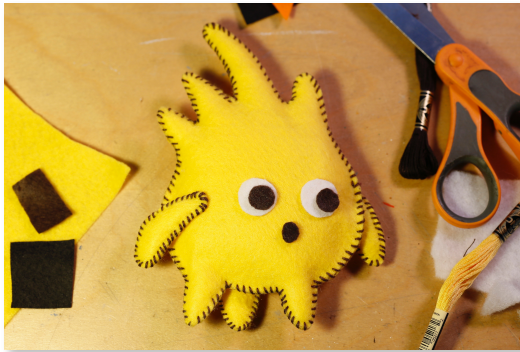


A Tinkering Workshop: Using Bluetooth Speakers, Physical “Sprites,” and Scratch to Extend Narrative Possibilities.

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Create new possibilities for storytelling in Scratch with dialogue between 2D and 3D sprites.



Introduction

First, watch this video introduction: www.youtube.com/watch?v=E9d4KCTm9Jg (about 2 minutes; this movie also includes a layer of animation to make it fun.)

More and more, wireless devices are becoming part of everyday life. Our phones and computers connect wirelessly to fitness trackers, speakers, and toys. Most kids will grow up using this technology in some way, but will they have the opportunity to create with it?

While tinkering with miniature bluetooth speakers, I realized that they could be used for wireless narrative projects in Scratch. Kids could create “sprites” in the physical world that have an audio output controlled by Scratch but are not connected to the computer with wires. This offers the potential for storytelling that has a more theatrical feel as sprites (actors) and props occupy more space. It expands a story beyond the computer screen.

This workshop offers a design scenario to prompt kids to imagine a narrative between sprites on the screen in Scratch and external sprites made from felt, paper or other craft materials. It asks kids to include an extra layer in the design process where they have to consider the extent of affordances made available by wireless technology.

Here are some narrative possibilities:

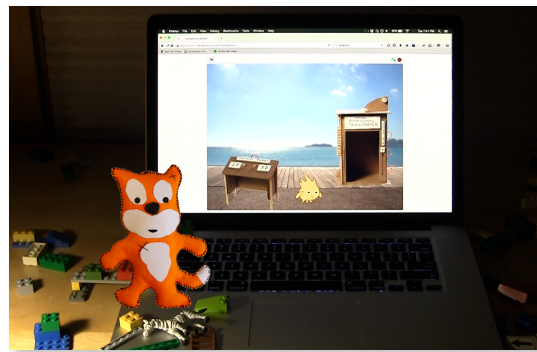
1. A Scratch sprite discovers the ability to travel to the physical world. Create a 3D version of a sprite and have it communicate (via the Bluetooth speaker) with other sprites on screen. What observations does the 3D sprite make that would surprise 2D sprites? For example, 2D sprites are confined to the screen space of a computer. How does a 3D sprite experience space?

2. A 3D sprite looking “into” the computer has to guide a 2D sprite through a maze. Have it give directions to the 2D sprite. Will you use words like up, down, left and right? Or, is there another way to communicate direction and how far to go? Will you have 2D sprites use recorded voices to communicate, or speech bubbles?
3. A 3D sprite has just landed on the moon. 2D sprites run Mission Control and use the sophisticated space/earth communication device (it converts their speech bubbles in Scratch to audio) to give directions to the astronaut. Feature the Bluetooth speaker instead of concealing it. Take a photo of it and import it as a sprite for the 2D version. The astronaut listens to the speaker in the space rover. Separate the computer from the moonscape to emphasize the distance from earth to moon. Hmm, how long does it take for a radio signal to reach the moon?
4. Let kids take a playful, open-ended approach to storytelling. Let them create additional characters and props and conversation will naturally develop. Can 3D sprites share a speaker somehow?

Who is the workshop for?

Because the focus is on creating a narrative in a new way, kids should have some familiarity with creating Scratch programs that have dialogue. My intention is to offer it to 6 and 7th graders who have shown an interest in adding new ideas in storytelling.

Materials



Bluetooth speakers: Search for “small Bluetooth speaker” on Amazon to get a sense of what is available. I paid \$11 for one labeled, “The World's Smallest Magical and Portable Multifunction Wireless Bluetooth Speaker” from DBPower (purchased through Amazon).

Most of the laptops and netbooks that I’ve worked with have Bluetooth capability. The speaker that I have is easy to use. Pressing a button puts it in discovery mode so your computer can pair with it. Then, enable Bluetooth in your computer via System Preferences or Control Panel. It should take a few seconds for them to find each other. After pairing, all computer audio is directed wirelessly to the speaker.

Can you use more than one of the same type of speaker in a classroom? In other words, will they interfere with each other? Possibly. So, two suggestions:

1. There are so many small speakers available now; just make sure you only get one of each brand.
2. Most of the work on both the physical and digital aspects of projects can be done without the speaker being paired with the computer (e.g., programming, recording audio, building/making). So, have kids take turns pairing their speakers with their computers.

These speakers contain rechargeable batteries that are charged with USB chargers (which you have to buy separately). These are inexpensive.

Hear is a demo of sound quality: www.youtube.com/watch?v=W98gPROomIk

Craft material for the 3D sprite: Felt is a good material for recreating the fantasy sprites within Scratch. Chances are that some kids already make plush or stuffed animals, and they can help others. Use DMC embroidery floss and thick needles with large eyes. We use chenille needles which are not so sharp. Felt and floss can be found in lots of colors in craft stores or online, and both are inexpensive (total cost of \$1-3 per participant).

Attach eyes, face, etc. with fabric adhesive sheets or glue. Thick glue like Tacky glue works fine.

Felt patterns for Gobo and Scratch Cat are attached as pdfs. You will have to scale them up for larger speakers.

Have lots of materials available including cardboard, wood scraps, and other fabrics. Don't underestimate the value of wine corks, springs, twigs, etc.; in other words: the small pieces of flotsam that collect in the corners. I collect materials into plastic bins and cart them everywhere.

Photographs of 3D sprites

Making 3D versions of sprites can create opportunities for storytellers, but also consider the possibility of creating 2D sprites from 3D creations. Many kids I work with don't draw or design well on the computer. Offering them the possibility of making something with their hands, photographing it and importing the image into Scratch can accommodate their particular design sensibilities and talents.