

# STEM Learning and Research (STELAR) Center @ Education Development Center

Flash talk!  
Monday, May 2, 2016



# The STELAR team



**Sarita**

**Joyce**



**Carrie**

**Melody**



# Every project has a liaison



**Becca**

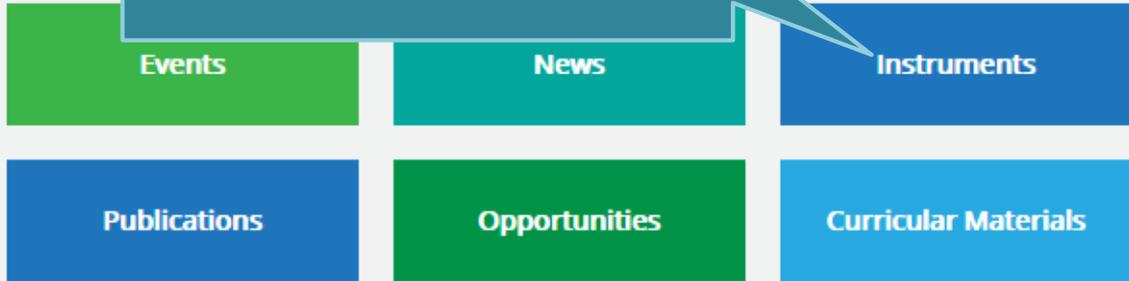


**Bernadette**



**Sarah**

Click to view all evaluation instruments



### SEARCH FOR RESOURCES

Multiple criteria within a field is an OR condition. Multiple fields are AND conditions.

**+ RESOURCE TYPE**

**+ DISCIPLINE(S)**

- TOPIC(S)**
- ACCESSIBILITY
  - COMPUTATIONAL THINKING
  - CULTURAL RELEVANCE, EQUITY, AND DIVERSITY
  - EVALUATION
  - INFORMAL LEARNING AND AFTERSCHOOL
  - PARTICIPANT RECRUITMENT AND RETENTION
  - PARTNERSHIPS AND COLLABORATION
  - STEM CAREER OPPORTUNITIES AND WORKFORCE DEVELOPMENT
  - STEM CONTENT AND STANDARDS
  - SUSTAINABILITY AND SCALE-UP
  - TEACHER PROFESSIONAL DEVELOPMENT AND PEDAGOGY
  - YOUTH MOTIVATION AND INTERESTS IN STEM
  - OTHER

#### Culturally Responsive Teaching Self-Efficacy Scale (CRTSE)

Instruments

The Culturally Responsive Teaching Self-Efficacy Scale (CRTSE) was developed and administered to a sample of preservice teachers to elicit information from preservice teachers...

READ MORE »

#### Iowa Tests of Basic Skills (ITBS)

Instruments

The Iowa Tests of Basic Skills (ITBS) offer educators a diagnostic look at how their students are progressing in key academic areas. The ITBS tests are designed for kindergarten through 8th grade students and include nine themes: vocabulary,...

READ MORE »

#### Culturally Responsive Teaching Outcome Expectancy (CRTOE) Scale

Filter by discipline and/or topic area

Apply Filters

Click to view all evaluation instruments



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READ MORE »

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Filter by discipline and/or topic area

Apply Filters

# Science Motivation Questionnaire II (SMQ-II)



Instruments

Provide feedback on the instruments you've used, and view feedback from your colleagues



Feedback on this instrument from projects that have used it

Ginger Fitzhugh

July 24, 2015 - 8:28pm

**Q: In what context did you use this instrument (setting, population, project name)?**

Response: We included selected items from the SMQ-II in pre- and post-survey surveys for youth participating in Studio, an afterschool tinkering program serving low-income middle and high school students (grades 6- 12) living in Seattle Public Housing. The majority of the youth are from East African immigrant communities. We also administered the pre- and post-surveys to comparison youth who did not participate in the program.

**Q: Did you run into any limitations with this instrument? (Y/N) If yes, please explain.**

Response: We originally planned to use two of the subscales from the SMQ-II (intrinsic motivation and career motivation). Partly due to concerns about the length of our survey and the need to assess other program outcomes, we decided to use only a small number of the items (4) from the SMQ-II and instead use another scale to measure students' STEM career interests.

**Q: Did this provide you with relevant information to address your research questions? (Y/N) If yes, what question did this answer?**

Response: Yes, in part (together with other survey items and additional instruments), the items helped us to address one of our research questions: "Does participation in STEM programming enhancements of the Studio program produce measurable impacts on youths' interests and motivation in STEM?"

