# II. What is Instructional Program Coherence?

Strong program coherence is evident when three major conditions prevail in a school.

**1. A common instructional framework guides curriculum, teaching, assessment, and learning climate. This framework combines specific expectations for student learning with specific strategies and materials to guide teaching and assessment.**

One example of this, observed in Annenberg school sites, is the Cunningham approach to literacy. This framework provides grade-aligned curriculum, instructional strategies, and assessments. It specifies that all literacy learning activities be organized into four areas: guided reading, self-selected reading, working with words, and writing.[5] Another example is the Success for All approach to mathematics instruction which provides grade-aligned curriculum, makes learning expectations clear (for example, students must engage in mathematical reasoning in situations beyond school), and specifies effective instructional strategies for particular types of learning, such as manipulatives to represent concepts or symbols, and cooperative learning methods for problem solving.[6] Schools can, of course, develop their own instructional frameworks, rather than adopting one from an external source.

More specifically,

- Curriculum, instructional strategies, and assessments of students are coordinated among teachers within a grade level.

- Curriculum and assessments of students proceed logically from one grade level to the next and offer a progression of increasingly complex subject matter rather than repeating rudimentary material previously taught.

- Key student support programs, such as tutoring, remedial instruction, parent education, and opportunities for parental involvement, are aligned with the school's instructional framework.

**2. Staff working conditions support implementation of the framework.**

- Administrators and teachers expect one another to implement the framework.
- Criteria for recruiting and hiring teachers emphasize commitment to and competence in executing the framework.
- Teachers are evaluated and held accountable in large part on the extent to which they effectively use the common instructional framework.
- Professional development opportunities for staff are focused on the common instructional framework, and are pursued over a sustained period of time.[7]

**3. The school allocates resources such as materials, time, and staff assignments to advance the school's common instructional framework and to avoid diffuse, scattered improvement efforts.**

- Curriculum and student assessments remain stable over time.
- Similarly, teachers' professional assignments are stable enough, so that teachers have sustained opportunities to learn how to teach well in their specific roles.

The concept of coherence has surfaced in many different discussions of school improvement, most notably on issues of curriculum. Calls for coherent curriculum ask primarily for sensible connections among the topics that students study in each subject within a grade and as they advance through the grades. Instructional program coherence includes curricular coherence, but entails several other criteria as well.

Coherence has also been interpreted as alignment of the school's instructional program with external policies and standards. Our definition does not stipulate this type of alignment, because external policies or mandates could promote, undermine, or have no effect on the degree of instructional program coherence within a school. Whether alignment with external policy promotes instructional coherence within a school depends upon the nature of the external policies. For example, as we look across the country we see numerous instances where school alignment with the following policies might exacerbate program incoherence: (a) the state mandates curriculum standards that call for student mastery of hundreds of discrete competencies with no common themes or skills connecting them; (b) the district recommends that all elementary teachers participate in one-day workshops on portfolio assessment, classroom management, higher order thinking, guided reading, and culturally responsive teaching; (c) the state develops tests which stress extended written performance, but within two years abandons these tests, and then, after two years of no state testing, issues new tests measuring recall of knowledge through multiple choice responses. In contrast, district policy could assist instructional program coherence by requiring elementary schools to adopt a research-based model of literacy instruction and by supporting extensive professional development for school teams to help them gain mastery in this approach.

As indicated in the above examples, any single policy could promote instructional program coherence to a greater or lesser degree. It is important to recognize that schools are subject to a *mix* of policies that emanate from different authorities and stakeholders. This too affects coherence within schools. Critics arguing for systemic reform have emphasized the need for tighter coordination among local, state, and federal policies dealing with everything from assisting students with special needs and incentives for school improvement, to teacher certification, professional development, and accountability mechanisms. Efforts to coordinate such policies among different parts of the policy system could increase instructional program co-

herence within schools if the individual policies themselves reinforce coherence.

## Why Should Instructional Program Coherence Promote Student Achievement?

Several lines of theory and research suggest that instructional program coherence should assist student achievement. This can occur both by helping teachers work more effectively on problems of school improvement, and by directly increasing student engagement and learning.

