Use of Technology and Movable Furniture in Flexible Classrooms

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Background
- **Studio classrooms**: Students sit in small groups at fixed tables instead of in front-facing rows [1-6]
  - **Conflicting evidence**: Lecture in studio classrooms...
    - Encourages instructors to use more student-centered pedagogy [7-11]
    - Has negative effects on student learning outcomes [10]
- **Flexible classrooms**: Space can be easily reconfigured as front-facing rows (like lecture hall) or groups (like studio classroom)
- **Insufficient evidence**: Effects on faculty teaching and student learning have not been rigorously examined [6,11-13]

Conceptual Model and Research Questions
- **Physical Classroom Space**
  - RQ1. Pedagogy used in a flexible classroom
  - RQ2. Use of instructional affordances
  - RQ3. Impact of PD on use of instructional affordances
  - RQ4. Influence of affordances on framing

Instructional Affordances
- **All have movable furniture**

<table>
<thead>
<tr>
<th>Classroom</th>
<th>Capacity</th>
<th>Movable Whiteboards</th>
<th>Perimeter Whiteboards</th>
<th>Wall-mounted Monitors</th>
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</table>

Preliminary Results
- Percentage of 27 classes across 9 courses (two Engin 100 courses and seven engineering science courses) in which each instructional affordance was used.

Student perception of the flexible classroom in two courses with excellent teachers but different pedagogies and rooms.

Recommendations for Instructors
- **Ask students to use wall-mounted monitors and whiteboards during collaborative group work**
  - Allows you to “visually eavesdrop”
- **Before the semester, think about different furniture layouts you can use**
- **Set the classroom norms at the beginning of the semester**
  - Teach students how to rearrange the classroom
- **Work with course schedulers to hold classes in flexible classrooms with a capacity > course enrollment**

References

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Scan to read a story or watch a short video about our research in these flexible classrooms.