simulation.

What is Pedagogy?

Pedagogy is the theory and practice of teaching. It's the methods, strategies, and approaches educators use to facilitate learning and impart knowledge and skills.

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Practical Tips for Instructors Using a Constructivist Approach

When used well, a constructivist approach can be highly effective. However, instructors often need to revisit their natural inclination to lecture or to immediately correct student errors and let students take the driver's seat.

Here's advice from experienced educators on how to approach implementing the constructivist style of teaching.

1. Be a Facilitator

According to Sergio Cazares, Director of Faculty Development at Remington College, instructors should guide the student, rather than being the sole transmitter of knowledge.

"You want them to explore what they're doing, identify what works, and identify key components or issues that come up as they are doing these approaches," says Cazares. "Always encourage questions from the students."

2. Show Students The Big Picture

Gen Z students want to know the "why" when they are learning something new, and it's easier for them to understand all the individual steps and components when they see the big picture first. Going through a simulation on day one helps students see the totality of what they're working toward.

"Let's say you go to Ikea and buy yourself a piece of furniture. The first thing you see is the owner's manual and the setup guide. You typically read through that first so you can reverse approach it, you see all the components, and why it works," shares Cazares.

"If you missed a step or have extra pieces at the end, how can you go back and identify where that was if you haven't gone to the end result, which is the actual piece? So, that's what the constructivist approach does. It allows us to see our final result up front."

CASE STUDY
Constructivist Approach in Action: *Remington College*

Remington College found success in teaching the trades through a constructivist pedagogy, letting students build their own knowledge with a flipped classroom approach.

"Our new pedagogical style is about putting students in front of the material sooner, faster, and more often," said Cazares.

Instead of lecturing or assigning reading on the material, Remington College starts students with a virtual lab, letting them interact with the concepts first through immersive simulations and trial-and-error. Then, instructors maximize in-class time with guided instructor simulations, group work, and lab time.

Outcomes:

- Improved student engagement and learning retention.
- Achieved higher test scores for EPA 608 certifications, preparing students for entry-level roles.
- Maximized in-person lab time, enabling classes to focus on skills gaps over foundational knowledge.

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Competency-Based Learning: Mastery Over Completion

Competency-based learning is an educational approach in which students advance by demonstrating mastery of defined skills, knowledge, and abilities (competencies), rather than time spent on a course or skill.

Robert Hamm, HVAC Program Coordinator at Maysville Community and Technical College, describes this shift: "It's not just about getting students in seats anymore. Once students complete a module, they come in and show me their skills in the lab until they get it right. If it takes 15 minutes to do something, that's fine, but it also may take five hours."

Here's why competency-based learning is effective for today's learners.

Assessment-Based Progression

Instructors using a competency-based approach measure student progress with practical and performance-based assessments. Students may complete simulations, hands-on tasks, or knowledge checks, repeating them as needed until they reach the required standard.

This approach checks that students master foundational concepts before moving on to more complex ones, increasing safety and certification pass rates. Both formative and summative assessments can be valuable for understanding a student's competence.

Personalized Learning Pathways

No two students learn the exact same way or move at the same pace. Competency-based learning creates personalized pathways, allowing students to speed ahead when they need less support or slow down when they need more support.

Technology like Interplay Learning gives instructors the option to customize learning paths for different students or student groups based on their needs. Dashboards give educators visibility into student progress and help them see which students need interventions or an extra challenge.

Offering open lab hours or virtual platforms lets students work on coursework on their preferred schedule or get the unlimited practice they need.

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Practical Tips for Instructors Using Competency-Based Learning

For instructors who have been teaching for years, it can be difficult to transition from task-based or topic-based teaching strategies to a competency-based model. To support faculty in making the shift, focus on these best practices.

1. Clearly Define Competencies

Map each course to a small set of essential, job-relevant competencies, such as “learn how to handle refrigerant safely.” Focus on what students must be able to do, not just what they should know, and make competencies clear and descriptive. Then, each individual lesson or task should support one of those goals.

“We just realigned our curriculum,” shares Hamm. “Instead of having 35 tasks in a course syllabus, showing everything we’ll teach in an entire course, we've cut everything for the whole program down to about six competencies. So for these six competencies, we're either going to introduce it, reinforce it, or master it through our curriculum.”

