

[BASICS]

THE BASICS STUDY TEACHER INTERVIEW GUIDE

Project Overview:

The Barriers and Supports to Implementing Computer Science (BASICS) study is a three-year exploratory research project funded by the National Science Foundation (#1339256) as part of the CS10K program – an ambitious effort to have 10,000 well-trained computer science teachers in 10,000 schools. The BASICS study seeks to contribute to this effort in part by creating and sharing tools to measure implementation of an introductory computer science curriculum (Exploring Computer Science, or ECS) and the key supports and barriers that affect implementation.

In the 2014-2015 school year, researchers at Outlier Research & Evaluation at UChicago STEM Education, a center at the University of Chicago, developed and used this semi-structured Interview Guide with 35 teachers using ECS in their introductory classrooms in five school districts across the country. The primary aim of the Interview Guide is to understand contextual factors that affect teacher usage of introductory CS curriculum. BASICS is not in any way an evaluation of ECS, nor is this Interview Guide meant to assess the teachers using the curriculum. Rather, the BASICS study focused on understanding how curriculum is used to teach introductory CS and the factors that affect its use, looking at ECS as an example, as it is widely used.

Interview Guide Overview:

The semi-structured Interview Guide focuses on teacher use of the ECS curriculum and teacher perceptions of the supports and barriers to implementing the curriculum. Its use complements data collected through the BASICS Teacher Questionnaire, as interview data can provide richer understandings of the key supports and barriers (contextual factors) teachers encounter. Questions in the guide fall into two categories: (a) Background information about the **school/class and teacher**, and (b) Prompts for exploring the **contextual factors** that affect teacher use of CS curriculum.

Please acknowledge Outlier in any publications using all or part of this instrument using the following citation: Outlier Research & Evaluation (August 2017). *BASICS Study ECS Teacher Interview Guide* [Measurement scales]. Chicago, IL; Outlier Research & Evaluation at UChicago STEM Education | University of Chicago. Retrieved from <http://outlier.uchicago.edu/basics/resources/Interviewguide-Teacher-ECS/>

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The Teacher Interview Guide

Introductory Language

Hello, and thank you for agreeing to participate in this interview. I am here as part of a study that is trying to understand introductory computer science in high schools. We are talking to introductory computer science teachers in your district, and in several different districts across the US to support the work you are doing with ECS and to understand your students' experiences.

This interview is an opportunity for us to talk with you, one-on-one, about your experience as a computer science teacher, and what you feel are the biggest supports you have for teaching introductory computer science, and what you think are the biggest barriers to your teaching of introductory computer science. What are some of the main things that influence how you teach intro CS on a daily basis? We want to know about your experience, and what you think you need to teach introductory computer science well.

Background Information

Note: Prompts in this section capture general background information about the school and classroom, as well as the teacher.

School/Class Background Information

- 1) First, tell me about the introductory CS course you are teaching.
[Probe for: materials used, how many sections, how many students, how long they've taught ECS & CS in general, etc. This is a good way to set the context and get all the information we need in a more casual way.]

Now we'd like to learn about you and how you came to be teaching the ECS course.

Teacher Background & Experience

- 2) How did you end up teaching the course?
[Probe for whether the teacher was required, asked, volunteered, etc.]
- 3) Do you have any prior experience with computer science?
- 4) What other subjects are you teaching this year?
- 5) At this time last year, what were you teaching?
- 6) Are there other teachers at your school teaching intro CS this year?

Contextual Factors

Note: This section includes prompts that ask about the presence of a range of factors that can influence teacher use of computer science curriculum components. These include factors related to: (1) school/organizational structures, (2) teaching computer science with the ECS curriculum, (3) teaching computer science (in general), and (4) teacher perception of student interest in computer science. To maintain the original flow of the Guide, items within these four contextual factor categories do not cluster together. Rather, the questions are organized for a more natural flow of conversation.

