How Can We Support Computational Thinking in Schools?

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Computer Science Education Week

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CSEdWeek's call to action—Try an Hour of Code (https://csedweek.org/)—is a great way for educators to begin integrating CS/CT into their classrooms.

Currently all 50 U.S. states have adopted policies supporting the teaching of computer science/computational thinking (CS/CT) in classrooms. These policies recognize that it is important for students to learn how to program and how to engage in and carry out problem-solving processes so that humans can understand them and machines can process them.

Computing is an integral part across many disciplines, so integrating CS/CT into classrooms is essential for helping students be successful in the 21st century. The reality of how to accomplish this, however, can be overwhelming.

Then, how do we support schools in making computational thinking a common practice in classrooms across all grade levels and content areas?

To support administrators and teachers in thinking about what whole-school integration looks like, my colleagues and I are currently developing the *CT Integration Framework* (https://docs.google.com/document/d/1fh3TgLXETgYlW0zBcTnQzMB26SgOXS50aqaaTBeo10s/edit).

The intent of the framework is to help educators assess their readiness for schoolwide integration, identify areas of strengths and concerns, prioritize immediate and long-term goals, monitor their progress toward achieving these goals, and most importantly, provide all stakeholders with a common starting place for developing their vision and actionable steps toward schoolwide CS/CT integration.

In early testing of this framework, we identified the following starting places for successful integration:

1. Develop a vision: Administrators need to develop a clear, understandable vision for schoolwide integration and communicate that vision to teachers so they know what to work toward. The vision should include:

> How administrators define CT
>
> How CT aligns with the school's and teachers' instructional goals
>
> The administrators' expectations for integration

2. Scaffold the integration: The ultimate goal is to integrate CT across all grade levels and content areas, but it is unrealistic to expect integration to happen immediately. Many successful integration models started by focusing on one or two grades or content areas, or on a particular set of concepts within a content area. This approach allowed teachers to identify elements of CT within their existing curricula and then to build in additional CT. Scaffolding integration helped teachers develop their CT knowledge over time and increased their confidence to teach it.

As we continue to pilot the *CT Integration Framework* and learn about successful whole-school integration, we invite you to review the framework (https://docs.google.com/document/d/1fh3TgLXETgYlW0zBcTnQzMB26SgOXS50aqaaTBeo10s/edit) and share your thoughts with us at hsherwood@edc.org (mailto:hsherwood@edc.org) or in the comments below.

Heather Sherwood currently works on multiple federal and privately funded projects that examine the role of CS/CT in education. Formerly a classroom teacher and a computational thinking and coding teacher, she holds a master's degree in digital media design for learning from NYU.

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