

# **The SMARTER Instructional Cycle**

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Research on teacher planning has long moved away from the idea that planning is a discrete stage of teaching that occurs before instruction begins. In addition, research on evaluation has also moved away from the idea that assessment is an activity that takes place after instruction is complete. Effective instruction is now seen as a complex and ongoing interaction of planning, teaching, evaluating activities that are mediated by reflection around collaborative co-constructed learning experiences between and among both learners and teachers. Planning and evaluating activities are integrated throughout teaching, and comprised of both reflection and action *i.e.*, *reflection* (Bulgren & Lenz, 1996). We see evidence of this when we implement any of the Content Enhancement Routines, despite the fact that we sometimes refer to some routines as *planning* routines and others as *teaching* routines. In truth, they are all instructional routines that require planning, teaching, and evaluating activities co-constructed with students that live in an ongoing instructional cycle (Clark, Girod, Roberts, Aben, Galindo, Farmer, & Noble, 2001). In an effort to use language that more accurately reflects the dynamic nature of SMARTER Planning, in this overview, we refer to it as the SMARTER Instructional Cycle, and propose that instructional coaching for improved course, unit, and lesson implementation be tied to this cycle.

The table below shows the SMARTER Instructional Cycle that has emerged from over 30 years of research conducted on the cycle of teacher planning, teaching, evaluating, and co-constructing that we know leads to effective instruction in secondary classrooms. The cycle appears to accurately reflect how effective teachers respond to the diversity of academic classrooms. The steps shown in the table represent the various points in the instructional process where there are opportunities for course level, unit level, and lesson level types of SMARTER-based opportunities for coaching instructional change. From another perspective, each of the steps shown also represent various opportunities to engage students in various forms of academic communication about learning. The evolution to the use of practices linked to providing more collaborative, co-constructed types of learning experiences rests on a teachers' ability to engage students as part of the completion of each of these instructional steps. Students can/must be enlisted to participate in conversations about critical questions, the structure of information, why learning is difficult, how learning difficulties can be addressed, how to improve teaching, their perceptions of progress towards achieving learning outcomes, and how to participate in actions related to improving results of summative assessments.

The SMARTER Instructional Cycle begins by examining an entire course using the steps in the SMARTER Instructional Cycle to develop a "best bet" plan for the course. The Course Organizer is designed to prompt the use of these steps and record decisions. The Unit Organizer is designed to prompt the use of these steps and to visually record decisions that are shared with students, colleagues, and parents.\* Again, these decisions are visually recorded and shared with students and others. Research on course planning that led to development of the Course Organizer Routine showed that when teachers more fully predicted the types of routines, strategies (learning and social), communication systems, and accommodations that they felt addressed the difficulties in learning that they anticipated and the types of learning that needed to occur, teachers who engaged targeting in advance these types of innovations in explicit course and unit level planning, and then continued to update and refine their decisions, were more likely to implement these instructional innovations than teachers who did not engage in this type of course to unit to lesson planning.

Some of the most exciting developments that have been made related to The SMARTER Instructional Cycle have been the suggestions made by SIM Professional Developers around the country who have suggested ways to include a more collaborative tone, incorporate more attention to standards, and embed ongoing formative assessments throughout the process. Additional advancements have resulted from others who have given attention to the design of tools that can be used to support more efficient and effective implementation of the entire SMARTER instructional process. For example, the tools designed to improve instructional coaching (Knight, Elford, Hock, Dunekack, Bradley, Deshler, & Knight, 2015) can be effectively used to collaboratively shape the quality of SMARTER informed instruction. Also, a variety of technology-based resources designed by development researchers at both the University of Kansas Center for Research on Learning ([www.kucri.org](http://www.kucri.org)) and Edge Enterprises, Inc. ([www.edgeenterprisesinc.com](http://www.edgeenterprisesinc.com)) can now be accessed and explored to help educators learn how to integrate The SMARTER Instructional Cycle into instruction. Finally, Velvet Bridge, LLC ([www.gistplan.com](http://www.gistplan.com)) has developed new GIST related technologies, including the GIST 2.0 software with the Course Builder and the Unit Builder and a GIST Mobile cloud-based student-centered interface. These developers have also started to leverage tools in the *Google* classroom environment, such as the Google Chrome extension called *Snagit* (<https://www.techsmith.com/snagit.html>), to increase the ability of students to collaborate around and communicate about learning generated through the SIM intervention. The GIST technologies have also partnered with the developers of *Teachers IO* and the *My Homework App* (<https://myhomeworkapp.com/>), which can link students to tutors for assignment completion. These tools, along with an ever-growing suite of new tools, can now be added to a professional developers tool kit to help us explore and support technology-based coaching around *The SMARTER Instructional Cycle* and help us keep up with our students as they move in to their own uses of technology – with or without us!