**PROJECT NAME:**

Collaborative Research: Creating a STEM Pipeline for Low Income and Immigrant Youth

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FEATURED NEWS

## WHAT'S TRENDING ON STELAR

See what resources are trending on [stelar.edc.org](#)

[Learn more »](#)



Resources disseminated by ITEST projects

Outcomes curated by ITEST findings (Share yours!)

Helping prepare a STEM workforce.

TEXT SEARCH

[ADVANCED SEARCH](#)



ITEST Program Findings

- + ACCESSIBILITY, CULTURAL RELEVANCE, EQUITY, AND DIVERSITY
- + EDUCATOR PROFESSIONAL DEVELOPMENT
- + EVALUATION
- + STEM CAREER OPPORTUNITIES AND WORKFORCE DEVELOPMENT
- + STEM CONTENT AND STANDARDS
- + STEM IN AFTERSCHOOL AND INFORMAL LEARNING
- + STEM PROGRAM MODELS AND IMPLEMENTATION
- + YOUTH MOTIVATION AND INTERESTS IN STEM

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STELAR CENTER AT EDC

### ITEST in Action

The NSF ITEST program has three goals:

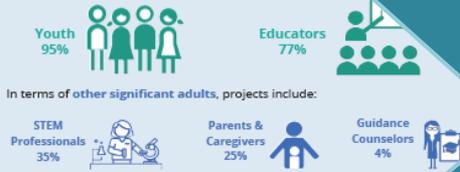
- Increase student awareness of STEM and ICT careers
- Motivate students to pursue the education necessary to participate in STEM and ICT careers technology-rich experiences
- Provide students with technology-rich experiences that develop their knowledge of related content and skills (including critical thinking skills) needed for entering the STEM workforce

This databrief provides descriptions of how current ITEST projects implement their projects in order to meet these goals.

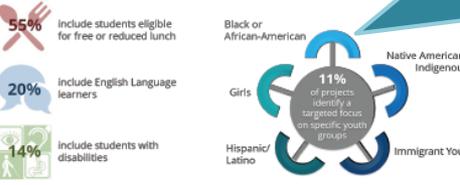
Among 68 active projects that reported on their youth goals during the Fall 2015 Management Information System (MIS) survey, 3/4 of projects addressed all three goals, 8 addressed two of the goals and 5 addressed one of the goals.

#### Who participates in ITEST projects?

ITEST projects can be designed in many different ways in order to meet the program goals. Almost all projects work directly with youth, and many also work with educators as well.



#### All ITEST projects target youth who are underrepresented in STEM



# Publications informed by the MIS!

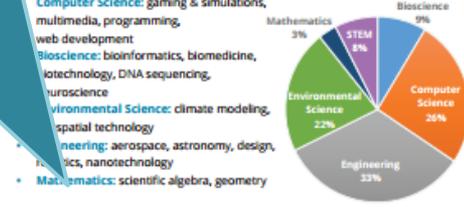
### ITEST SNAPSHOT 2016 AN OVERVIEW OF NSF'S ITEST PROGRAM

Helping prepare a diverse, skilled, and innovative STEM workforce.

The National Science Foundation (NSF) addresses the looming shortage of technology and science professionals by funding the Innovative Technology Experiences for Students and Teachers (ITEST) program. ITEST projects across 45 states and the District of Columbia provide hands-on, technology-rich experiences that develop the skills needed to succeed in a science and technology driven world.

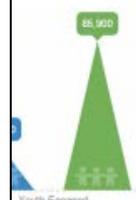
ITEST projects focus on innovative technology applications, such as 3D printing, virtual modeling, and modern statistics bring paleontology to life. These experiences spark interest in scientific research and foster career readiness in related fields. Hands-on biotechnology activities engage middle school students. Emerging Technologies provide tools for Native American high school students.

#### ACROSS THE ITEST PORTFOLIO TEACHERS AND YOUTH PARTICIPATE IN DIVERSE STEM EXPERIENCES



#### GOALS OF THE ITEST PROGRAM

- Increase student awareness of STEM and ICT careers
- Motivate students to pursue the education necessary to participate in STEM and ICT careers technology-rich experiences
- Provide students with technology-rich experiences that develop their knowledge of related content and skills (including critical thinking skills) needed for entering the STEM workforce



RURAL, SUBURBAN, AND URBAN AREAS  
ITEST projects are implemented in many different geographic locations. Youth engage in their work in urban areas, rural areas, and middle and/or high school.

