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Physics by Inquiry: Deepening Understanding from Elementary Teachers to University Faculty

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The University of Washington's *Physics by Inquiry* (McDermott et al., 1996) is unique among research-based curricula in the depth and detail in which it allows students to develop their understanding of topics in basic (entry-level) physics and reflect on that understanding as it develops. In the words of one "third-generation" Physics by Inquiry student who went on to teach high school physics, "Most of the inquiry that I have tried requires some significant leap to reach the final conclusion. With [Physics by Inquiry] you have all of these small decisions that the kids make and remake as necessary. It really does a good job of teaching inquiry." In the University of Texas course, *Physics by Inquiry* has provided a platform for learners at all levels, from students taking their first college science course, to those with graduate degrees and teaching experience at the college level, including physics education researchers, to enhance their understanding of physics and how it is learned. In addition, by requiring students to expose their thinking, this curriculum has enabled further research into student understanding, in particular into gender differences and artifacts of previous instruction.