# MUSIC TECHNOLOGY COMPETENCIES: AN INTERNATIONAL PERSPECTIVE

## Continuation of Multi-year Study

## CMS/ATMI Indianapolis 2015


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- **David B. Williams, Illinois State University, Emeritus**


Slides available at:
http://teachmusictech.com/resources.html

# INITIAL GOALS
## (2011, 2012, 2013, 2014)

- Help create national data on music technology competencies for undergraduate music majors in general
- This, despite the fact that technology now plays a critical role in music teaching, learning, performing, and composing
- Results of such a survey of music faculty and administrators in college/university/conservatory music units in USA would prove useful in curriculum planning
- Help in guiding the preparation of professional, instructional, career guidance materials, etc.

# BACKGROUND

- Discussion at CMS/ATMI Conference in 2010 that a listing of competencies may be useful; Webster study of faculty opinions at Northwestern
- NASM decision to relax requirement for a specific course
- Technology standards for state and national accreditation of teachers
- Long-term efforts by TI-ME to identify competencies at the K-12 school level
- Webster & Williams 2011 Richmond CMS/ATMI survey presentation defining a core set of undergraduate music technology competencies
- Panel discussion on competencies in Richmond
- Williams & Webster 2012-2014 survey studies looking at implementation by music disciplines, exemplars, and confirmation and additions to 2011 key competencie

# 2015 INDIANAPOLIS STUDY

# WHY ARE DOING THIS?

- Curiosity
- Confirmation that these core competencies are supported internationally in tertiary music programs
- Building a stronger case for promoting these competencies within U.S. tertiary music programs
- Gain broader perspective to see what we may be missing in our research

# 2015: OBJECTIVES FOR INFORMANTS THAT WERE NOT FROM THE USA

Main Intent: Solicit views on the 11 technology competencies in order to determine relationship to similar data from past studies in USA (2013 DATA)

- Use of computer devices
- Learn how students gain technology skills in programs of study
- How skills assessed

- Relative importance of each of the 11 competencies revealed in previous work and to identify other possible competencies not considered before
- Where in the program competencies were acquired and practiced
- Disposition of the faculty units about integration and delivery technology
- Compare an individual's unit with others in the country

# 2015: SAMPLE STRATEGY

- CMS listing of all members outside of USA: Canada, Europe, Middle and Far East, Pacific Rim, Others
- Listing of the ISME SIG that were not USA (thanks to Fred Rees)
- Membership subscription to the *Journal of Music, Technology & Education* (JMTE) that were not USA members (thanks to Andrew King)
- Contacts from abroad from researcher lists

N= 40 useable respondents (56 total)

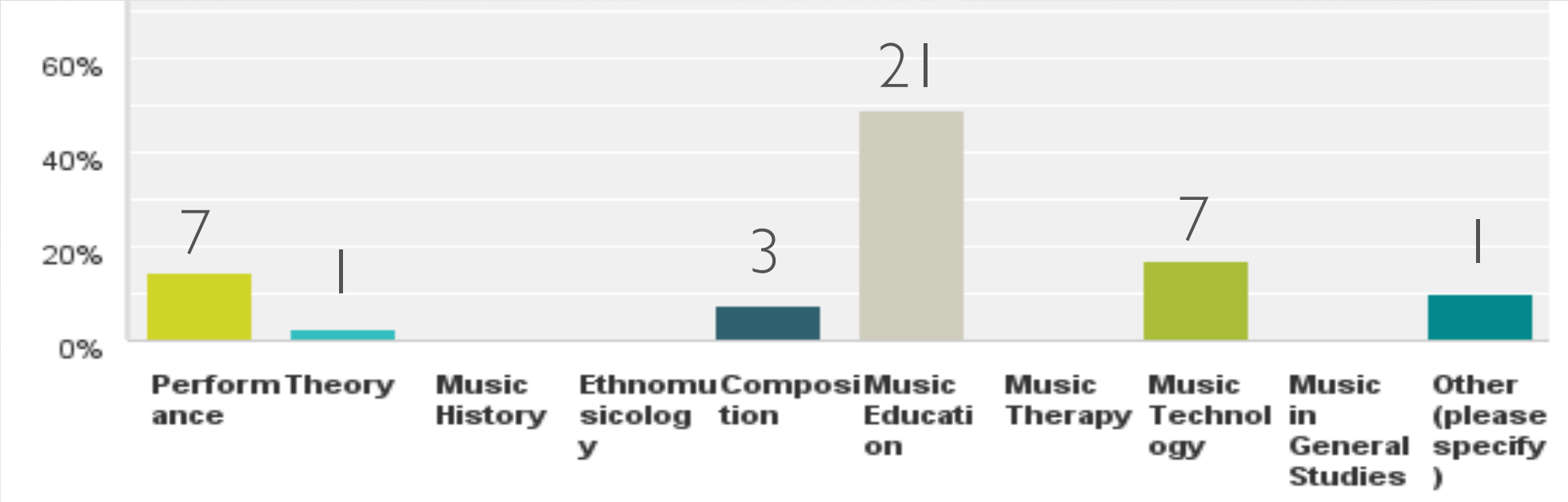
# 2015: DEMOGRAPHIC STATS

## 13 COUNTRIES

| Country | N | Country | N |
|---|---|---|---|
| Canada | 18 | Brazil | 2 |
| China | 4 | Greece | 1 |
| UK | 4 | Mexico | 1 |
| Australia | 2 | Trinidad/Tobago | 1 |
| Norway | 2 | Romania | 1 |
| India | 2 | Finland | 1 |
| Germany | 2 | | |

