Workshop on Virtualized Active Learning in STEM

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Abstract—**Virtualized Active Learning (VAL) engages synchronous group-based problem solving within the last 30-minutes of fully-live class offerings or the Face-to-Face component of mixed-mode delivery. As opposed to students solving problems together on-paper, which is not readily observable by the instructor nor scalable to larger class enrollments, VAL deploys laptops/tablets and Wi-Fi connectivity to create a virtualized active learning environment where students and instructors can interact.**

Keywords—**Technology-Mediated Instruction, Computer-Supported Collaborative Learning (CSCL), Flipped Classroom.**

I. WORKSHOP AUDIENCE AND OBJECTIVES

This workshop will be valuable to instructors, course designers, and researchers seeking to utilize and adapt digital environments for active learning within STEM curricula. Participants will:

- Review the leading instructional strategies via case studies focused on problem-solving and design activities within grades 6-20 STEM classrooms utilizing synchronous team-based learning methods

- Acquire proven approaches to problem-based learning that leverage observable, traceable, and autograding assessment tools for scalability and real-time orchestration of instruction

- Participate in two immersive active learning exercises as a member of STEM problem-solving teams employing VAL toolsets from both the student and the instructor perspectives

II. TARGETED OUTCOMES

Literature [1][2][3] and results [1] obtained by utilizing VAL for engaging, effective, and inclusive STEM instruction will be conveyed to participants, along with a completion certificate and access to transportable resources.

REFERENCES

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