School/Organizational Structures (1 of 2)

Supports & Barriers for Teaching Computer Science

- 7) So, how would you say it's been going this year?
[Probe for specific supports and barriers. If needed, can prompt with categories below, e.g., support for content and pedagogy, school logistics, advocacy from principal or other teachers, PD, fit with current practice and values, etc.]
- 8) You mentioned X, X, X as supports. Of these, what have been the **biggest supports** that enable you to teach this course well?
 - a. Are there any others?
 - b. Tell me exactly why each of those is a support for this course.
 - c. Can you provide an example?
- 9) What supports do you need that you don't have?
- 10) You mentioned X, X, X as barriers. Of these, what have been the **biggest barriers** (needs, issues) to teaching this course well?
 - a. Are there any others?
 - b. Tell me exactly why those are barriers.
 - c. Can you provide some examples?
- 11) If you were sitting with district or school leaders right now, what would you ask them to do to help eliminate these barriers or increase these supports?
- 12) Are any of the supports and barriers you identified unique to teaching this particular course? Or are they similar to those encountered in other subjects, like mathematics, science, language arts, etc.? How?

Teaching Computer Science with the ECS Curriculum (1 of 3)

We know there are lots of different ways that people define computer science and understand computing. I'd like to hear what you think – first, about the ECS curriculum specifically, and then about teaching computer science in general.

Understanding of the Curriculum

- 13) How well do you feel you understand the goals/the philosophy/the approach of ECS?
[Probe for understanding of inquiry, and equity]
- What is one example of your inquiry teaching with the ECS materials?
 - What about an example of equitable teaching practices in your introductory CS class?

Teaching Computer Science (in general) (1 of 1)

I'd like to know about your feelings about computer science (in general).

Attitude Toward Teaching with Computer Science Curriculum

- 14) Computer science is growing to be the "It" thing – what do you think about that?
- How important do you think computer science is compared to other subjects?
- 15) How do you feel about teaching CS?
- Why?
- 16) What about teaching this particular course?
- What, if anything do you think you might change with the materials next year?
 - How are your feelings about teaching this course different from other courses (CS or other subjects) you currently teach, or have taught in the past?

Computer Science Teaching Ability Beliefs

- 17) What is your comfort level with teaching introductory computer science?
- Why do you think you feel that way?
 - Is your comfort level with teaching intro CS different than for teaching other subjects?
- 18) How do you feel about your computer science content knowledge?
[Probe for if they think they need more knowledge to teach well]

Beliefs about Requiring Computer Science

- 19) What are your thoughts about kids being required to take CS? How much CS do you think kids should be required or expected to take?
- [district X] – What do you think about the requirement to have all HS students take computer science for graduation credit? (ECS, or other CS)

Teaching Computer Science with the ECS Curriculum (2 of 3)

Fit with Current Practice (ECS)

20) In what ways is teaching with ECS similar to or different from how you typically teach CS or otherwise?

[Probe for: Student centered instruction, more/less disciplinary content, more/less focus on problem solving]

Desire to Continue Using the Curriculum

21) If you got to decide, would you teach this course next year?

- a. Would you have said the same thing if we asked you this at the beginning of this school year?
- b. If not, what changed?

Teacher Perception of Student Interest in Computer Science (1 of 1)

Let's talk about your students.

22) What is their interest in CS?

23) What affects their engagement in this course?

- a. What pulls them in? Holds them back?

Teaching Computer Science with the ECS Curriculum (3 of 3)

Teacher Perception of Curriculum Fit with Student Needs

24) Does ECS fit the needs of your students?

- a. In what ways does it fit or not fit?
 - i. [Probe for academic, cultural identity/background, college & career, learning style differences, other]
- b. Do you think that ECS is reaching students not typically enrolled in CS courses at your school? Why is that?

School/Organizational Structures (2 of 2)

Finally, I'd like to know how others within & outside your school community feel about computer science.

Community Values/Perceptions of Supports for Computer Science

- 25) What opinion do others in your school have about bringing computer science to your school?
- a. What about other teachers?
 - b. School leaders?
- 26) What about families in your community - How do they feel about your school offering introductory CS?
- a. What about community leaders? Other stakeholders?

Innovation Advocacy

- 27) How do your school leaders advocate for computer science in your school?
- a. What about school advisors/counselors?