Teaching a Computer to Sing: Preliminary Findings

Daniel A. Walzer

Dept. of Music

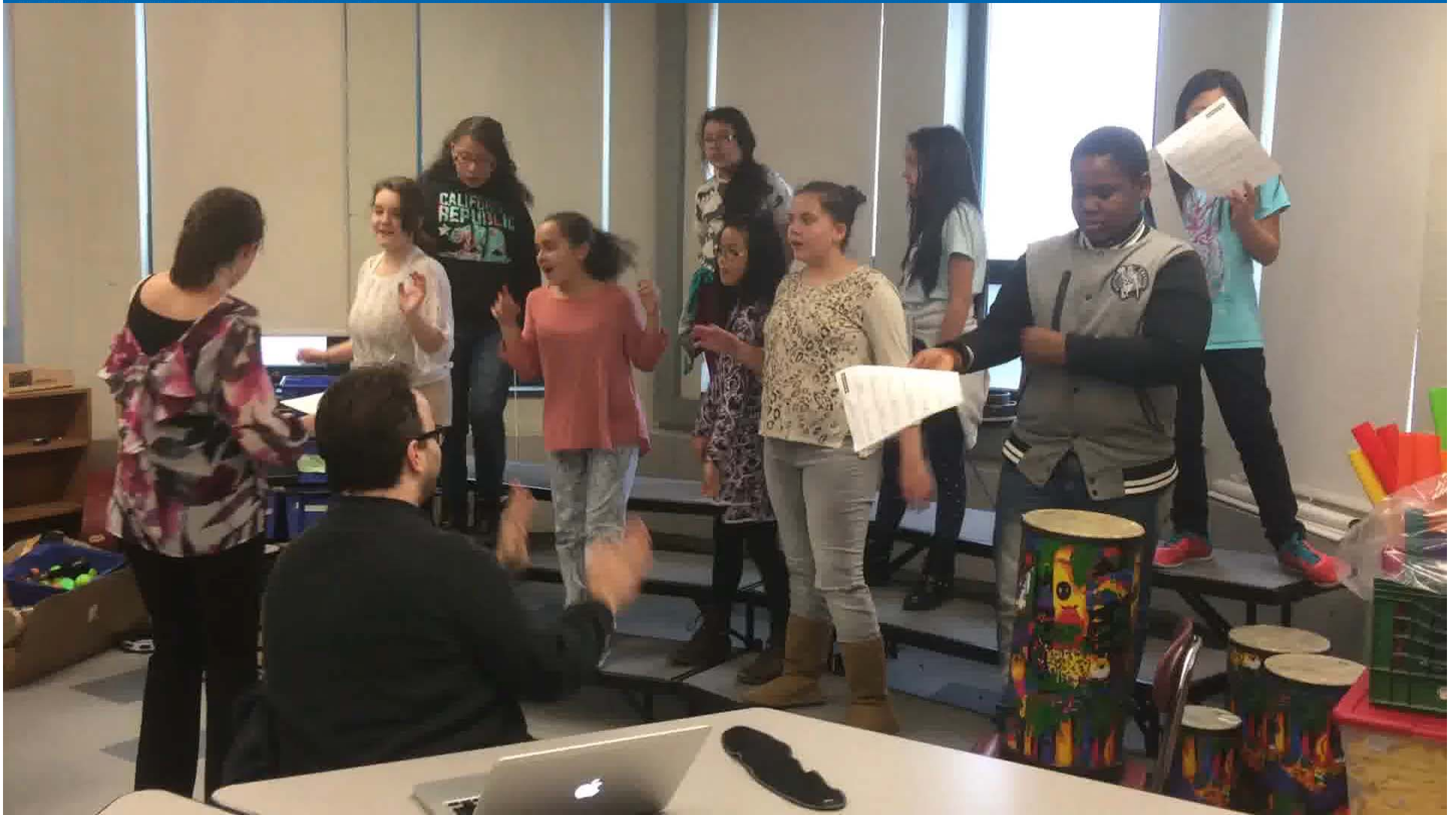**Jesse M. Heines**

Dept. of Computer Science

University of Massachusetts Lowell

BIBAC Conference
Cambridge, England   30 July 2016

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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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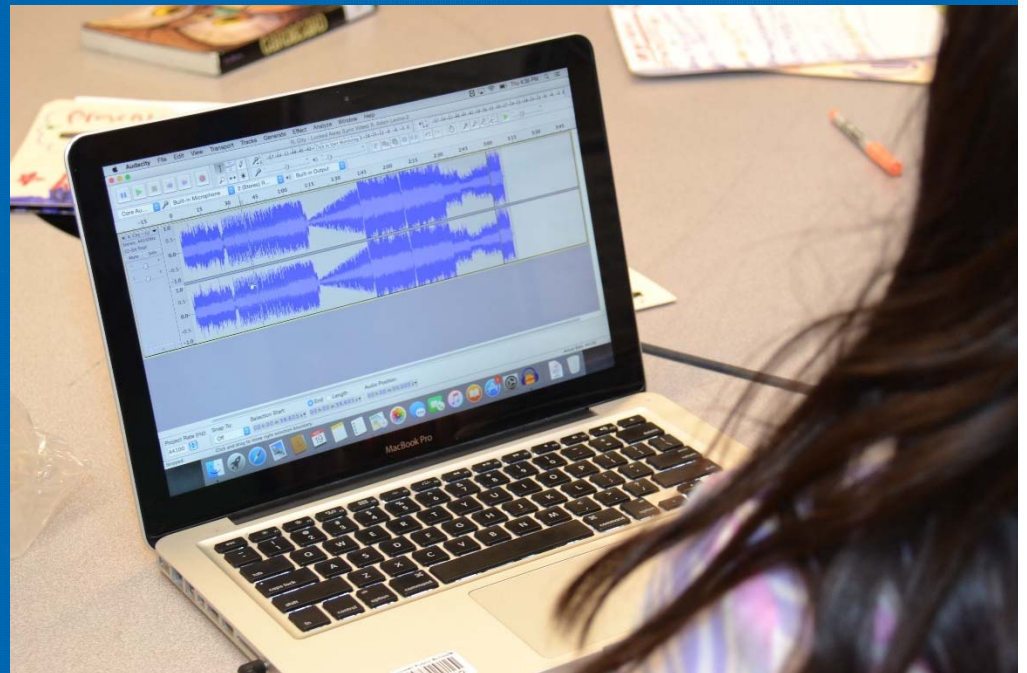
   – Audacity
   – Scratch
   – Pencil Code

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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"

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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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Research Questions / Findings

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?