The following table has been created to help us discuss and continue to refine how we think about SMARTER Planning, SMARTER Teaching, Smarter Evaluating and the entire SMARTER Instructional Cycle.

## *The SMARTER Instructional Cycle*

<i>SMARTER Step</i>	<i>About the Step</i>	<i>Key Factors</i>
<p style="text-align: center;"><b>S</b> <i>Shape the critical questions.</i></p>	<p>The design of critical questions is a technique for personalizing the standards for classroom use for both the teacher and the student. They are crafted to align with new state standards that are often informed by the Common Core State Standards, College and Career Readiness Standards, the <i>Next Generation Science Standards</i>, and other discipline-specific standards)</p> <p>Course, unit, and lesson questions are shaped, by design, to show coherence between the standards, how the standards will be addressed in a course, where and how progress towards building fluency in knowledge and skills will be embedded in units, and how standards-informed instruction affects lessons.</p> <p>The presence of and attention to the use of course, unit, and lesson questions should reflect manipulation of relationships that mirror the conceptual rigor of the standards.</p> <p>Good scaffolding questions from lesson outcomes leading to unit outcomes should provide a road map for teacher to student, student to text, student-to - student, and student-to-social networking environments that promotes a more coherent mastery of critical content and relationships.</p> <p>A good sequence of questions ensures that the focus of student engagement expected in academic conversations reflects student efforts to explore, understand, and demonstrate mastery of the critical concepts and represent the foundational learning <i>all</i> students should master.</p>	<p>The critical questions are shaped by the standards in at least three important ways.</p> <p>First, when designing critical questions, teachers are prompted to consider the use of oral and written language related to increasing literacy and mathematical competence to achieve a deeper ability to explore and think about critical content in ways that will lead to new understandings of our world and the problems we face.</p> <p>Second, when using critical questions, teachers are prompted to build good critical questions to identify, teach, and ensure mastery of increasingly complex higher-order thinking strategies. Critical questions that link course to unit to lesson outcomes, prompt alignment to standards and can be used to build coherence, design standards aligned to assessments, and serve as the basis for providing feedback to learners. The ongoing use of coherent questions becomes an important part of the exploration of discipline specific critical content and relationships across and within grades and courses to achieve outcomes.</p> <p>Third, when using critical questions, teachers move away from the use of traditional teacher-centered practices and toward the use of pedagogies that teach and require the skills and dispositions that create collaborative, co-constructed learning experiences. These experiences are intended to develop confident, resilient, individual and collective learning that extends from the classroom to social learning environments that build on a new world view and its emerging technologies.</p>
<p style="text-align: center;"><b>M</b> <i>Map the critical content and relationships</i></p>	<p>Mapping the structure of the critical content in a way that shows relationships and uses “sign posts” to signal or suggest the type of thinking, in terms of both breadth and depth, establishes a “playing field” for exploring possibilities and defines the “problem space” for learning is prompted in this step. The map of critical content and relationships cues where students should seek the answers to the critical course, unit, and lesson questions. Uniquely, the process of explicitly, visually depicting the organization of the content and the specific relationships influences how well both teachers and students can learn to think about the information</p>	<p>Content enhancement maps graphically represent standards-informed critical content and relationships and are comprised of those visual elements that help the teacher and student organize collaborative, co-constructed conversations. The conversations result in the creation of visual depictions of the shared understanding of the information and always incorporate the use of connecting lines, arrows, and symbols supported by steps, labels, connecting phrases, and semantic prompts that both cause and result in the type of thinking required by standards.</p> <p><i>The omission of steps, labels, connecting phrases, and semantic prompts that signal the</i></p>