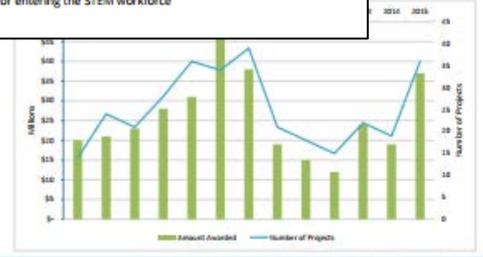
DIVIDING FUNDING TO AN AREA  
ITEST projects are about effectively responding to the needs of science, technology, engineering, and mathematics.

**MOTIVATED PARTICIPANTS**  
"Enthusiasm of students and teachers, in large part because of our follow-up activities to the summer workshop training (bi-weekly conference calls, quick response help line staffed by students), and the fall and spring conferences."

**STRONG TEAM & COLLABORATION**  
"We have a very dedicated team that pulls together all the aspects of the project from the training to the implementation."

**STRONG PARTNERSHIPS**  
"Dedicated project team, enthusiastic school and industry partners, and a program implementation model that scales flexibly and is sustainable."

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# MIS – sample findings

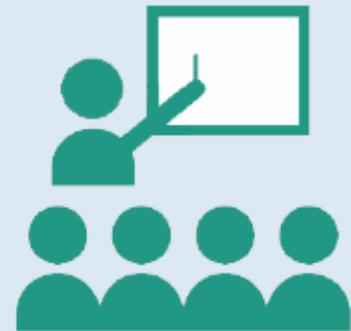
## Who participates in ITEST projects?

ITEST projects can be designed in many different ways in order to meet the program goals. Almost all projects work directly with **youth**, and most include **educators** as well.

Youth  
95%



Educators  
77%



In terms of **other significant adults**, projects include:

STEM  
Professionals  
35%



Parents &  
Caregivers  
25%



Guidance  
Counselors  
4%



# ITEST-focused special issues

Journal of Technology and  
Teacher Education:  
ITEST Special Issue 2010



Journal of Science  
Education and Technology:  
2016 ITEST Special Issue



# STELAR Syntheses



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# STELAR Syntheses



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# ITEST Impact on Youth

## Monthly Highlight

Sep | 2015

### Workforce & Career Education

One hallmark of the ITEST program is its commitment to developing a strong science, technology, engineering, and math (STEM) workforce. This includes helping youth, particularly those from populations currently underrepresented in STEM, learn about and pursue STEM and STEM-related careers.

ITEST projects are informed by career education theory and engage students in experiences that: (1) increase student awareness of STEM and related careers; (2) motivate students to pursue the education necessary to participate in those careers; and/or (3) provide students with technology-rich experiences that develop their knowledge of related content and skills (including critical thinking skills) needed for entering the STEM workforce. Below are selected resources to help you learn more about workforce development in STEM education.

#### RESOURCES

**STELAR Webinar: How to Address Workforce/Career Education in your ITEST Project (EVENT)** Attendees joined us in discussing the elements of Career Education that can help frame your ITEST proposal/project and the types of workforce/career education data that projects should be collecting to document students' journeys to STEM careers.



