CS-LISTEN

National Science Foundation

UC San Diego

Session 3

CSListen

Session 3: Constructing Great Instrument Questions

Escondido Union High School District 1894

Sweetwater Union High School District

San Diego Unified School District

Vista Unified School District Excellence Innovation

Has your SCR team decided: What kind of data is best?

Interviews

-- Semi-structured questions (allows interviewer time to veer off with impromptu follow up questions)

-- Uncontaminated data

-- Less data collected, more in-depth; more “personal” and “revealing”

In-depth Interviews allow detailed exploration of a single respondent’s reactions without contamination.

Focus groups

-- Prompts rather than questions

-- Can gather observational data in addition to verbal data

-- Can capture multiple viewpoints at the same time

Focus groups tend to encourage good discussions, but can be time consuming and costly, plus create qualitative data that can be harder to analyze.

Surveys

-- Structured questions

-- Can include varied question types/scales

-- Can gather LOTS of data from people

Surveys can be more cost effective and provide more quantifiable data that can be easily analyzed, but are less personal or interactive.

CS-LISTEN Student Co-Researchers!

Students:

Anyone who STILL hasn't done so, please sign in using this link or the QR Code to the right.

http://bit.ly/CSLstudentinfo

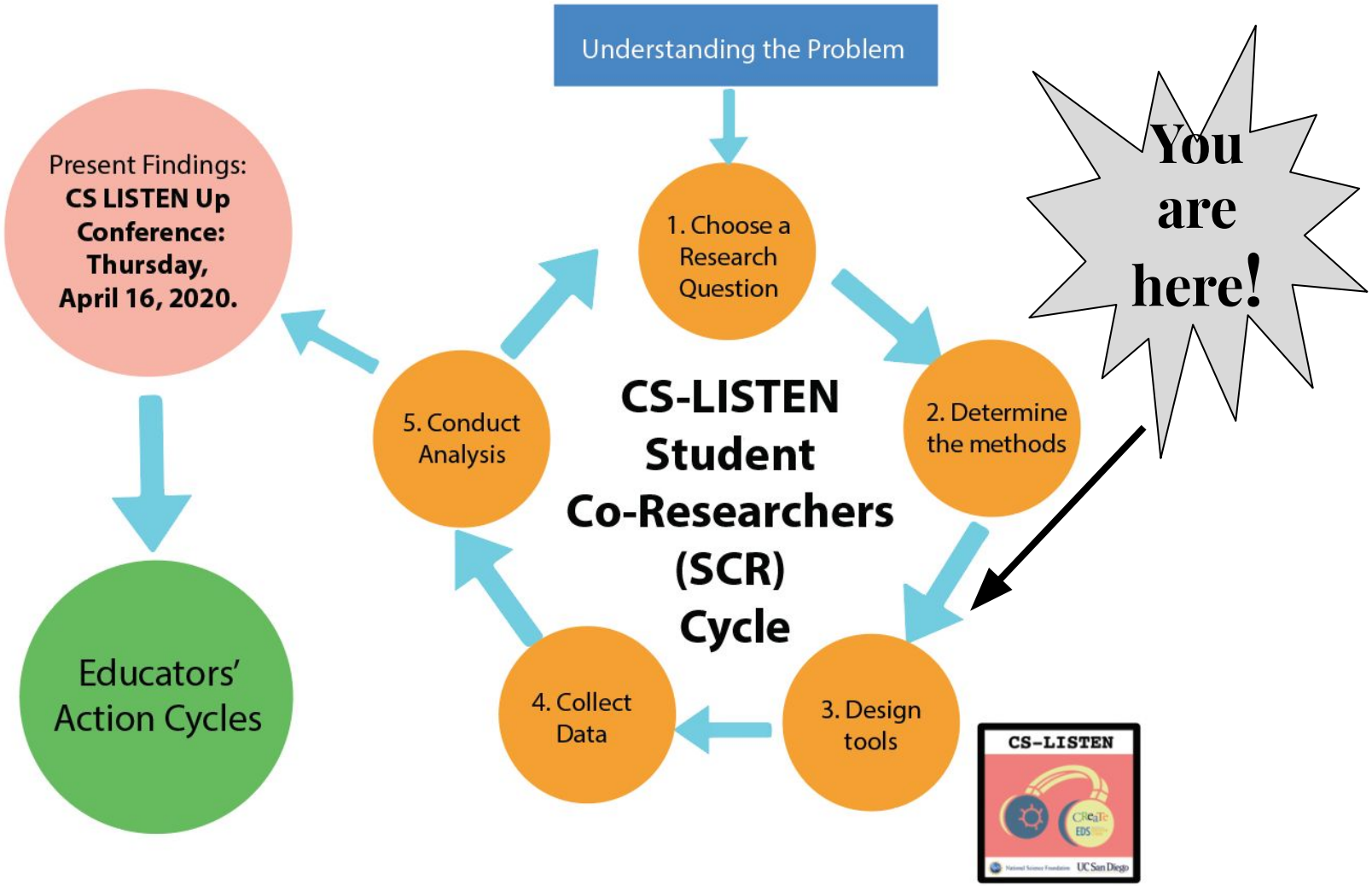
Share a device with someone if you don't have one.