# 2015: DEMOGRAPHIC STATS

## SPECIALIZATION

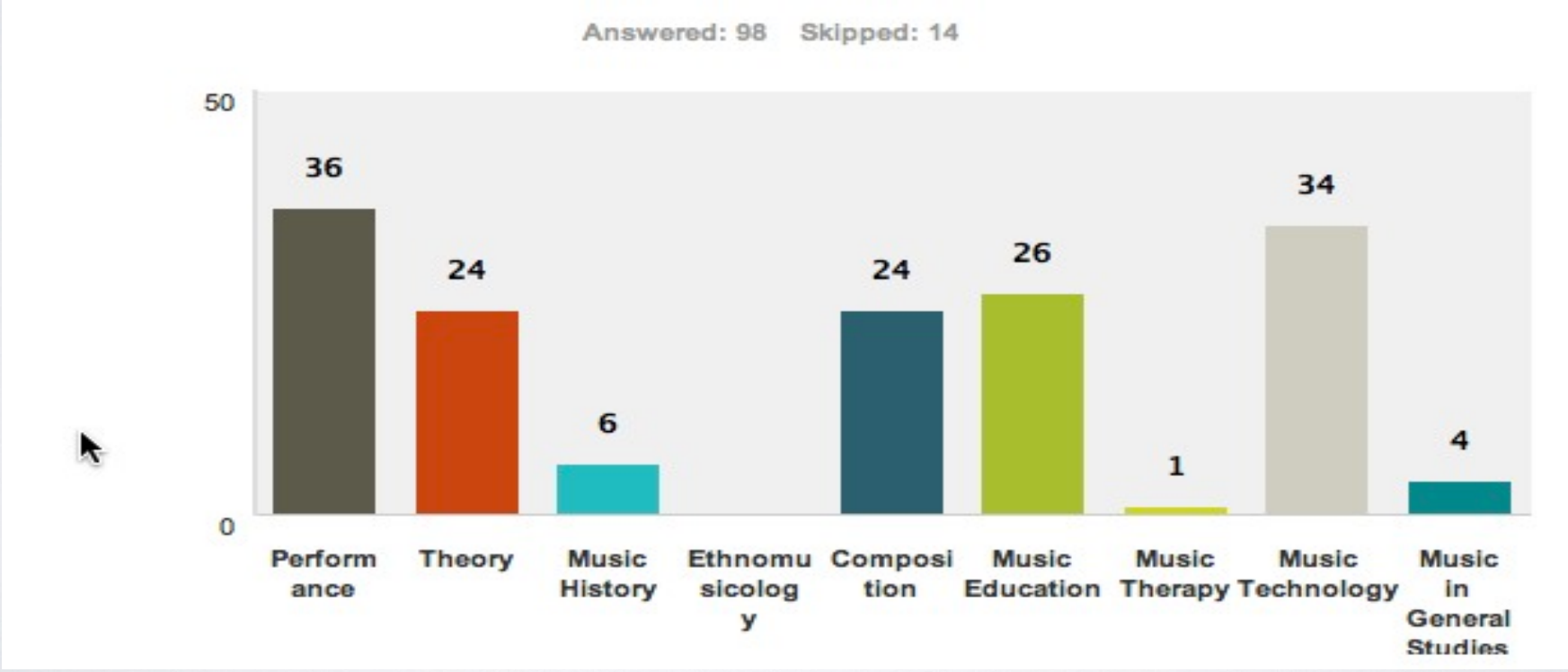



Other: Electroacoustic Studies

# 2013 SURVEY DEMOGRAPHICS

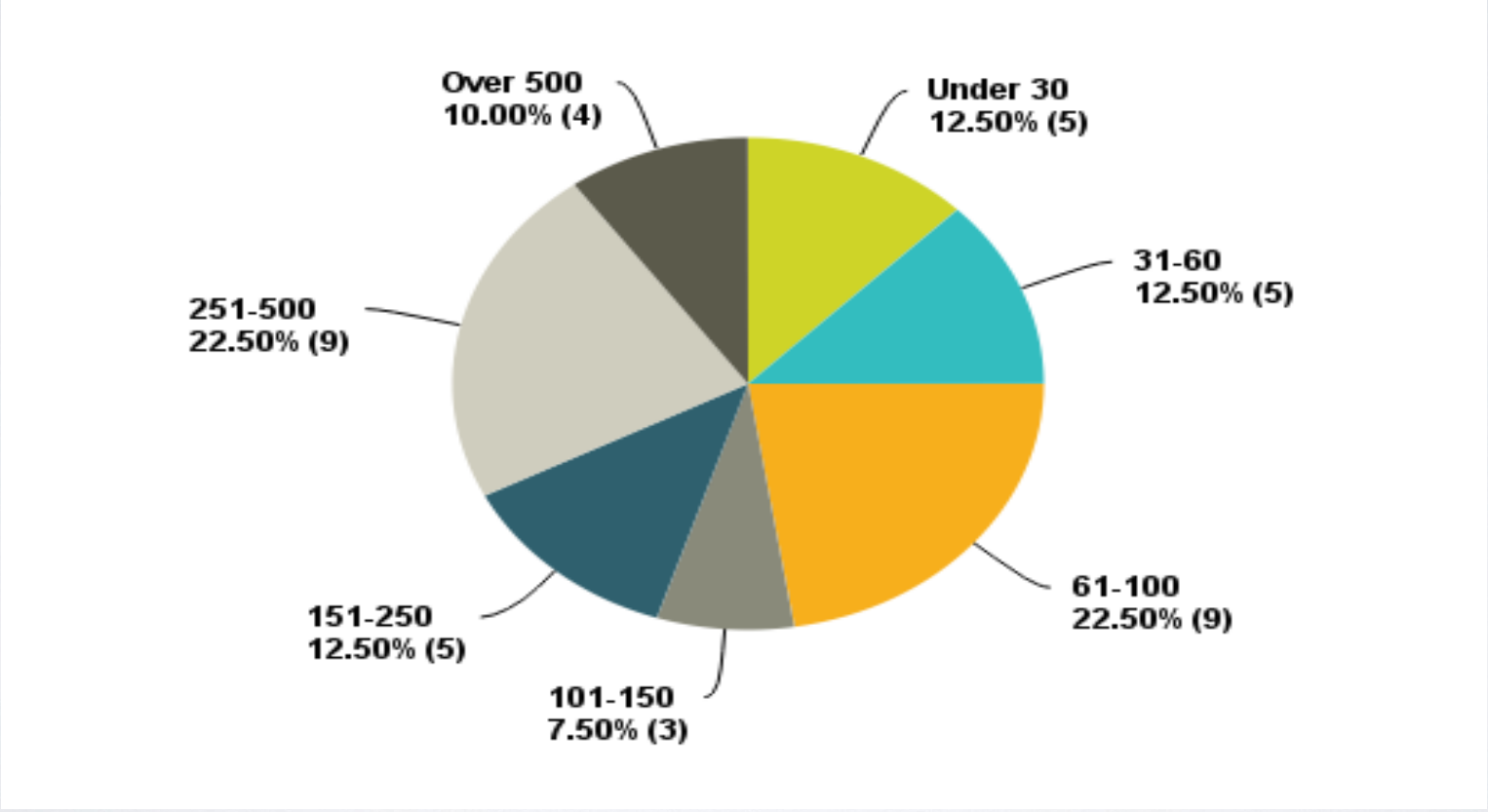
**113 respondents out of 399 email invitations sent**

