Engagement vs. compliance: Looking closely at criteria charts

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A quick search on the Internet surfaces hundreds of suggestions for getting students engaged in mathematics classrooms. In this article, we are going to take a closer look at one of the ideas, the use of criteria charts.

Criteria charts are not new to mathematics classrooms. We have seen criteria charts for student work, for rules/procedures for problem solving, and for ways of working or talking during a mathematics lesson. Regardless of the focus, the chart serves as a physical embodiment and public naming of expectations.

At first glance, it seems as if criteria charts would align with three of the Principles of Learning: Clear Expectations, Self-Management of Learning, and Recognition of Accomplishments. And though criteria charts have been leveraged by students to manage their learning and by teachers as guides to help decide what to recognize as an academic accomplishment, it is not that simple. It is not that simple because central to the Principles of Learning is the active pursuit and use of knowledge on behalf of the learner. Inherent to this is the idea of active engagement, where the learner actively uses their existing knowledge to construct and refine their understanding of a concept. (Be sure to look for future articles related to Academic Rigor in a Thinking Curriculum, another of one of the Principles of Learning.)

Criteria charts that spur students to engage with the content matter actively are more likely to align with the Principles of Learning, so analyzing the criteria is critical. We have to consider if the combination of expectations results in active engagement with mathematical ideas that leads to deep understanding or simple compliance of learned procedures and rules.

Take a moment to review the two quality work criteria charts and consider the differences in their potential impact on student engagement with the mathematics they are studying.

Quality Work Chart A
1. Name is at the top.
2. All parts of the question are answered.
3. Number model is included (expression, equation, inequality). Other representations are optional.
4. Description of how you arrived at the answer.
5. Evidence that the answer has been checked is included.

Quality Work Chart B
1. Have I responded to all parts of the problem?
2. Does my response include at least two different representations (words, equations, diagrams, graphs, tables) that can help people understand the work?
3. Are the diagrams, tables, and/or numbers in the equations labeled so others know what is being represented?
4. Have I made connections between representations?
5. Does my written explanations refer to the story problem, equations, graph, tables, and/or charts?
6. Does my written explanation contain my mathematical reasoning?
7. Have I referred to other similar problem or mathematical ideas?

As you likely noticed, the criteria in Chart A is about compliance. Chart A criteria focus on rote application and completion. Students can meet all of the criteria on this chart without having to think critically about the mathematics they are studying.

In contrast, the criteria of Chart B sets the expectation for students to be actively making sense of and exploring mathematical ideas. These criteria, framed through a series of yes/no questions, have students analyze their work. The criteria target specific practices that students who are working as mathematicians should employ, such as creating and connecting mathematical representations. When students connect representations, they have to "translate" the mathematical idea in different ways. There is an explicit expectation that students refer to their representations in their explanations and include mathematical reasoning. The criteria also signal to students that they have to extend their thinking beyond the problem to look for similarities to other problems and mathematical ideas. In short, the criteria of Chart B is more likely to result in students interacting with and making sense of mathematical concepts in ways that require actual engagement with the math rather than just compliance.

Having established that the Quality Work Chart B contains a combination of criteria designed to support students' active engagement with the mathematics they are studying, let's think about how such a chart can be used to support the three previously mentioned Principles of Learning: Clear Expectations, Self-Management of Learning, and Recognition of Accomplishment.

Clear Expectations: The expectations messaged by the criteria of Chart B are clear. When such criteria are publicly posted and regularly discussed, students have a means of judging their work and the work of others. The criteria also establish for students the practices they should use when engaging with mathematical explorations.

Self-Management of Learning: By using the criteria of Chart B, students can actively monitor and revise their thinking. We have to keep in mind that hanging a well-designed criteria chart on the wall does not automatically mean that students will use it to manage their learning. Teachers need to refer to the criteria regularly, using it as a tool to support students as they work. In this way, the criteria provide scaffolding for students, which they use less and less as they internalize the practices and expectations.