2. Align With Industry Standards

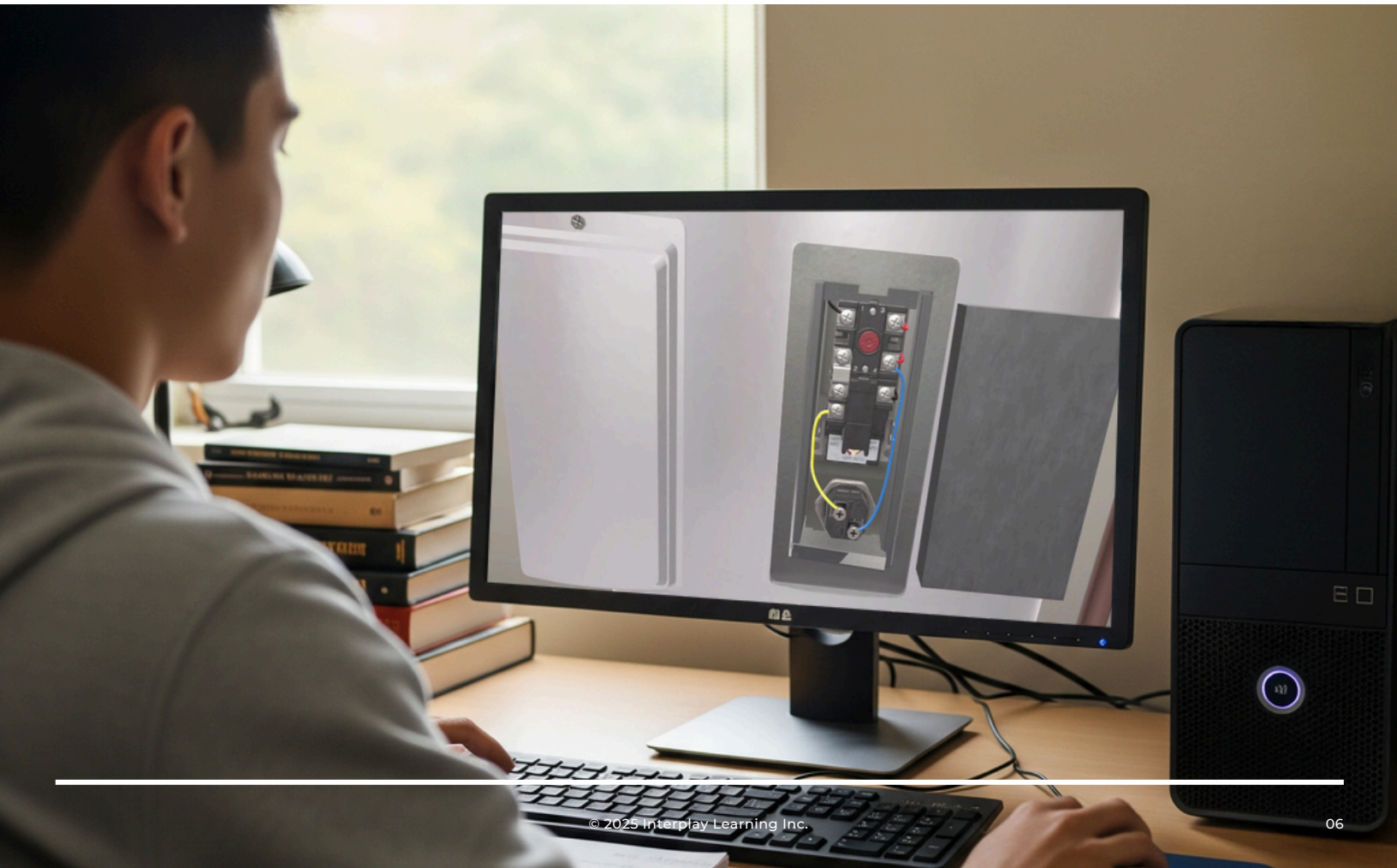
Always ensure that your competencies map to the most sought-after workplace skills in your field. Work with local industry groups, business owners, and alumni to develop this list, then integrate them into your curriculum.

Alongside technical skills, consider integrating job-readiness competencies into your curriculum, such as interview skills, how to be professional, and communication skills.

3. Integrate Simulations and Practice

Integrating simulations and practice into competency-based learning is a proven strategy for preparing skilled trades students for real-world success.

3D and virtual reality (VR) simulations can help students reach competency faster through hands-on practice and built-in knowledge checks. Always use curriculum mapping to tie simulations to goal competencies, keeping your learning intentional and on track.



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Tools for Teaching

Shifting your curriculum from a traditional teaching approach to a new one can be challenging. To increase adoption and success, train and guide your instructors on the new methods.

Then, find a comprehensive tool that enables both active and personalized learning, such as Interplay Learning. Interplay's expert-created content supports constructivist and competency-based learning strategies in skilled trades education, through:

Immersive, Hands-On Simulations:
Interplay's 3D and VR simulations allow students to engage directly with complex systems and scenarios in a risk-free environment. This supports the principle of learning by doing, helping students develop critical problem-solving skills.

Accessible, Scalable, Industry-Relevant Content:
Interplay makes training accessible anytime, anywhere, supporting asynchronous learning and maximizing lab time. The content is developed by industry experts and aligned with the skills employers need in their entry-level hires.

Personalized, Competency-Based Progression:
Interplay enables instructors to map simulations and modules to specific competencies, track student progress, and offer individualized feedback. Students can repeat simulations until mastery, move at their own pace, and receive targeted support based on real-time performance data, which are all key tenets of competency-based education.

Assessment and Analytics:
With built-in assessments and detailed analytics, instructors can monitor student growth, identify skill gaps, and adjust instruction accordingly. This data-driven approach supports both formative and summative evaluation, ensuring that students are progressing toward clearly defined outcomes.

Fostering Collaboration and Peer Learning:
The platform's simulations can be used for group work and peer-driven instruction, encouraging students to learn from and with each other. This mirrors the collaborative nature of real-world trades environments and keeps students engaged

Once you embrace these strategies and technologies, you can create programs as valuable and future-proof as the trades you teach.

Start Your Journey with Interplay Learning

Ready to start building your program today? Contact our team to get started.

Contact: sales@interplaylearning.com

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