All invitations sent to 2012 respondents



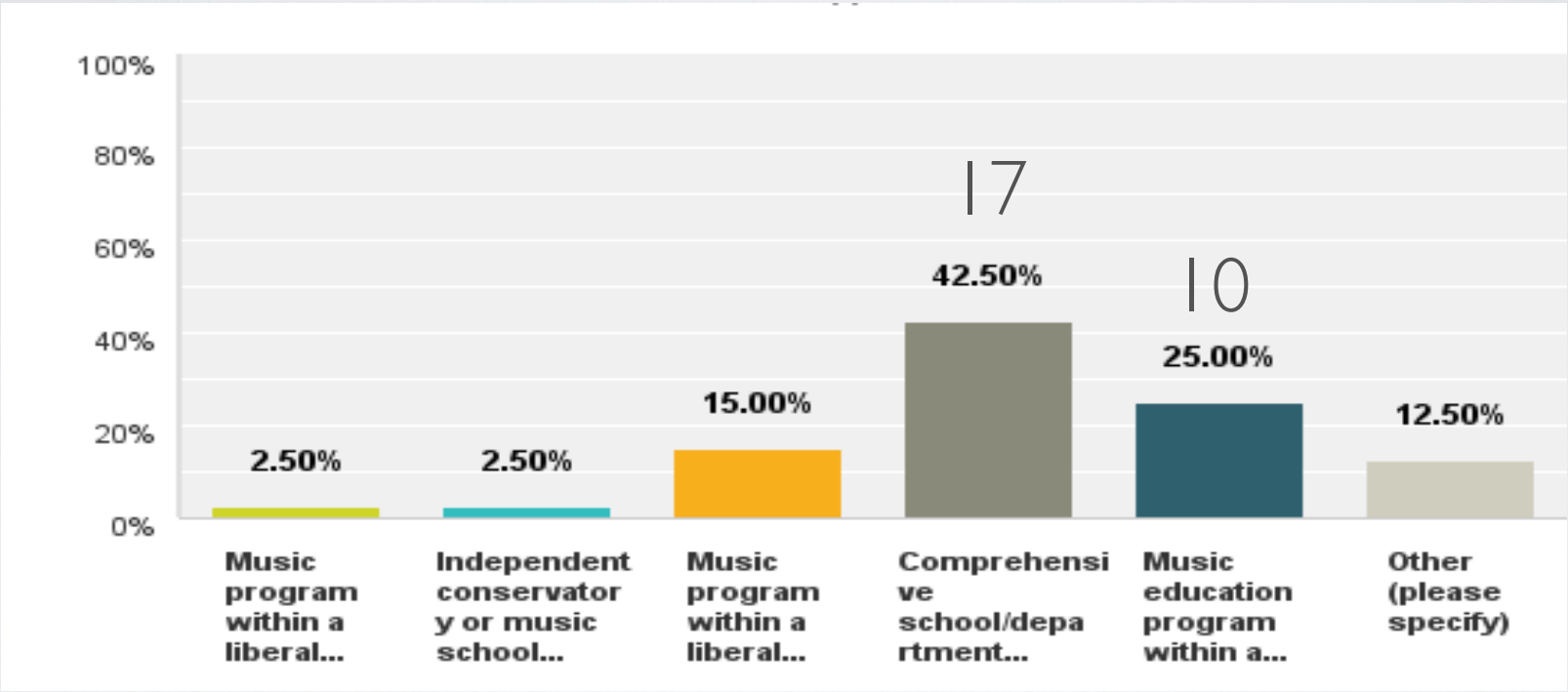
# 2015: DEMOGRAPHIC STATS

## INSTITUTION SIZE



# 2015: DEMOGRAPHIC STATS

## INSTITUTION KIND



# INTERNATIONAL RESULTS

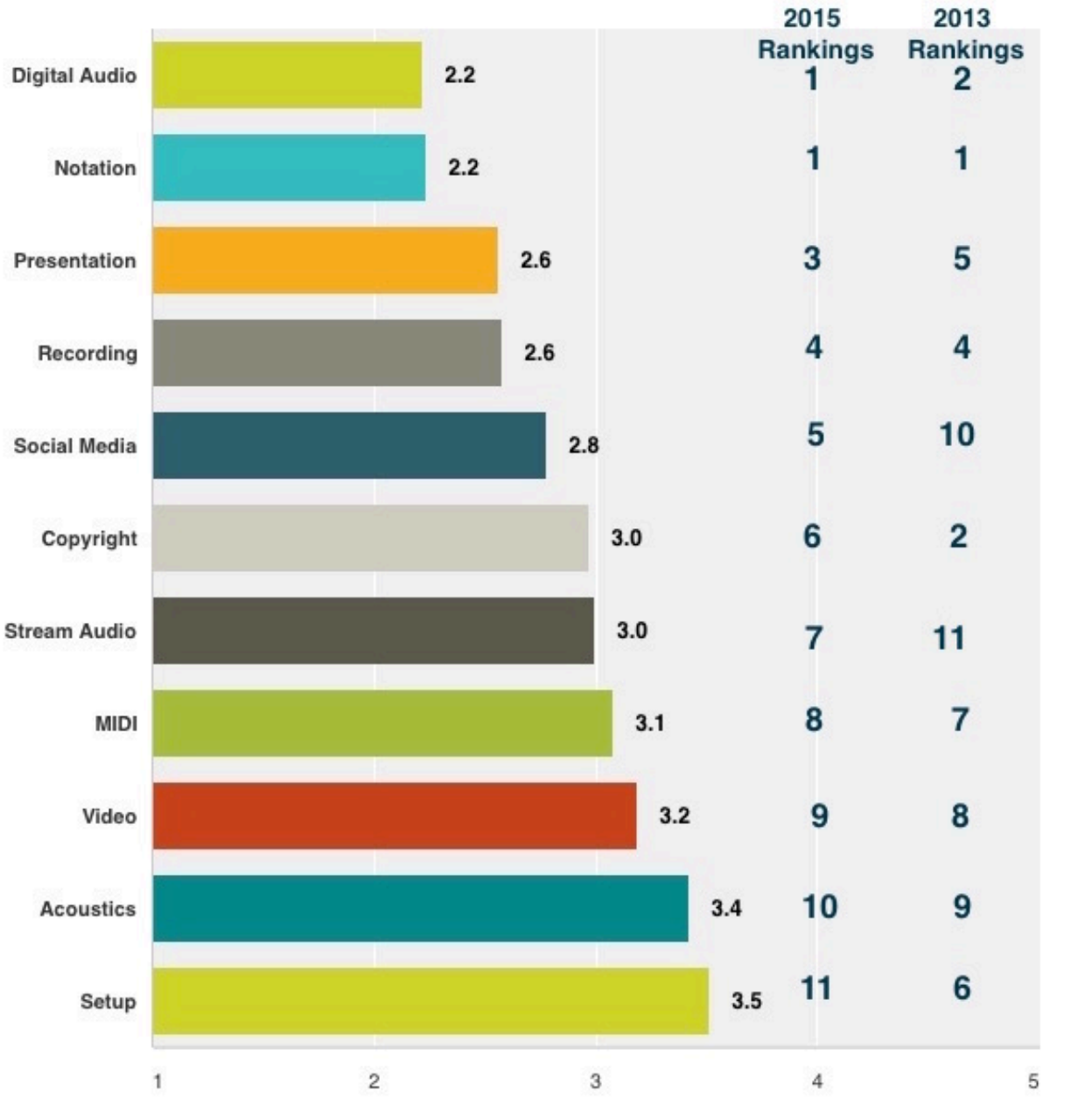
## In Context of Previous USA Studies

# 11 COMPETENCIES

1. Enter and edit music using notation software
2. Understand the basics of digital audio and how to edit digital audio files
3. Record and mix a performance with digital audio software
4. Demonstrate an understanding of copyright and fair use
5. Create a music presentation with production software and appropriate hardware
6. Create a streaming audio file (sharing recordings)
7. Demonstrate an understanding of MIDI and its applications
8. Demonstrate setting up a computer music workstation/problem solve technical issues
9. Demonstrate an understanding of acoustics and audiology