UC San Diego's Consent forms/Assent forms

Have you turned in your consent/assent forms? If not do so THIS WEEK!!!!

1. **Parent Consent form** -- Signed (you can turn it into your teacher anytime before next week)
2. **Student Assent form** -- Sign now and turn it into Beth, Susan, Kirk or Minh.

If you don't get the forms signed, you CAN still participate in the project. But we can't learn from you, so we would LOVE it if you provide the forms back to us.


Understanding the Problem
You are here!
Present Findings: CS LISTEN Up Conference: Thursday, April 16, 2020.
1. Choose a Research Question
2. Determine the methods
3. Design tools
4. Collect Data
5. Conduct Analysis
CS-LISTEN Student Co-Researchers (SCR) Cycle
Educators' Action Cycles
CS-LISTEN
UC San Diego

If your team decided last week that it needed some background knowledge to re-shape your Research Question -- review that knowledge now...if not skip this slide...

In what ways has that background knowledge influenced your question/study? Reflect and discuss. Make necessary changes to your RQ/operational definitions.

If your team didn't gather additional background knowledge, then skip this slide.

Make sure your Research Question is VISIBLE.

Today your SCR will accomplish TWO things:

1. Continue drafting instrument questions

   Has your SCR decided? Survey? Interview? Focus Group? Something else?

2. Make plans for field testing your instrument

Continuing on with question/instrument construction...

- ★ Review the questions your Student Co-Research Team drafted last time.
- ★ Add more questions, compare the questions to the RQ.
- ★ Look at the tips for creating good questions.
- ★ Refine the questions you create against the “tips”
- ★ Look at all the drafted questions together.

