Learning Music with Technology: The Influence of Learning Style, Prior Experiences, and Two Learning Conditions on Success with a Music Technology Task

Jay Dorfman, Boston University
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Personal tech in 2006...
A problem has been detected and Windows has been shut down to prevent damage to your computer.

The problem seems to be caused by the following file: MSKSRRV.sys

PAGE_FAULT_IN_NONPAGED_AREA

If this is the first time you've seen this stop error screen, restart your computer. If this screen appears again, follow these steps:

Check to make sure any new hardware or software is properly installed. If this is a new installation, ask your hardware or software manufacturer for any Windows updates you might need.

If problems continue, disable or remove any newly installed hardware or software. Disable BIOS memory options such as caching or shadowing. If you need to use Safe Mode to remove or disable components, restart your computer, press F8 to select Advanced Startup options, and then select Safe Mode.

Technical Information:

*** STOP: 0x00000050 (0x8ED3B539, 0x00000000, 0x8DECA9F, 0x00000002)

*** MSKSRRV.sys - Address BADCECAF base at BADFC000, Datestamp 4120760f

Beginning dump of physical memory
Physical memory dump complete.
Contact your system administrator or technical support group for further assistance.
What’s out there?

- Curricular models (same in 2006 and now)
- Books such as *EMT, Teaching Music with Technology*
- TI:ME courses
- One-off courses designed by individuals
- Few, if any real models for K-12 tech-
How do teachers come to know and use technology?

The planes of technological integration

- Technical
- Practical
- Pedagogical
Need for the Study

- Most teachers fall in the Technical category (from survey and case study literature)
- Little research on human-computer interaction in music
- Effectiveness of software
- Effectiveness of teaching methods
Design of the study

Phase 1. Survey/Paper-Based Data Collection
- Learning Style Assessment (Gregorc Style Delineator)
- Music Experience, Technology Experience, Music Technology Experience Assessment (researcher-designed questionnaire)

Phase 2
- Guided Learning Condition (video tutorial)
- Unguided Learning Condition ("practice time")

Phase 3. Completion of Music Technology Task
Sample & Limitations

- 94 students from 4 high schools in the Midwest
- All members of their schools’ ensembles (needed notation experience)
- Non-random, relatively homogenous sample (similar type schools)
Analysis/Findings

- 5-way ANOVA
- No significant main effects
- Dug deeper...found one significant interaction
Conclusions/Suggestions

• Software design is an important factor in choice of materials

• Hardware and ergonomics of the space may be influential as well

• Learning style has no significant effect on most substantial music tech tasks

• Many more variables may influence students’ personal technology interactions

• Teacher influence purposely removed
Technology in Ohio’s School Music Programs: An Exploratory Study of Teacher Use and Integration

• Survey study
• Research questions:
  • Which types of music-related technologies are used most frequently, both in and outside of the classroom?
  • What levels of comfort do these teachers have toward technology integration?
  • What types of music technology training have these teachers engaged in, and do they feel adequately prepared to teach with technology as a result of that training?
  • How do teachers view the major obstacles toward technology integration into their music programs?
## Respondents’ personal technology uses

<table>
<thead>
<tr>
<th>Activity</th>
<th>Less than once a month</th>
<th>About once a month</th>
<th>A few times a month</th>
<th>Less than once a week</th>
<th>About once a week</th>
<th>A few times per week</th>
<th>Daily</th>
<th>Regular use subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Writing or arranging music with notation software</td>
<td>45.3%</td>
<td>13.8%</td>
<td>13.6%</td>
<td>4%</td>
<td>7.1%</td>
<td>8.5%</td>
<td>2.2%</td>
<td>17.8%</td>
</tr>
<tr>
<td>Creating music with a sequencer</td>
<td>83.5%</td>
<td>2.2%</td>
<td>2.2%</td>
<td>2.2%</td>
<td>1.1%</td>
<td>1.4%</td>
<td>0.9%</td>
<td>3.4%</td>
</tr>
<tr>
<td>Recording live performances</td>
<td>57.6%</td>
<td>17.6%</td>
<td>8.7%</td>
<td>1.8%</td>
<td>3.8%</td>
<td>2.7%</td>
<td>0.7%</td>
<td>7.2%</td>
</tr>
<tr>
<td>Burning CDs</td>
<td>28.3%</td>
<td>19%</td>
<td>19.9%</td>
<td>6%</td>
<td>11.1%</td>
<td>8%</td>
<td>1.6%</td>
<td>20.7%</td>
</tr>
<tr>
<td>Accompaniment</td>
<td>63.9%</td>
<td>8.5%</td>
<td>6%</td>
<td>2.9%</td>
<td>3.1%</td>
<td>4.9%</td>
<td>3.8%</td>
<td>11.8%</td>
</tr>
<tr>
<td>Making multimedia presentations</td>
<td>67.6%</td>
<td>10.1%</td>
<td>5.1%</td>
<td>3.6%</td>
<td>3.1%</td>
<td>2%</td>
<td>2.2%</td>
<td>7.3%</td>
</tr>
</tbody>
</table>
### Students’ technology uses (as reported by teachers)

<table>
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<th>A few times a month</th>
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<th>A few times per week</th>
<th>Daily</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Writing or arranging music with notation software</td>
<td>81.2%</td>
<td>3.1%</td>
<td>3.1%</td>
<td>1.3%</td>
<td>1.3%</td>
<td>1.6%</td>
<td>0.7%</td>
<td>3.6%</td>
</tr>
<tr>
<td>Creating music with a sequencer</td>
<td>85.9%</td>
<td>2%</td>
<td>0.9%</td>
<td>1.3%</td>
<td>0.2%</td>
<td>0.4%</td>
<td>0.9%</td>
<td>1.5%</td>
</tr>
<tr>
<td>Recording live performances</td>
<td>78.1%</td>
<td>6.5%</td>
<td>3.3%</td>
<td>1.4%</td>
<td>0.4%</td>
<td>0.9%</td>
<td>0.7%</td>
<td>2%</td>
</tr>
<tr>
<td>Burning CDs</td>
<td>77.2%</td>
<td>5.6%</td>
<td>3.6%</td>
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<td>2.8%</td>
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<tr>
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<td>6.5%</td>
<td>2.7%</td>
<td>0.9%</td>
<td>0.9%</td>
<td>0.7%</td>
<td>0.2%</td>
<td>1.8%</td>
</tr>
<tr>
<td>Computer-assisted instruction software</td>
<td>69.7%</td>
<td>6.7%</td>
<td>6.3%</td>
<td>2.4%</td>
<td>2.4%</td>
<td>2.9%</td>
<td>1.6%</td>
<td>6.9%</td>
</tr>
</tbody>
</table>
Conclusion:
Teachers use technology, but don’t engage their students with it.

We need theory and pedagogical models of technology-based music instruction.

How can we examine a pedagogy that doesn’t formally exist?
Oh, where to begin?!
Current Research

• Teacher participants being observed, video recorded, interviewed

• $N \approx 20$

• About 3 observations/interviews each

• Observation log & interview transcriptions serve as data

• Composing “vignettes” about teachers, analyzing their lessons to form “best practices”