10. Create and edit a simple music video
11. Use and manage a variety of social music sharing tools (e.g. iTunes, Spotify, Pandora)

# INTERNATIONAL COMPETENCIES COMPARED TO PREVIOUS RANKINGS

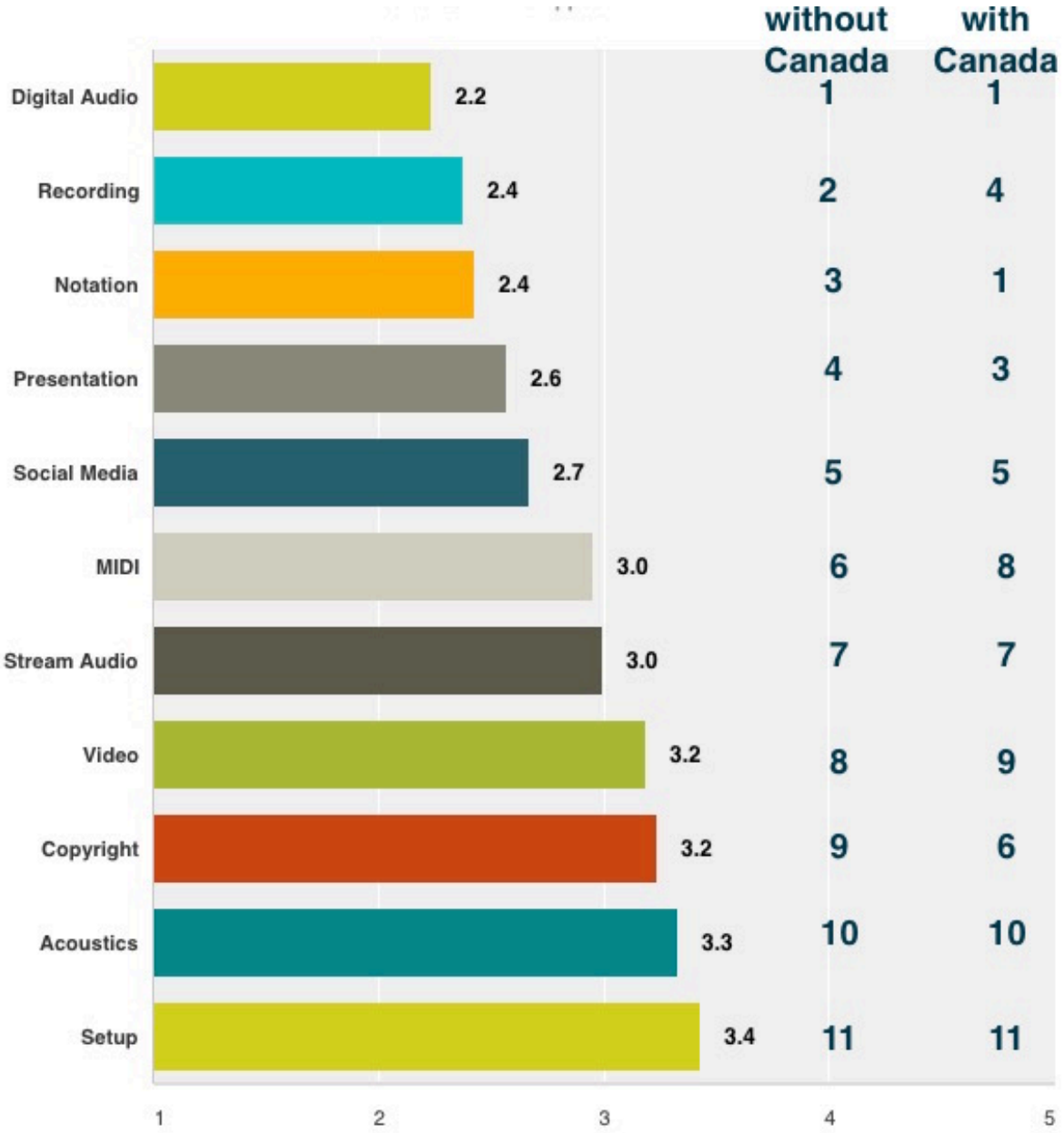
(2015 WEIGHTED AVERAGE ON SCALE OF 1.0 DOWN TO 5.0)



# INTERNATIONAL COMPETENCIES COMPARED TO PREVIOUS RANKINGS

**(CANADA REMOVED)**

(2015 WEIGHTED AVERAGE ON SCALE OF 1.0 DOWN TO 5.0)



# COMPETENCIES MISSED

## International

- Understanding how to **code, program, and engineer music software** might also be a necessity these days. Even though, not many music specialists (including myself) know how to do it. Many musical bands (the ones I know are especially from the UK and Germany) create their own software. It'd be great if we could encourage that in our institutions in North America.