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		<p><i>organization of critical content and relationships between and among content elements ignores the important role that language plays in promoting deeper understanding of knowledge.</i></p> <p><i>Likewise, using only oral language to convey knowledge without the strategic use of visual cues and structures dismisses the important role that visuals can play in making learning explicit.</i></p>
<p><b><u>A</u></b> <b>Analyze how learning of critical content might be difficult, made apparent, and measured.</b></p>	<p>The critical content and the expressed relationships among and between the critical content can present significant difficulties for students who have gaps in knowledge or who have not developed fluency in the use of both cross discipline and discipline specific higher order thinking and reasoning. To address difficulties in learning across diverse groups of students, tools and measures are identified, developed, and implemented to plan for, teach and assess, in a formative and summative manner, to ensure the readiness of students to move forward in a continuous manner to master critical content and relationships.</p> <p>Students without the foundational background knowledge and skills to prepare them for higher-order learning are at a significant and permanent disadvantage to master important standards now and in the future.</p>	<p>Tools, procedures, observations, and measures can be used to generate data to confirm the readiness of students to learn and to determine at what point meaningful learning can be planned and implemented to answer the critical questions.</p> <p>Learning difficulties related to the cognitive, behavioral, social, and emotional demands of learning experiences, including the use of new technologies, are identified along with the difficulties anticipated in learning critical content.</p> <p>Increased attention to the increased use of collaborative, co-constructed learning experiences is likely to increase learning difficulties related to the social and emotional demands inherent in this type of learning.</p>
<p><b><u>R</u></b> <b>Reach instructional enhancement decisions</b></p>	<p>Instructional enhancement decisions may start with the deliberation of the course instructor, but are gradually shaped and addressed by teams of teachers and students. These decisions are based on analyzing, targeting, and prioritizing factors that might make learning difficult based on data that are collected.</p> <p>These instructional enhancement decisions are shared with the students as part of discussions and goal setting activities that address those factors that might make learning difficult.</p> <p>Using evidenced-based pedagogies, teachers work together to plan <i>how</i> to move away from traditional, less successful instructional practices, and toward those practices that enhance learning in ways that increase both what and how standards-informed critical content and relationships are learned. Targeted measurement strategies can be used to demonstrate that these enhancements have been effective.</p>	<p><b>Some Important Types of Evidenced Based Enhancement Decision Options</b></p> <p><b>Teaching Routines</b> Course Level Routines Unit Level Routines Lesson Level Routines</p> <p><b>Learning Strategies</b> Course Level Strategies Unit Level Strategies Lesson Level Strategies</p> <p><b>Social Interaction Strategies</b> School Level Social Interaction Strategies Course Level Social Interaction Strategies Unit Level Social Interaction Strategies Lesson Level Social Interaction Strategies</p> <p><b>Individual and Group Accommodations</b> Course Level Accommodations Unit Level Accommodations Lesson Level Accommodations</p> <p><b>Communication Systems</b> Course Level Communication Systems Unit Level Communication Systems Lesson Level Communication Systems</p>

