Teaching a Computer to Sing

Research Questions / Findings

1. Can middle schoolers follow the connections from singing to digitized sound to MIDI and back to music and learn to program using the songs they like to sing?
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   – Audacity
   – Scratch
   – Pencil Code
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2. Conversely, can programming their individual parts help students learn to sing in three- and four-part harmony?
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– Change from MIDI to ABC Notation
– Change from custom arrangements of pop songs to simpler "partner songs"
3. What resources, models, and tools are needed to integrate STEM education into a middle school after-school choral program?
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- **Resources:** Computers we can control
- **Models:** Singing ⇔ break ⇔ Computing
- **Tools:** Appropriate music
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4. Can involving adults who match students’ racial or cultural backgrounds positively affect the “people like me don’t [or can’t] do that” belief that so often stifles efforts to attract underrepresented groups to STEM?
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Goals for Our Second Year

- Capture the “Wow!”
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- Capture the “Wow!”
- Integrate gaming
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Goals for Our Second Year

- Capture the “Wow!”
- Integrate gaming
- Put on a show or produce a CD
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Goals for Our Second Year

• Capture the “Wow!”
• Integrate gaming
• Put on a show or produce a CD
• Have more fun! 😊
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Summary

- Working with kids after they’ve been in school for 8+ hours is hard
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- There is a need for more concrete, larger, over-arching goals to tie sessions together
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Summary

• Working with kids after they’ve been in school for 8+ hours is hard
• Attitudinal changes were hard to see, but some were detected by our evaluation team
• There is a need for more concrete, larger, over-arching goals to tie sessions together
• There is no substitute for working with a quality teacher and quality student assistants
thank you

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