Designing and researching technology enhanced learning for the zone of proximal implementation

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Purpose: A call to action

- Increase relevance and practical applicability
- State-of-the-art vs. state-of-practice
- Research and design must attend to current educational realities
Current shortcoming of TEL (design) research

- Insufficient attention to:
  - Curricular alignment
  - System unchangables
  - What motivates average teachers (not early adopters)
  - Levels of expertise available in the target settings
  - Pedagogy (instead of delivery)
  - Institutional issues (ROREs, politics, cultures, leadership, roles/responsibilities, etc.)

- Insufficient focus on:
  - Urgent issues
  - Developing solutions that are deemed relevant and needed by representative stakeholders
TEL research within the zone of proximal implementation

- The zone of proximal implementation refers to the distance between what teachers and schools can implement independently and what they can implement through guidance or collaboration.
- Begins with understanding everyday practice:
  - Representative/diverse teacher
  - Representative/diverse learners
  - Representative/diverse settings
- Gradually bridging from the current situation to the desired situation
- Planning for implementation scaffolds to fade and ownership/expertise to shift into the hands of those that will sustain innovation
Viable innovation characteristics at the zone of proximal implementation:

- Value-added
- Clear
- Compatible
- Tolerant
## Methodological considerations

<table>
<thead>
<tr>
<th>Value-added (better than status quo)</th>
<th>Before design (needs/context analysis)</th>
<th>During design (prototyping and formative evaluation)</th>
<th>After design (summative evaluation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning practices, problems, outcomes <em>in the baseline situation</em></td>
<td>Learning practices, problems, outcomes <em>during use</em></td>
<td>Learning practices, problems, outcomes <em>with all implementation scaffolds removed</em></td>
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<tr>
<td>Observation, learner work/assessments, document analysis, brief questionnaires (e.g., learning environment rating scales) to study enacted curriculum; focus groups and interviews to get teacher perceptions</td>
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<td>Clear (participants can envision their involvement)</td>
<td>Mindsets, habits and conventions within the classroom/school <em>in the baseline situation</em></td>
<td>Mindsets, habits and conventions within the classroom/school <em>during use</em></td>
<td>Mindsets, habits and conventions within the classroom/school <em>that are sustained or changed after the innovation</em></td>
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<td>Interviews, observations, and logbooks to track how clearly professionals understand their role and how actively they engage in it</td>
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<td>Compatible (compatible with values, beliefs, surrounding educational context/system)</td>
<td>Values, cultures, beliefs, priorities, and contextual/system factors <em>in the baseline situation</em></td>
<td>Values, cultures, beliefs, priorities, and contextual/system factors <em>that help or hinder implementation</em></td>
<td>Values, cultures, beliefs, priorities, and contextual/system factors <em>that are sustained or changed after the innovation</em></td>
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<td>Observation, interviews, document analysis to understand and track how alignment between the innovation and other determinants of implementation</td>
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<td>Tolerant (withstands the natural variation of actual use)</td>
<td>Actual behaviors of teachers and learners and reasons for them <em>in the baseline situation</em></td>
<td>Actual behaviors of teachers and learners and reasons for them <em>during use</em></td>
<td>Actual behaviors of teachers and learners and reasons for them <em>with all implementation scaffolds removed</em></td>
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<tr>
<td>Observation, interviews and document analysis to understand what teachers and learners actually do and why</td>
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Discussion

- John Cook: How can a focus on teachers ever lead to pervasive ubiquitous learning that hooks into the agency of learner and new sites of informal learning?

- Other questions?

- ...???