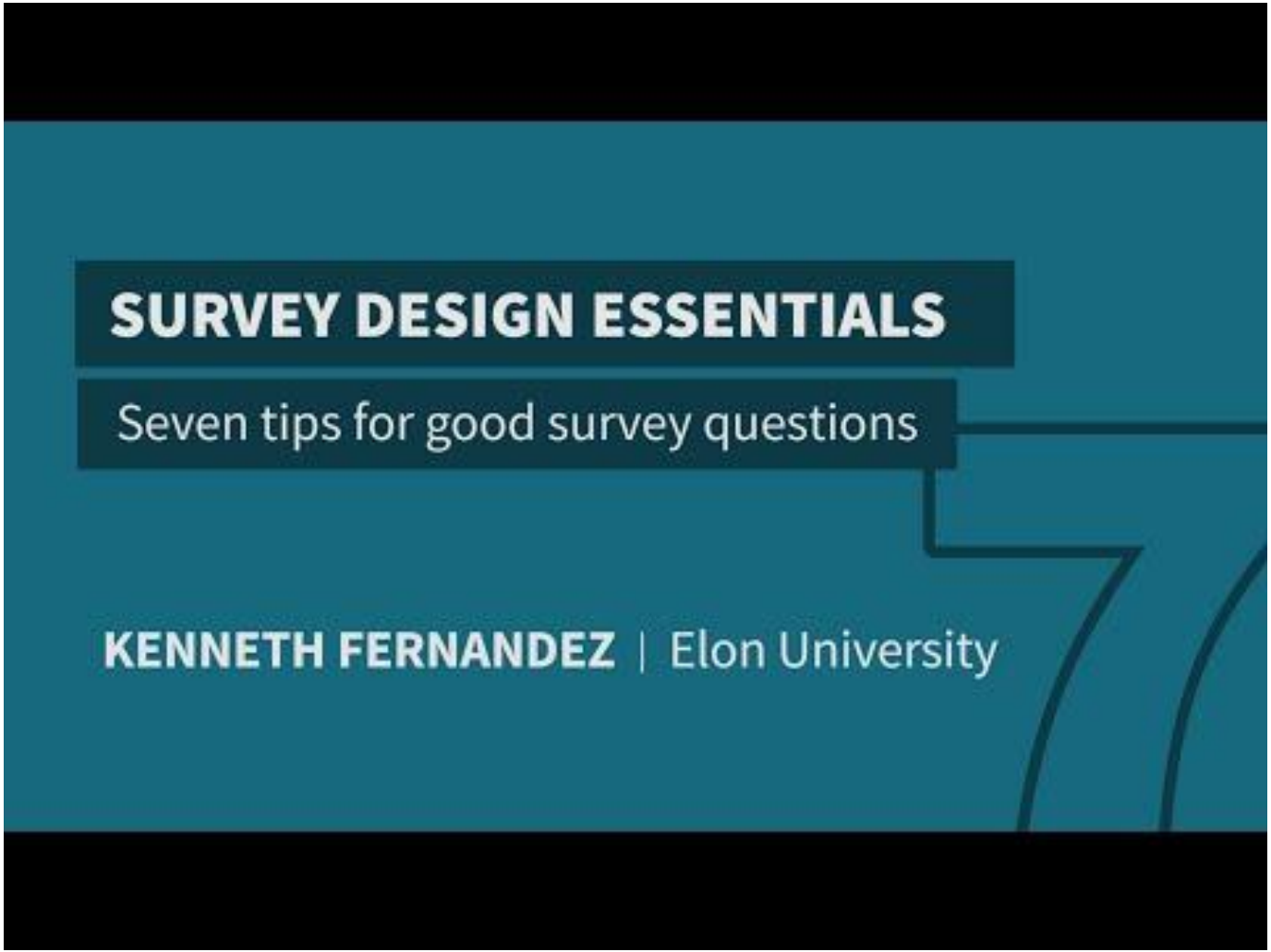
- Place a dark circle next to those that are definite keepers,
  - Place an empty circle next to questions that you are unsure about keeping. Does that question need to be refined/revised or dumped?

Tips: Good survey questions are

- **CLEAR** and specific
- **NOT TOO PERSONAL**
- Questions people will respond to **TRUTHFULLY**
- Questions people **KNOW** the answer to
- A **SINGLE** question, not “double-barrelled”
- Avoid **BIASED** or leading language

Optional: Rewatch all or part of the Tips for Creating Good Survey Questions

(4 minutes)



Types of Information that can be gathered from surveys

- **Demographic** -- relating to the individual's background and place in society
  - Ex: Ethnicity, grade level, age, gender identity, neighborhood, etc.
- **Knowledge** -- questions with a "correct" response used to test what the individual knows about a topic
  - Ex: Do you know who teaches CS at this school:?
- **Attitude** -- asks for the individual's opinion on a topic
  - Ex: Do you think this school should offer more opportunities to learn to code?
- **Behavior** -- wants to know about things the individual
  - Ex: Have you ever done an activity where you had to "code"?
- **Beliefs** -- asks whether the individual believes that something should happen.
  - Ex: Do you believe that students should try and take computer science?