### STEM Learning and Research (STELAR) Center @ Education Development Center

How to Address Workforce/Career  
Education in your ITEST Project

Thursday September 24<sup>th</sup>, 2015



## Archived Webinar



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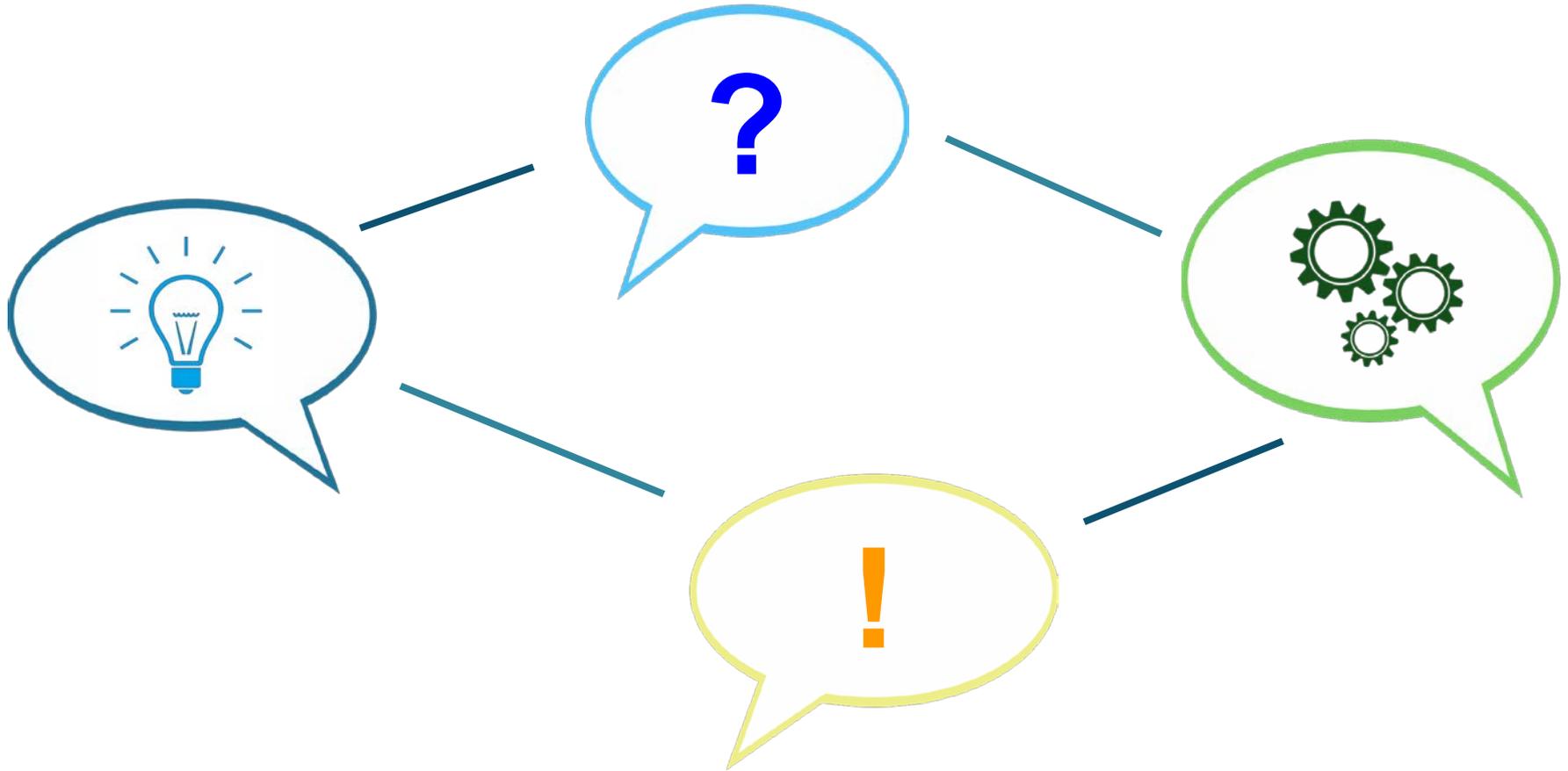
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## Archived Webinar

