TeachBot is a fully autonomous, robotic instructor that teaches workers on a manufacturing line how to use robots effectively.

**TeachBot**

**An Education System for Workforce Development**

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**INTRO**
- Shortage of skilled workers will leave two million unfilled manufacturing jobs in the United States alone.
- Lack of apprenticeship programs leads companies to outsource system integration, which is costly.
- Traditional classroom learning fails to engage broad population.

**OBJECTIVE**
Develop robotic education system that:
- Requires no human instructor
- Runs on the cloud
- Teaches learners more effectively than traditional lectures

**CONCEPT**
- Concepts like “feedback control” are crucial in robotics, but difficult to learn intuitively.
- TeachBot asks the learner to manually produce the effects of feedback to correct for undershoot (b) and overshoot (c).

**EXPERIMENTAL DESIGN**
- Experimental group directly interacted with the TeachBot system to complete learning module.
- Control group watched multiple perspective videos of a model learner completing the same module.
- Both groups complete pre- and post-tests to evaluate learning and self-efficacy.

**RESULTS**

<table>
<thead>
<tr>
<th>Metric</th>
<th>Mean Difference</th>
<th>p-value</th>
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<tbody>
<tr>
<td>Self-Efficacy Gain, G</td>
<td>0.264</td>
<td>0.046</td>
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<tr>
<td>Learning Gain, Λ</td>
<td>0.106</td>
<td>0.120</td>
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</tbody>
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*These authors contributed equally to the research.