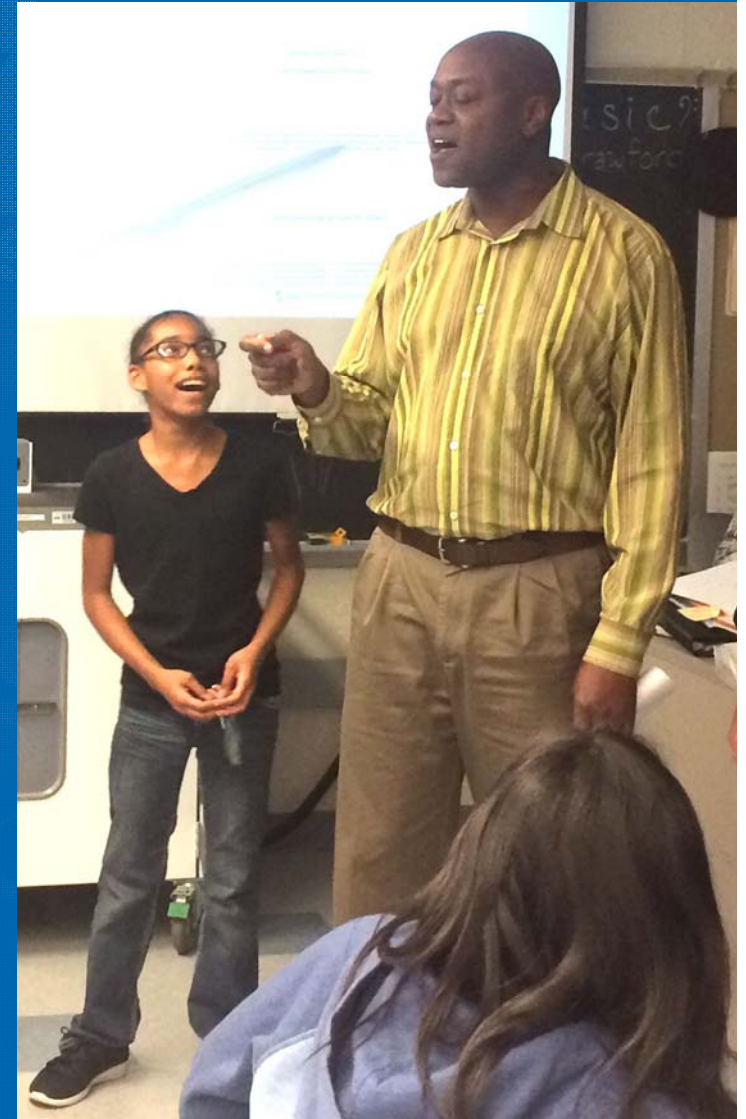
Teaching a Computer to Sing
Goals for Our Second Year

- Capture the "Wow!"

Teaching a Computer to Sing
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- Capture the "Wow!"
- Integrate gaming

Teaching a Computer to Sing
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- Put on a show or produce a CD

Teaching a Computer to Sing
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

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- There is a need for more concrete, larger, over-arching goals to tie sessions together

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Teaching a Computer to Sing
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

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thank you

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