Examples from Mission Vista HS

ATTITUDE

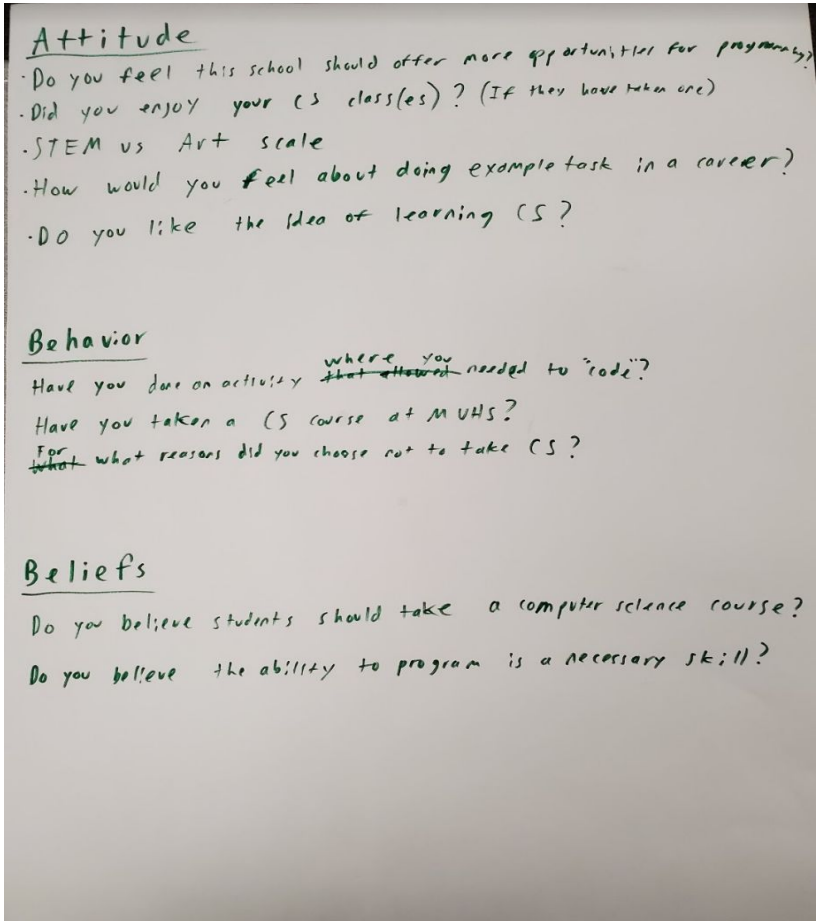
Do you feel this school should offer more opportunities for programming?

Did you enjoy your CS class(es)? (if you took any)

STEM vs. art scale

How would you feel about doing example tasks in a career?

Do you like the idea of learning CS?



Draft questions from Mission Vista High School

BEHAVIOR

Have you done an activity where you needed to “code”?

Have you taken a CS course at MVHS?

For what reasons did you choose not to take CS?

BELIEFS

Do you believe students should take a CS course?

Do you believe the ability to program is a necessary skill?

DEMOGRAPHICS

What gender do you identify as?

What grade level are you in?

KNOWLEDGE

Are you aware of any CS classes at the school?

Does MVHS have any computer science classes?

Last time you worked in smaller groups to construct types of questions...

- You can either continue working in your same groups constructing questions OR
- Mix it up and have folks work on a different category of question.
- Smaller SCR teams might be able to work on the questions
- Create a Google Doc of all the questions where students can work on it at the same time...
- Share the Google Doc with the UC San Diego researchers and your teacher. (syonezawa@ucsd.edu, bsimon@ucsd.edu, mmai@ucsd.edu, kdrogers@ucsd.edu)

Examples of Likert Scales (5 point scale recommended)

Very Interested	Somewhat Interested	Neutral	Not Very Interested	Not at All Interested
5	4	3	2	1
Very Much	Somewhat	Undecided	Not Really	Not at All
5	4	3	2	1
Very Much Like Me	Somewhat Like Me	Neutral	Not Much Like Me	Not at All Like Me
5	4	3	2	1
Very Happy	Somewhat Happy	Neutral	Not Very Happy	Not at All Happy
5	4	3	2	1
Almost Always	Sometimes	Every Once In a While	Rarely	Never
5	4	3	2	1

Response Set	1	2	3	4	5
Frequency	Never	Rarely	Sometimes	Often	Always
Quality	Very poor	Poor	Fair	Good	Excellent
Intensity	None	Very mild	Mild	Moderate	Severe
Agreement	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Approval	Strongly disapprove	Disapprove	Neutral	Approve	Strongly approve
Awareness	Not at all aware	Slightly aware	Moderately aware	Very aware	Extremely aware
Importance	Not at all important	Slightly important	Moderately important	Very important	Extremely important
Familiarity	Not at all familiar	Slightly familiar	Moderately familiar	Very familiar	Extremely familiar
Satisfaction	Not at all satisfied	Slightly satisfied	Moderately satisfied	Very satisfied	Completely satisfied
Performance	Far below standards	Below standards	Meets standards	Above standards	Far above standards

Semi-structured interviews in 4 minutes