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# Stories from the Scratch Community: Connecting with Ideas, Interests, and People

Karen Brennan  
Harvard University  
324 Longfellow Hall  
Cambridge, MA 02138  
+1-617-253-0330  
kbrennan@media.mit.edu

Mitchel Resnick  
MIT Media Lab  
75 Amherst Street, E14-445A  
Cambridge, MA 02142  
+1-617-253-9783  
mres@media.mit.edu

## SUMMARY

This special session aims to provoke discussion about new strategies for engaging young people in computer programming, drawing on experiences of educators and young people using the Scratch programming environment and online communities. The session will combine several different formats, including research presentations and analysis by two members of the team that develops and supports Scratch, short presentations and demonstrations by five educators and young people working with Scratch, and discussions among audience participants.

## Categories and Subject Descriptors

K.3.1 [Computers and Education]: Computer Uses in Education – *collaborative learning*.

## General Terms

Design, Experimentation, Human Factors, Languages.

## Keywords

Learning, Education, Programming, Community, Computational Thinking, Creativity, Scratch.

## 1. OBJECTIVES

Young people (ages 8 and up) are using the Scratch programming environment [5] to create interactive stories, games, animations, and simulations, and then share their creations with one another online (scratch.mit.edu). Since the launch of Scratch in 2007, young people around the world have shared more than 2.7 million projects on the Scratch website, adding more than 2000 new projects every day. At the same time, thousands of teachers have shared ideas, exchanged resources, and connected with one another through the ScratchEd website (scratched.media.mit.edu).

This special session will provide examples and analysis of how educators and young people are using Scratch in a variety of different contexts – and what they are learning in the process. More broadly, the session aims to provoke discussion about new strategies for engaging young people in computer programming and helping them develop as computational thinkers and computational creators.

The session will use specific examples from the Scratch community to explore how Scratch supports and encourages three types of connections: with ideas, interests, and people.

- *Connecting with ideas*. The session will examine how Scratch activities can help educators and young people make connections with computational concepts, practices, and

perspectives – the three dimensions in our framework for computational thinking [1].

- *Connecting with interests*. The session will discuss how Scratch provides beginning programmers with opportunities to work on projects based on their own interests, such as simulations of environmental issues affecting their communities, games featuring characters from their favorite books, and animated stories with original soundtracks.
- *Connecting with people*. The session will describe how young people use the Scratch online community to work together on collaborative programming teams and to remix one another's projects (sharing programming scripts and media assets), while educators use the ScratchEd online community to share classroom experiences, lesson plans, and assessment rubrics.

In addition to exploring how these three types of connections support learning with Scratch, the session will also describe how this framework has guided the design of the next generation of Scratch, called Scratch 2.0.

## 2. OUTLINE

The session will combine several different formats, including research presentations and analyses by members of the Scratch Team, stories and demonstrations by Scratch-using educators and young people, small-group discussions among audience participants, and question-and-answer opportunities among the full group.

Here is our proposed schedule for the session:

- *Motivations and framework (15 minutes)*. Karen Brennan and Mitchel Resnick will describe the ideas and motivations underlying the design of Scratch and ScratchEd, their research framework for studying learning in the Scratch and ScratchEd communities, and an overview of experiences and results from the first five years of Scratch.
- *Presentations by community members (25 minutes)*. Five educators and young people from the Scratch community will each make five-minute presentations about their work with Scratch, including demonstrations of projects and classroom activities. The presenters will situate their experiences within the framework of connecting with ideas, interests, and people.
- *Small-group discussions (15 minutes)*. Audience participants will divide into small groups to discuss how the three-connections framework (connections with ideas, interests, people) relates to their own personal experiences teaching and learning computer programming.

- *Question-answer session (20 minutes)*. The full group comes back together for questions from the audience and reactions from the presenters.

### 3. EXPECTATIONS

Although Scratch is used in many different contexts (in informal as well as formal education, in elementary schools through universities), this session is intended primarily for K-12 educators. The presentations by educators and students will focus especially on the use of Scratch in K-12 settings.

We are designing the session so that people with all different levels of Scratch experience will find the session useful and interesting. The presentations will not assume any previous Scratch experience, so they will be appropriate for those who are new to Scratch. At the same time, educators who are already familiar with Scratch will have the opportunity to learn new strategies for using Scratch and will be able to share their Scratch experiences in the breakout groups.

### 4. SUITABILITY

In this session, we want to share experiences from multiple perspectives: from researchers as well as from educators and young learners. We know from the situated-learning literature and the teacher-education literature that stories and testimonials (i.e., teachers hearing from other teachers and/or from young learners) are an important part of learning and effectuating changes in teaching practice [2][3][4].

In addition, we also want to provide audience participants the opportunity to discuss how the ideas in the session relate to their own experiences.

None of the traditional formats (papers, panels, birds-of-a-feather) would allow all of these elements. We had considered a panel format, but the constraint of a four-person panel was too limiting. So we feel that a special session is needed.

## 5. ACKNOWLEDGMENTS

Many members of the Lifelong Kindergarten research group at the MIT Media Lab contributed to the ideas and technologies described in this proposal. We are deeply grateful to all of the educators and young people who have participated in the Scratch community and shared their ideas with one another (and with us). Our work has received generous financial support from the National Science Foundation (grants 1019396, 1002713, and 1027848), the MacArthur Foundation, and Google.

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