Innovation Configuration Map: Clarifying Effective Mathematics Teaching Practices

Developing a culture of organizational learning and collaborative communities of practice is among the greatest challenges and goals of any instructional leader – district or building administrator, curriculum specialist, instructional coach, or teacher-leader. The use of reflective tools can guide instructional leaders as they grapple with the complexities of building and sustaining ongoing collaborative learning. This document provides a suite of such tools to help instructional leaders enact and foster systemic change by creating the kinds of district, school, and classroom environments needed to prepare students for success. Regular application of these tools helps leaders determine needs, plan actions, measure the impact of those actions and support others through organizational change.

A change, or innovation, can assume several different configurations that encompass the ideal state envisioned by its designers and different variations arising from user interpretation and experience. Innovation Configuration (IC) maps are descriptive documents that provide clarity by detailing what an innovation should look like in practice. IC maps detail the how and what of an innovation and provide a way to understand the possible progression of behaviors. These maps are useful not only throughout the change process, but also once an innovation is fully implemented and leaders strive to maximize outcomes. IC maps allow educator teams to develop a common understanding of effective behaviors, identify where additional support is needed, and encourage self-reflection and self-assessment. It is important to note that IC maps are not intended as evaluative tools. Instead, they are a means to assess and measure the various forms of innovation implementation and inform goal setting and next steps. Inherent in the productive use of IC maps is the need to openly share their purpose and intent and use results to enhance collaboration in ways that allow all voices to contribute.

The following IC maps, organized around four of the eight National Council of Teachers of Mathematics’ effective math teaching practices, – Implement tasks that promote reasoning and problem solving, Use and connect mathematical representations, Elicit and use evidence of student thinking, and Pose purposeful questions – give instructional leaders purposeful opportunities to pause, reflect, and compare current practice to organizational values and expectations.

Instructional leaders can use these tools in ongoing continuous improvement efforts to –

- Initiate or focus the conversation about instructional leadership.
- Examine the current state of instructional leadership in a district or school.
- Design or strengthen existing district or school structures for collaboration and learning.
- Support job-embedded professional leadership growth and development.
- Guide decision-making about how to leverage instructional leadership to improve teaching and learning.

You can further your understanding of the research-based teaching practices covered in the IC maps by reading the National Council of Teachers of Mathematics’ book, Principles to Actions: Ensuring Mathematics Success for All and continue your learning on the purpose and use of IC maps by watching this video.
### Innovation Configuration Map: Clarifying Teaching

#### 8. Elicit and use evidence of student thinking

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<th>Level 1</th>
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<td>* Strategically elicit evidence of student thinking and reasoning focused on goals.*</td>
<td>* Elicit evidence of student thinking and reasoning focused on goals.*</td>
<td>* Elicit evidence of student misconceptions.*</td>
<td>* Elicit evidence of student misconceptions.*</td>
<td>* Elicit evidence unrelated to criteria for success.*</td>
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<td>* Attend to and interpret evidence of student thinking to assess methods, understanding, and reasoning.*</td>
<td>* Attend to and interpret evidence of student thinking to assess methods, understanding, and reasoning.*</td>
<td>* Address the range of student understanding and misconceptions with appropriate prompts, questions, or strategies.*</td>
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<td>* Respond in the moment with appropriate prompts, questions, or extensions to support student sense-making, extend student thinking, and/or deepen conceptual understanding while moving students forward toward procedural fluency and advanced mathematical reasoning.*</td>
<td>* Use misconceptions to maximize deep conceptual learning and reasoning.*</td>
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Innovation Configuration Map: Clarifying Learning

8. **Elicit and use evidence of student thinking**\(^7\) (Explicitly communicate their own mathematical reasoning and methods; adjust methods and reasoning; explicitly respond to mathematical reasoning and methods of others)

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| Students attend to their own learning as they:  
- Explain, represent, and justify math understanding, reasoning and methods verbally, in written work, or using concrete models.  
- Reveal understanding by making revisions to methods, adjusting explanations, or modifying arguments.  
Students contribute to the learning of their classmates as they:  
- Ask and answer clarifying and advancing questions, and make suggestions in response to the mathematical reasoning and methods of others. | Students attend to their own learning as they:  
- Explain, represent, and justify math understanding, reasoning and methods verbally, in written work, or using concrete models.  
- Reveal understanding by making revisions to methods.  
Students contribute to the learning of their classmates as they:  
- Ask and answer clarifying and advancing questions in response to the mathematical reasoning and methods of others. | Students attend to their own learning as they:  
- Explain and represent math understanding, reasoning and methods verbally, in written work, or using concrete models.  
- Reveal understanding by making revisions to methods.  
Students contribute to the learning of their classmates as they:  
- Ask clarifying questions and/or respond to methods of others. | Students attend to their own learning as they:  
- Explain or represent solutions verbally, in written work, or in concrete models.  
Students contribute to the learning of their classmates as they:  
- Ask for correct answers or methods. | Students attend to their own learning as they:  
- Represent solutions verbally, in written work, or in concrete models. |

\(^7\) Evidence of student thinking includes any current mathematical understanding, both correct and incorrect.

The Charles A. Dana Center at The University of Texas at Austin