- Understanding of **sound synthesis and digital signal processing** Algorithmic music techniques Computer Programming Basic understanding of electronics Live electronic music performance Building and using Interactive Music Systems

- **Use of new technology**. We have an interactive composition program and I can see students in this area doing things that amaze me, and would be valuable for other students to acquire in other programs. There isn't enough time though and we all have to make choices.

- Demonstrate a **basic understanding of Electronics**. Demonstrate the correct use of microphones for recording acoustic sources.

- With movement in music technology since this survey started some of the questions seem rather dated. For instance, I think **use of MIDI was more important in the past but less so now**.

# WHO CARRIES THE BURDEN?

| | Competency | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 Digital Audio | 2 Acousics | 3 MIDI | 4 Record Perf | 5 Stream | 6 Notation | 7 Video | 8 Setup | 9 Copyright | 10 Present | 11 Social |
| Location | | | | | | | | | | | |
| Music Tech | 17 | 9 | 15 | 18 | 11 | 9 | 9 | 8 | 11 | 6 | 7 |
| Mus Ed | 3 | 1 | 3 | 3 | 3 | 5 | 4 | 3 | 7 | 7 | 2 |
| Comp Music/Lab | 2 | 5 | 1 | 1 | 1 | | 2 | 3 | | 1 | |
| Enter/On Own | 4 | | | 3 | 3 | | 1 | 4 | 1 | 3 | 7 |
| Acoustics class | 1 | 3 | | | | | | | | | |
| Mus Theory/Comp | | 2 | 7 | 1 | 6 | 15 | | | 3 | 2 | |
| NA | | 8 | 4 | 3 | 12 | 4 | 15 | 12 | 6 | 7 | 11 |
| Other | 9 | 3 | 6 | 9 | 3 | 3 | 5 | 6 | 8 | 10 | 9 |

# 2013 PROGRAM INTEGRATION

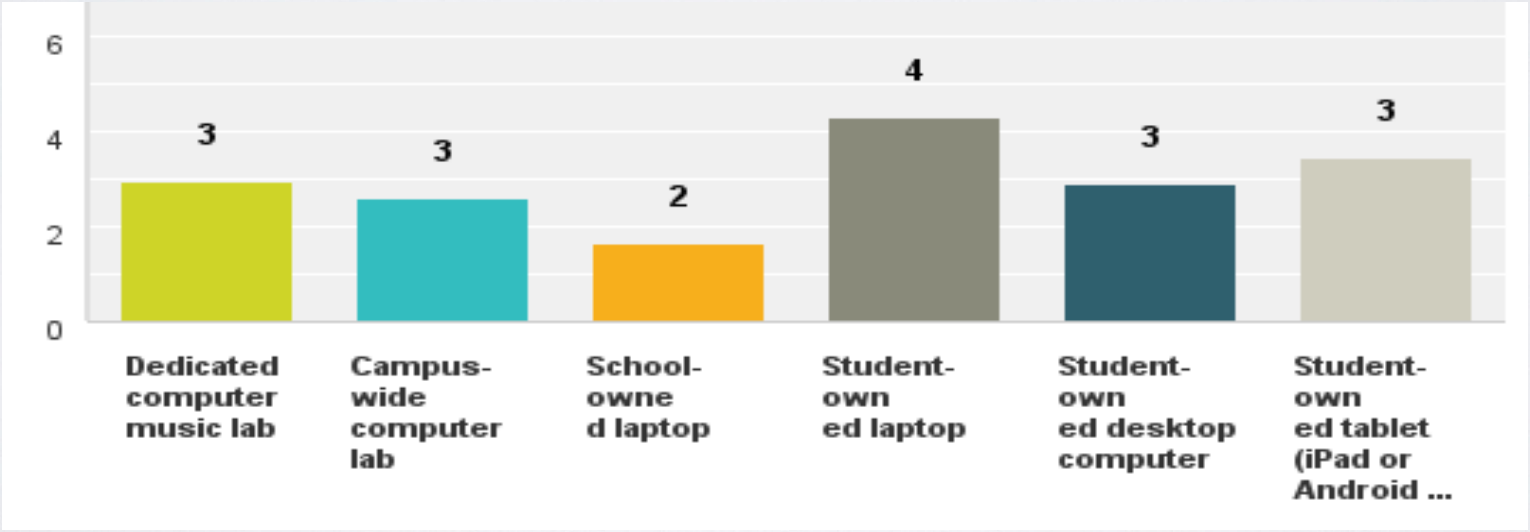
## Who carries the burden?

- Recording Digital Audio: Intro Music Tech Classes, More Advanced Tech Courses
- Notation: Music Theory and Composition Classes, Come With Skill/On Own
- Copyright: Music Business Classes, Music Eduction Methods
- CD/DVD Production and Digital Editing: Come With Skill/On Own, Intro Music Tech Classes,
- Acoustics: Voice Classes, Science Electives, Advanced Tech Courses
- Presentation Software and Computer Workstation: Music Ed Methods, Intro Music Tech Classes, Come With Skill/On Own, Throughout Coursework