# At the summit: Networking



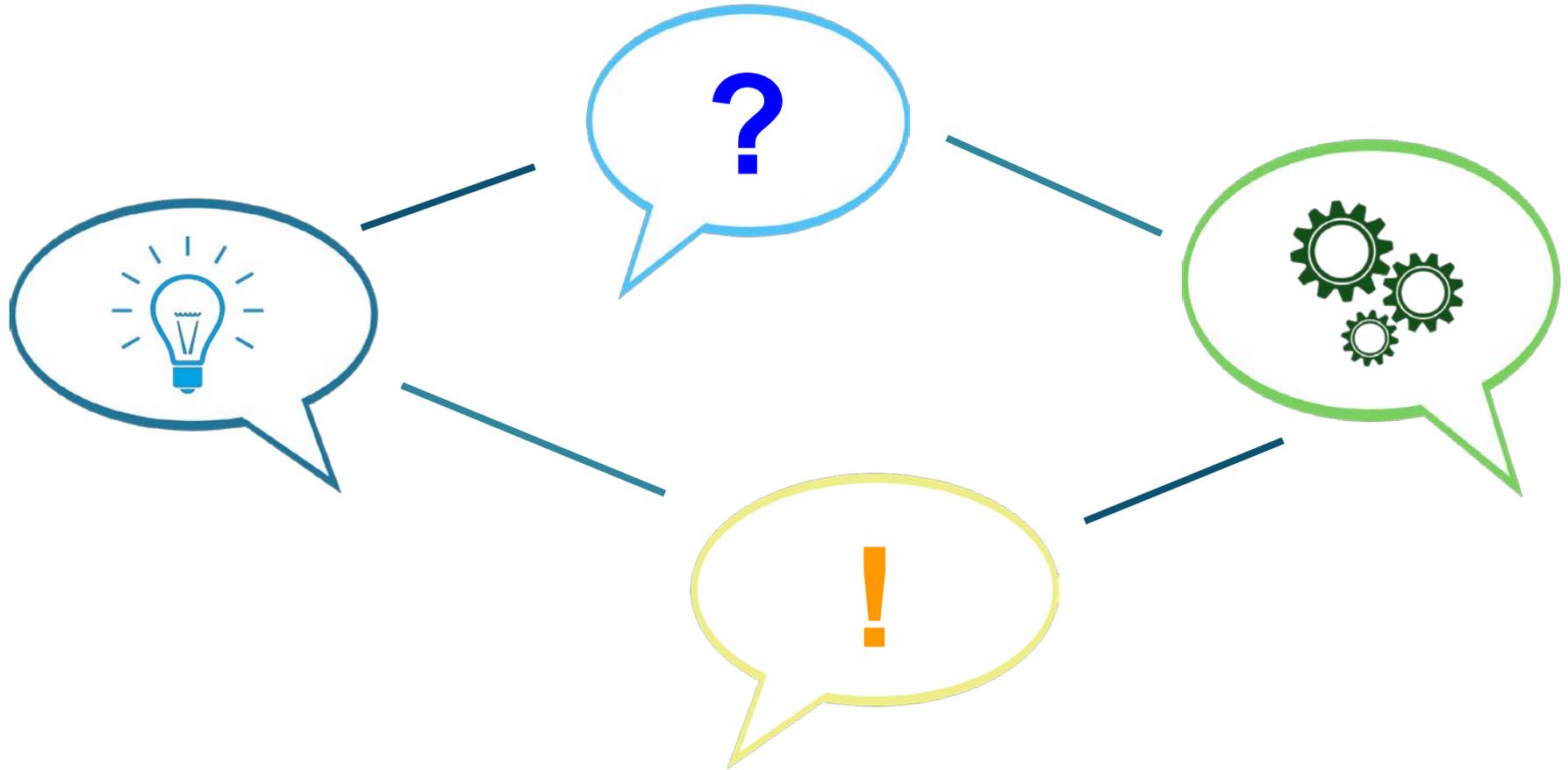
# At this Summit: Working groups



# Working groups for collaboration and co-creation



# Networking with goals in mind



# Broadening participation



**Developing NSF ITEST (Innovative Technology Experiences for Students and Teachers) Proposals:  
An Awareness Building, Informational Working Meeting**

May 2, 2016 from 12:00 noon - 7:00pm  
Weston Arlington Gateway  
801 N. Glebe Rd, Arlington, VA 22203  
2nd Floor Meeting Rooms

Never had ITEST funding before? Interested in submitting a National Science Foundation ITEST proposal (see NSF 15-599)? Looking for guidance?

As part of its broadening participation effort NSF's STELAR (STEM Learning and Research) resource center is conducting a series of informational working meetings specifically aimed at individuals who have not received prior funding from the ITEST program.

**This informational meeting provides opportunities to hear directly from NSF program officers and STELAR staff and to get to meet currently funded ITEST PIs. Participants will leave this meeting with:**

- a deeper understanding of the ITEST program, the NSF's proposal development process, and essential elements of high quality ITEST proposals,
- examples of successfully funded ITEST projects,
- access to NSF proposal development resources available through STELAR, and
- answers to your specific questions about submitting proposals to the NSF and ITEST.

Participants who express interest and readiness to develop an ITEST proposal (due August 10, 2016) will be invited to apply to become ITEST "Fellows" who will pilot a proposal development online mentoring course that will guide them through the proposal development process.

**Registration Deadline: Friday April 29, 2016**  
For more information contact: Melody Hachey at  
(617) 618-2801 or [mhachey@edc.org](mailto:mhachey@edc.org)

**REGISTER NOW!**  
[go.edc.org/DC](http://go.edc.org/DC)

## Events to be held:

- May 12 - University of Northern Arizona, Flagstaff
- May 16 - Science Foundation Arizona, Phoenix

**ABOUT ITEST**  
The National Science Foundation's Innovative Technology Experiences for Students and Teachers (ITEST) program supports the research and development of innovative models for engaging K-12 students in authentic experiences that build their capacity to participate in the science, technology, engineering, and mathematics (STEM) and information and communications technology (ICT) workforce of the future. ITEST projects must include students and may include teachers.

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