Recognition of Accomplishment: The criteria provide teachers an outline of what to look for in mathematics classrooms. Because the criteria cover a range of practices,

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work to spread and scale the most promising changes. This accelerates the learning within the improvement network.

District leaders can take the following five strategic actions to build improvement networks within their district.

1. *Focus attention on shared goals pursued through common theories of action.* Tools of improvement science can support this work (root cause analysis, building a shared theory of improvement represented in some way—e.g., driver diagram).
2. *Embed improvement cycles and routines into existing collaborative structures.* Examples of ways to do that include the following:
   - Structure the work of existing PLCs to support inquiry for improvement.
   - Principals and/or assistant principals work together on issues such as chronic absenteeism and inequitable discipline practices.
   - Teachers work in PLCs to support a shift toward more ambitious forms of pedagogy, anchored in inquiry cycles.
   - Use coaches to support continuous improvement.
   - Leverage research-based best practices to accelerate improvement (e.g., partner with experts to identify evidence-based solutions to pressing problems).
   - Create cross-school learning opportunities to optimize collective learning and opportunities to spread what is being learned
3. *Leverage a practical measurement system to guide continuous improvement.* Improvement work involves data of multiple types, including short cycle data that informs action and summative data to assess the impact of an initiative. Districts can support school engagement in continuous improvement by identifying outcome and process measures, and by building tools and routines to collect, analyze, and act on data. To promote equity and learning, leaders must be intentional about what data is brought for discussion and how it is represented. In addition, leaders must build the capacity to analyze data and lead these sensemaking routines.
4. *Prioritize strategic knowledge management.* When leaders engage in strategic knowledge management, they harvest and manage the learning of others in the organization and make this learning visible. They identify which changes lead to improvement and then facilitate the spread of the most promising ideas that emerge from the collective learning of the organization.
5. *Build district capacity to operate as an improvement network through partnerships.* While educators are reflective by nature and collaborative by design, operating as an improvement network requires new ways of working. Educators are both changing their practice while also learning to engage in improvement cycles. The data collection varies from traditional data uses and has new rhythms (especially those tied to inquiry cycles). Engaging external experts, often supported through partnerships, can support this complex work. District leaders can identify and convene partners with expertise in content knowledge relevant to the problem of practice, improvement science, change management, and analytics and practical measurement to build and operate the learning network.

> ...members of improvement networks believe they are collectively solving a broader, systemic problem, and they can articulate a clear theory of improvement that will move them toward accomplishing their shared goal.

Improvement networks can serve as a mechanism for building capacity within school districts to tackle complex systems' problems such as chronic absenteeism, gaps in student achievement, inadequate supports for students with special needs, and teaching for conceptual understanding. Growing in popularity, these networks can serve as an alternative to rolling out district-wide initiatives that fail to recognize and respond to expected implementation challenges. Educators in improvement networks who engage in more intentional and coherent within-school and cross-school collaboration can build and spread promising interventions to solve specific problems. They can integrate necessary knowledge of implementation challenges to ensure that the changes they implement will contribute to improvement in varying contexts. Key to this work is the use of data to assess and adapt implementation through the course of an initiative. Partnerships can provide capacities necessary to design and implement improvement (research-based, high-leverage strategies; measurement and analytics; change management). Pushing beyond traditional sharing networks, improvement networks bring stakeholders with diverse forms of expertise together to support educators as they engage in inquiry cycles that can accelerate learning and drive toward improvement. ▪

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teachers can highlight incremental steps in student performance to increase the number of criteria evidenced in the student work. Teachers may recognize some students for creating multiple representations, others for the connections they make between representations, and still others for the mathematical reasoning they provide.

Additionally, teachers can publicly share examples of student work that meets specific criteria, which not only serves to recognize the student's accomplishment, but also provides a model from which their peers can learn. Acknowledging students for the real work of making sense of and sharing their understanding of mathematical ideas is essential to promoting active engagement.

You can read more about the use of criteria charts in the classroom in the Spotlight article.▪

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