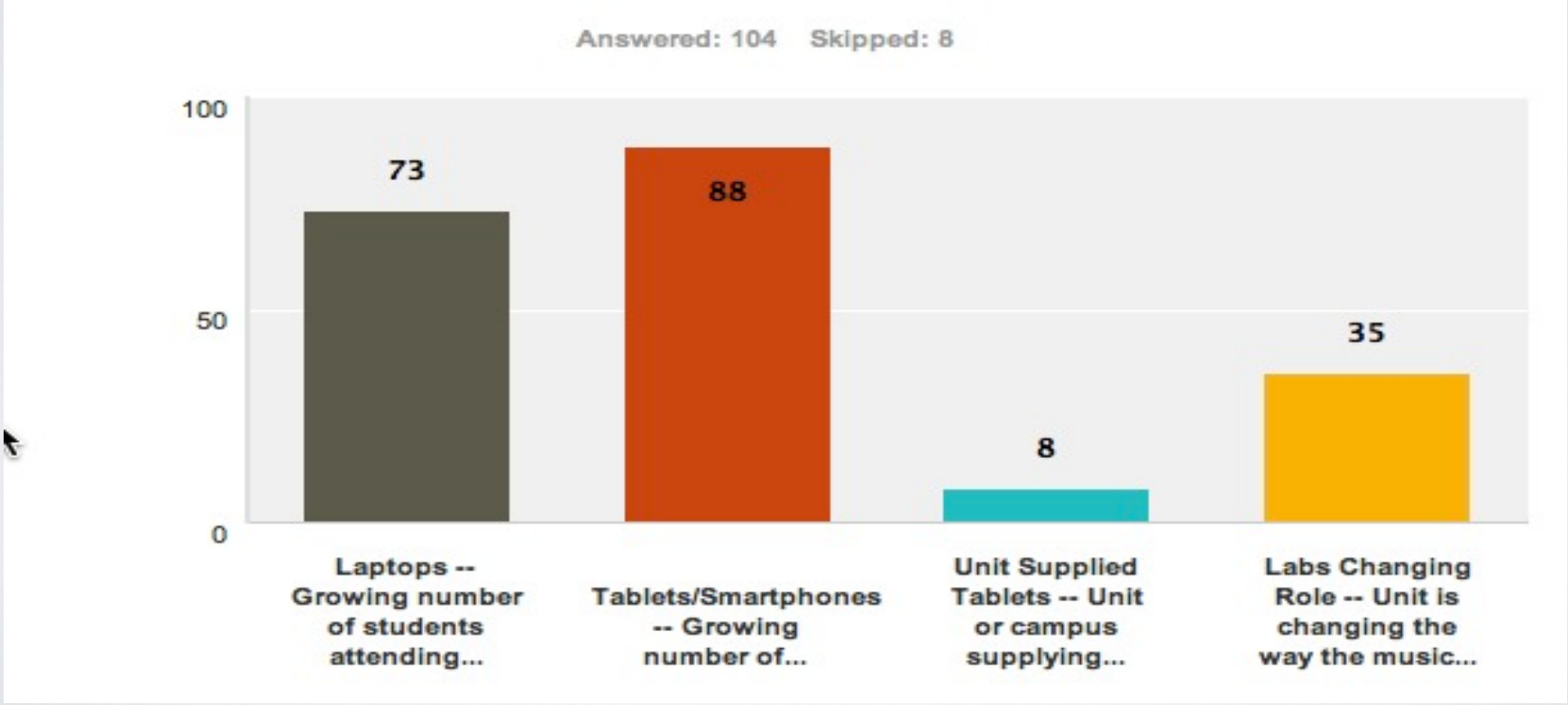
# COMPUTER DEVICES

International

**From your experience, please indicate the extent to which your students use various computer devices for their music studies:**