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<p style="text-align: center;"><b><u>T</u></b> <b><u>Teach</u></b> <b><u>Strategically</u></b></p>	<p>Teach students about the enhancements (teaching routines, strategies, accommodations, and communication systems) that must serve as the basis for an evolution in the design of practices leading to ongoing collaborative, co-constructed learning experiences.</p> <p>Strategic instruction must be centered around the use of informative, explicit, visible, semantically supported teaching that includes modeling, collaborative conversations among all classroom members, and purposefully practicing ways of goals, using assessments, feedback and enhancements in learning.</p> <p><i>The Cue-Do-Review process is the basis for the use of an intentional, generative, collaborative, co-constructed pedagogy that should evolve beyond the use of enhancements to virtually all forms of instructional practices.</i></p>	<p style="text-align: center;"><b>The Cue-Do-Review Sequence</b></p> <p style="text-align: center;"><b>Cue</b></p> <p><i>Students are made aware of, discuss, propose, explore, and learn teaching devices, learning and interaction strategies, communication systems, and learning options as part of a conscious and intentional effort to fully engage students as learning partners. Skills and strategies must be taught to ensure that evaluation tasks are reliable and valid and predictive of the attainment of standards.</i></p> <p style="text-align: center;"><b>Do</b></p> <p><i>Instruction is based on the principles of partnership learning. This involves collaborative co-construction of learning facilitated by multiple teachers along with students to achieve learning outcomes for different types of learners. Learning experiences include using tools to support collaborative exploration of learning tasks of both content as well as learning processes that can evolve and support successful independent learning. Both collaborative and independent assignments are designed to support successive incremental steps toward achieving learning goals. As a class, students acquire the strategies, skills, dispositions, and mindset shifts required for collaborative co-construction.</i></p> <p><i>Teachers then facilitate the transfer and use of competencies developed as part of classwide learning to learning tasks that are completed as part of small group, collaborative, co-constructed learning. Learning in smaller groups centers on tasks that require higher-order reasoning that leads to collaborative competency in the completion of tasks. Gradually students are taught to use the learning competencies used in collaborative work as part of a personal, independent strategic approach to learning.</i></p> <p style="text-align: center;"><b>Review</b></p> <p><i>Accomplished learning is followed by instructional prompts that require students to affirm what they have learned and make connections to other aspects of the content, other content areas, and to the world outside of the classroom.</i></p>
<p style="text-align: center;"><b><u>E</u></b> <b><u>Evaluate</u></b> <b><u>Learning</u></b></p>	<p>Evaluation of learning is accomplished through all the ways that both teachers and students collect data on the goals and enhancements established through the SMARTER Instructional Cycle.</p> <p>Evaluation is daily and occurs upon classroom entry, during class, and upon classroom exit.</p>	<p><i>Collaborative competency must be sufficiently practiced, and both positive and corrective feedback provided, to ensure that students gradually develop the skills required for independence in higher-order reasoning.</i></p>

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	<p>Course, unit, and lesson assignments should be viewed as formative assessments leading to and supporting demonstration of content fluency and an overall strategic approach to learning on summative measures.</p> <p>The primary purpose of formative assessment is to determine whether the teacher has made accurate and sufficient enhancement decisions, whether those decisions have been implemented adequately, whether other teachers need to be enlisted for assistance, and whether learners have taken advantage and have been included as partners in the instructional process on the journey to mastery the critical content.</p> <p>Evaluation consists of both formal and informal tools and procedures for monitoring progress, communicating progress and providing feedback to students, and adapting the instructional process.</p>	<p>Collaborative fluency does not automatically lead to individual fluency. Therefore, many students will need the support of other students and/or teachers to ensure fluency. This support requires skills in academic language that communicates how to learn as part of an ongoing academic relationship.</p>
<p><b><i>R</i></b>  <b>Revisit learning outcomes and critical questions</b></p>	<p>The evaluation of student learning and performance on summative assessments confirms that critical content and relationships required by standards has been achieved.</p> <p>If student learning and performance on summative measures are not aligned with formative measures and the targeted critical questions, then teaching decisions and actions must be reevaluated.</p>	<p><i>Critical content and the relationships within this content must be either retaught or the relevance of the original critical questions to the standards must be reconsidered if the outcomes are not aligned.</i></p>

## References

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