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Learning by inventing: a flipped classroom for innovating point-of-care devices

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Abstract:

In the conventional model of classroom, information is organized and disseminated by the instructor. This one-way knowledge flow has limited the depth of learning because the information is “given” but not “acquired” by self-motivated students. To break such limitation, we propose a new model of instruction: learning by inventing. Linked with the course MBE 3103 Bio-sensors and Bio-devices and MBE4102 Bioengineering Design, students will be invited to propose an idea about point-of-care devices, practice experimental skill during lab session, and realize their idea in their final year project. Thus, adapting the model of flipped classroom, it allows students to be more engaged in the process of invention, and gain more in-depth knowledge and experience. Aligned with the spirit of Discovery-enriched Curriculum, we will enable an unprecedented opportunity for them to explore further beyond the regular classroom and textbook.