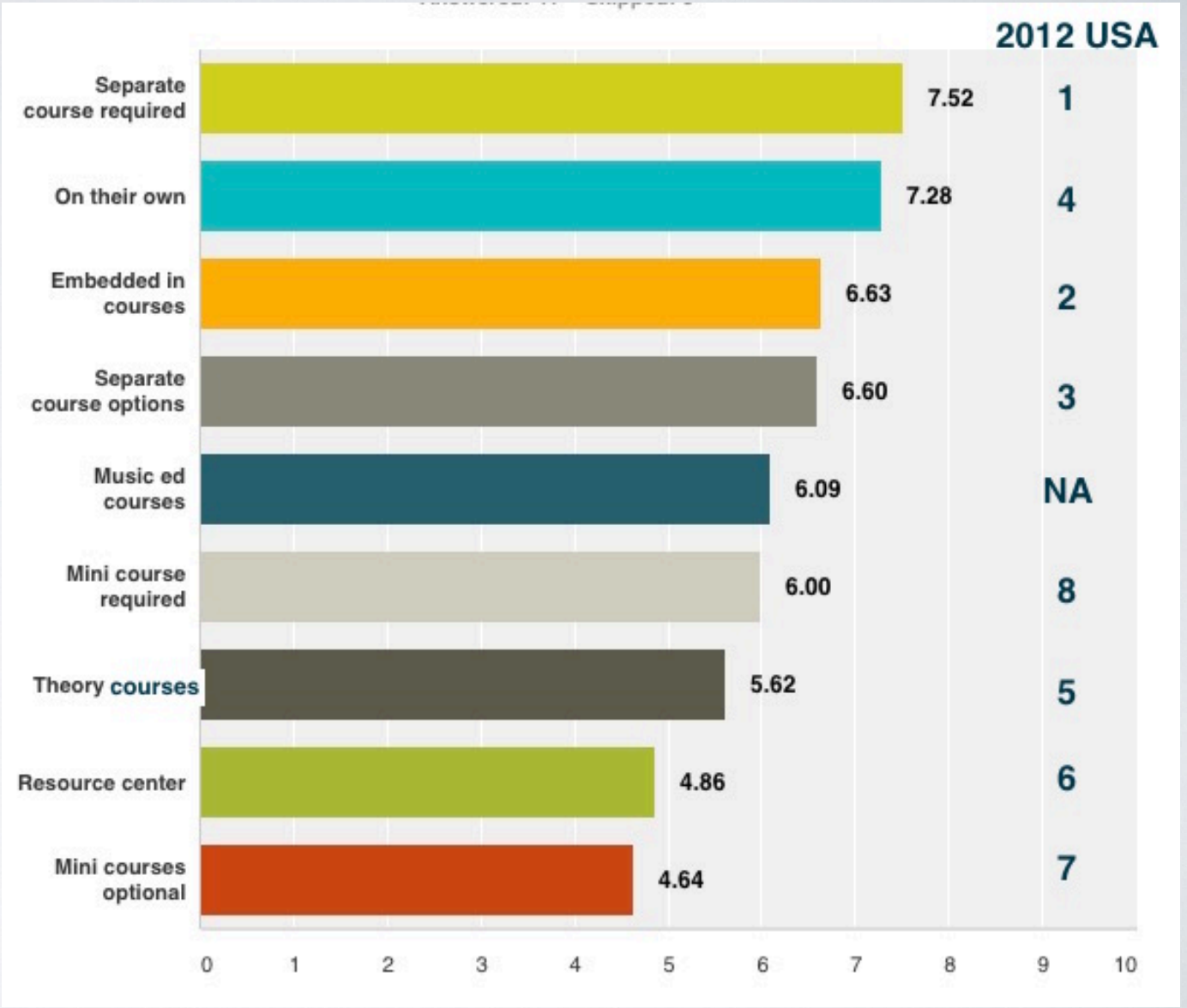


# 2013 QUESTION FOR DEVICES



# HOW LEARN ED?

International compared to 2012 USA



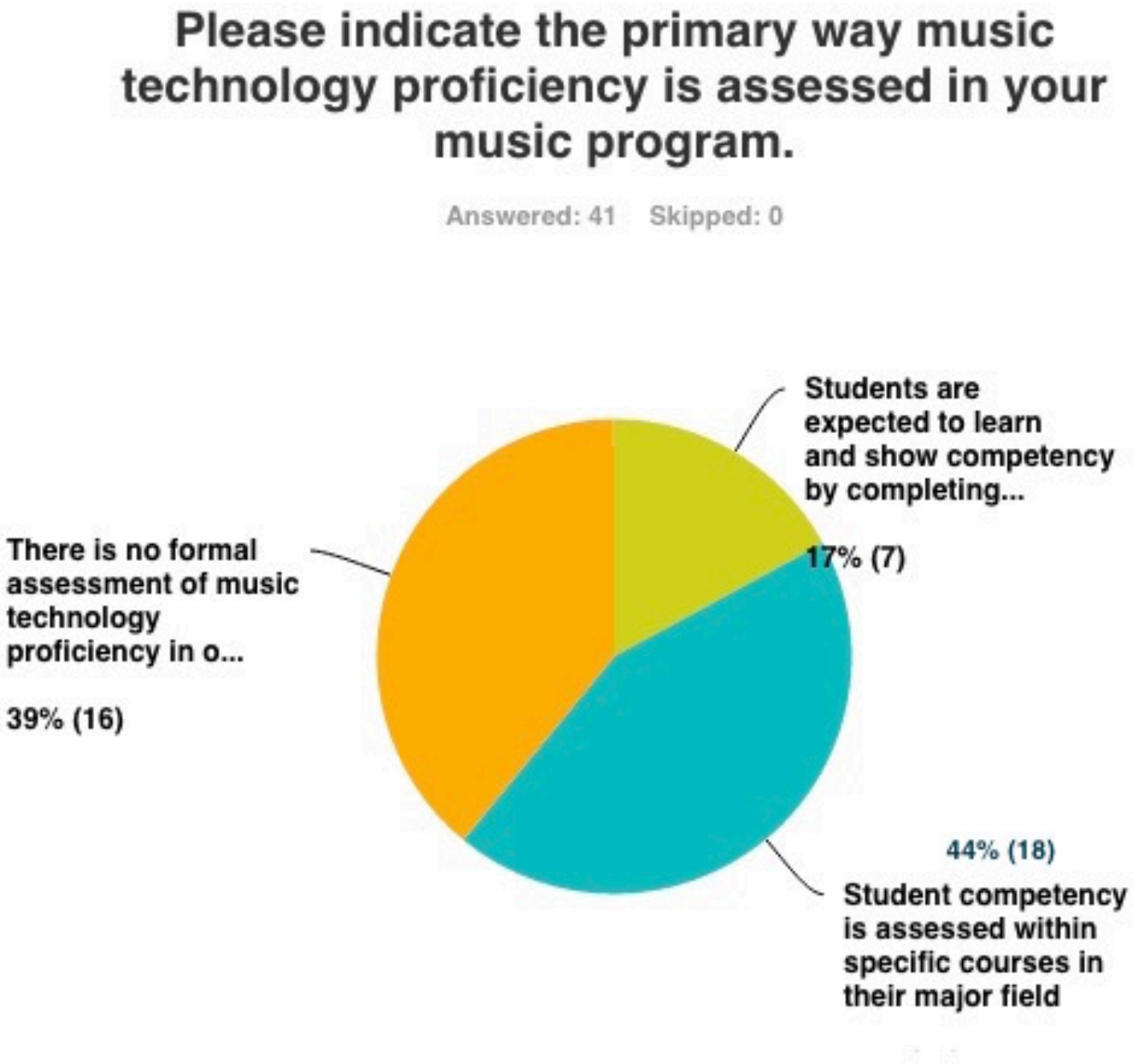
# 2013 OVERVIEW OF "HOW LEARNED?"

- 34% of comments emphasized an "integrated strategy" which includes comments on learning through the theory core, or through tech electives, or through a required tech course.
- 13% offered that they had a required tech course and 23% no required tech course
- Several commented on music education being either the only area with tech requirements or that music ed had different tech requirements from others.
- 16% suggested that students learn it on their own.
- Several noted making the music tech course a campus Gen Ed requirement under the sciences and have music major count it toward Gen Ed and their degree.