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### Assisting Student Learning and Engagement

Research on learning and cognition indicates that students at all ages are more likely to learn when their experiences connect with and build upon one another. To the extent that experiences are disconnected, it is more difficult for students to incorporate new understanding into prior knowledge and to alter prior knowledge when necessary. Studies in cognitive science indicate that learning takes time and requires recurring opportunities to practice and to apply knowledge and skills in new contexts. Material learned through short-term exposure and only in reference to a limited context, is less likely to be retained and transferred to other settings.[8] For example, students are more likely to learn how to use and appreciate fractions if they see how fractions are applied to a variety of problems, such as clocking their running time in school races or mixing the right color paint for their drawings.

Compared to disconnected short-term experiences, integrated experiences, sustained long enough for successful completion, provide greater clarity about what is required for mastery, and how prior knowledge can be applied to future questions. Students learning to read, for example, are more likely to gain basic skills, and the confidence to tackle more challenging tasks, in settings where all of their teachers assist their reading in a consistent manner. In contrast, when there is little connection between prior, present, and future activities, and when experiences are too brief to allow for mastery, it is more difficult for students to process the information.

Most of the research on the importance of connected learning experiences, and the application of ideas across multiple contexts, comes from research on instruction within classrooms. But, it is reasonable to assume that these theories and insights also apply to learning that occurs across different classrooms and to learning that occurs as students move from one grade to the next.

Research on motivation suggests that students are more likely to engage in the difficult work of learning when curricular experiences within classes, among classes, and over time are connected to one another. As explained above, coherent instruction develops competence more effectively than incoherent instruction. When children see themselves developing competence, they are more motivated to work, because fulfilling the basic human need for mastery builds confidence that exerting effort will bring success. In contrast, when faced with incoherent activities, students are more likely to feel that they are the target of apparently random events, and that they have less knowledge of what should be done to be successful. This reduces student engagement in the hard work that learning often requires. Thus, incoherent activities undermine opportunities to gain mastery and the confidence that motivates further learning.[9]

Together these points suggest that where curriculum, instruction, and special programs are coordinated, one could expect enhanced student achievement. Compared to uncoordinated and short-term learning experiences, more coherent experiences can provide absorbing activities that increase students' motivation to engage in the difficult work of learning. They also offer more opportunities for cognitive processing, because knowledge and skills previously acquired can be used to achieve mastery in new areas.

## Assisting Teacher Effectiveness

Instructional program coherence might also be expected to assist teacher learning and effectiveness. According to the research on learning and motivation summarized above, teachers who participate in coherent professional development experiences, as opposed to short-term, unrelated activities, are also more likely to learn from those experiences and to integrate that new knowledge into their teaching. In addition, research on organizations and effective management indicates that professionals who work together on integrated activities aimed at clear goals produce higher quality goods and services.[10]

There are at least two reasons for the increased quality achieved in these settings. First, coordination of activity amplifies workers' access to and use of technical resources and expertise. For example, if teachers within a grade level pool their knowledge on the most effective ways to use cooperative learning in the study of mathematical estimation, each teacher has an opportunity to improve his or her skill. Second, connecting the work of different teachers to common purposes, activities and practices that are pursued over an extended period gives teachers' work more meaning, thereby increasing their motivation and commitment to reach goals. In contrast, when a teacher knows from prior experience that ideas and initiatives are often introduced and then quickly abandoned, it makes little sense to expend much effort to change one's practice.

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More generally, these points on student learning and engagement, and on teacher effectiveness are consistent with research on school effectiveness. This includes studies on total quality management, effective schools, high-capacity schools, Catholic high schools, and the differences between public and private schools. Such studies suggest a set of key factors that can lead to higher school performance.[11] These factors include the importance of a sustained organizational focus, staff agreement on clear and specific goals, more common academic expectations and curriculum for all students, teacher collaboration and collective responsibility for meeting goals, and a consistent climate of positive supports and high expectations for all students and staff. Each of these is reflected in one or more of the indicators we propose for instructional program coherence.