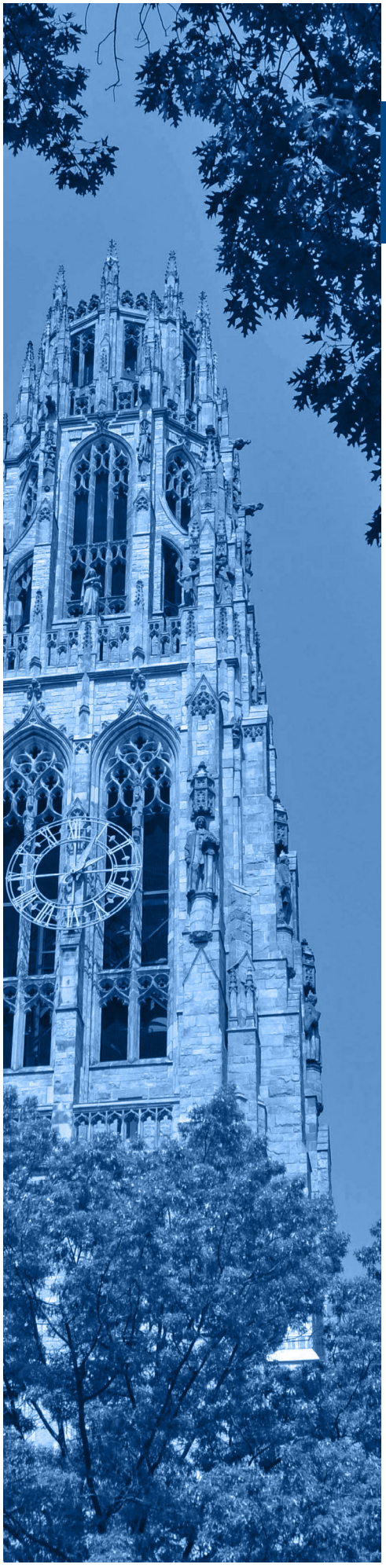

Teaching Excellence at Yale

Classroom polling offers opportunities for active student participation in large classes.

Patrick Holland, (picture right) Professor of Chemistry, uses polling strategies in his large lecture classes to help students confront misconceptions and collaborate to solve scientific questions, while checking student understanding in real-time.

"By using classroom polling tools," Holland states, "I can find out when a topic is going over students' heads without needing ESP to read their minds." Anticipating student confusion can be difficult in large classes, but polling provides formative feedback that can help instructors hone in on areas of weakness. Holland explains, "my TFs can circulate to address questions in these 'teachable moments' during polling," actively strengthening instruction during class.

Holland sees polling as an extension of his teaching philosophy. "Polling, combined with well-designed questions, supports constructivist teaching ideals, and turns what could be a very impersonal 270-person class into an engaging experience." To help students understand his approach, Holland uses a relatable metaphor: "I encourage students to see the analogy between effective chemistry problem-solving and topics like music or athletics; with the latter two, everyone accepts that practice is the route to success. With science lectures, students think that they can just read through the book or stare at a lecture and 'get it.' Not so!" By relating class content to his students' lives, Holland motivates student participation and makes their learning visible to them.

As part of his constructivist approach, Holland uses polling to invite his students to think together about their learning. He says, "I sell the polling, and the use of practice problems before each class meeting, to the students as valuable opportunities for them to identify shortcomings in their understanding and guides for further practice on their own that will lead to better performance."

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Holland acknowledges that there are technical challenges of making the polling work reliably. "The CTL is a really great resource and facilitator for overcoming [these issues]," he says. The best way to see how classroom polling works, he states, is to watch it in action during a class session.

Research exploring classroom polling:

Researchers Knight, Wise, and Southard analyze student discussions resulting from in-class clicker questions in "Understanding clicker discussions: student reasoning and the impact of instructional cues." The researchers found that "the majority of student discussions included exchanges of reasoning that used evidence and that many such exchanges resulted in students achieving the correct answer." Read this article online via *CBE-Life Sciences Education*.

Support for Teaching:

The Center for Teaching and Learning provides instructors with classroom polling support in many forms. You can schedule a consultation to learn how to integrate clickers, employ device-free polling strategies, or integrate polling with your Canvas site. Faculty Bulldog Days, an open classroom initiave, offers opportunities for Yale faculty to observe their peers' teaching.

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