# PRIMARY WAY ASSESS

International

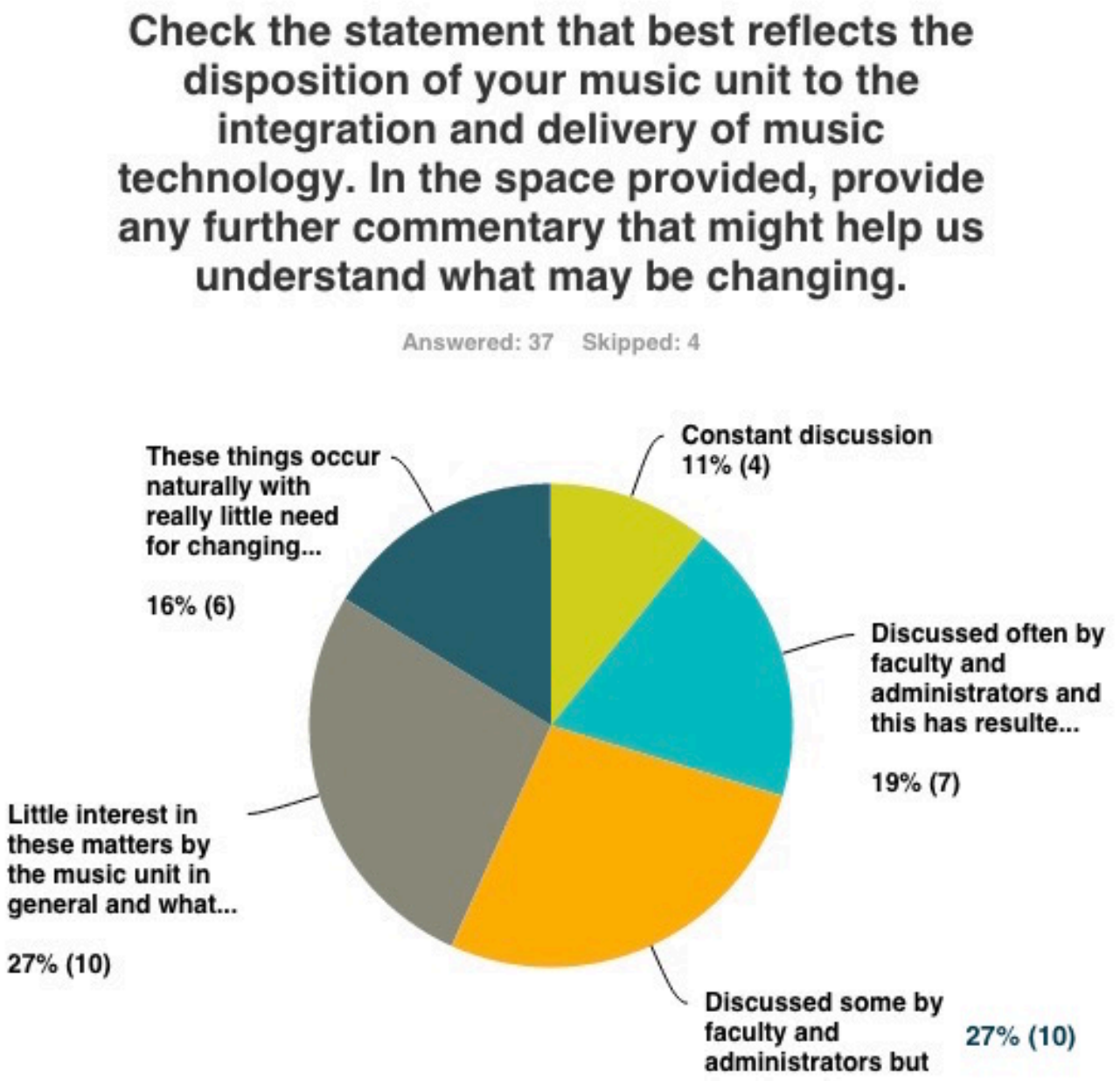
NB. Very little difference with or without Canada data.



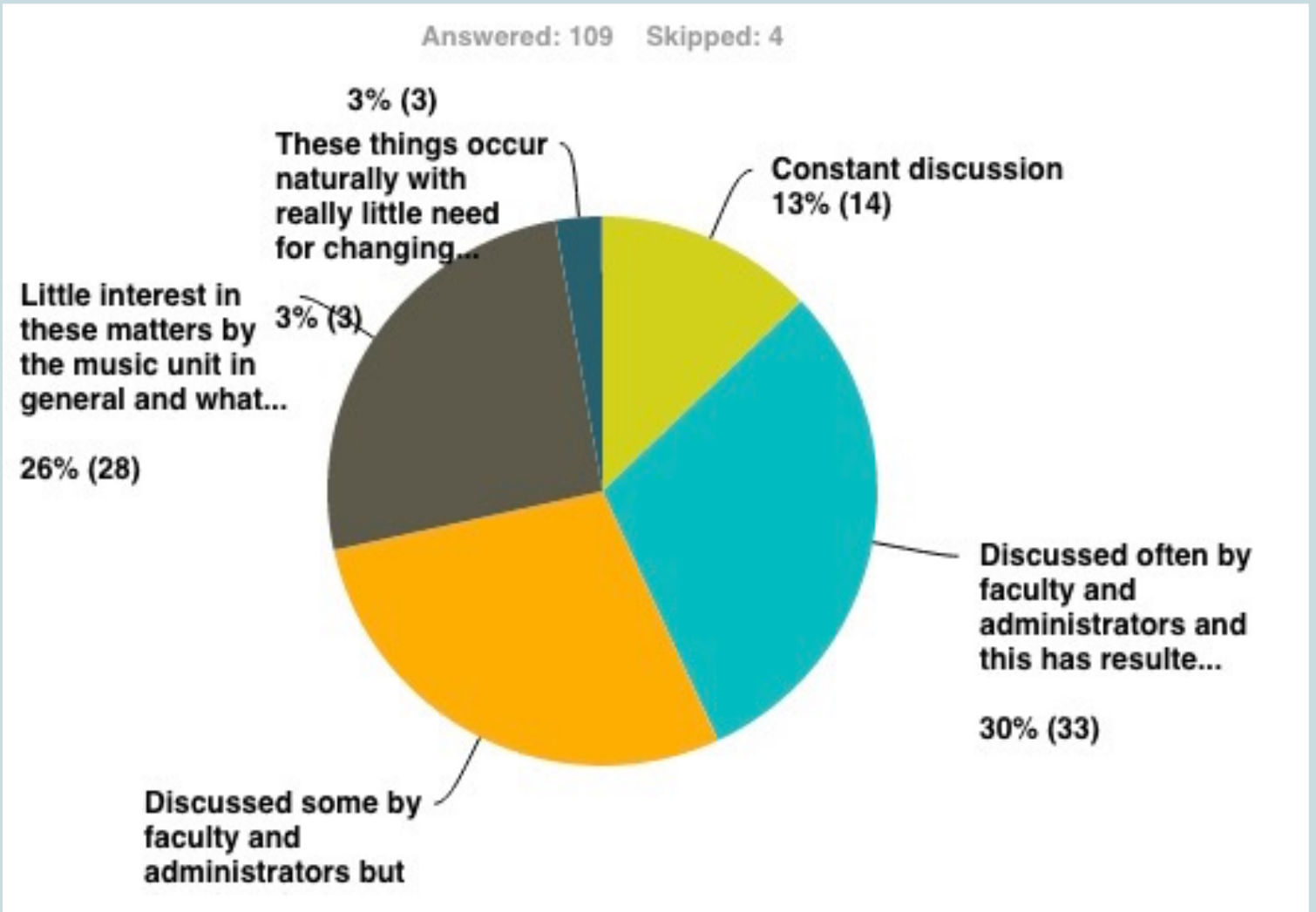
# MUSIC UNIT THINKING

All International

NB. Very little difference with or without Canada data.



# 2013 MUSIC UNIT THINKING.

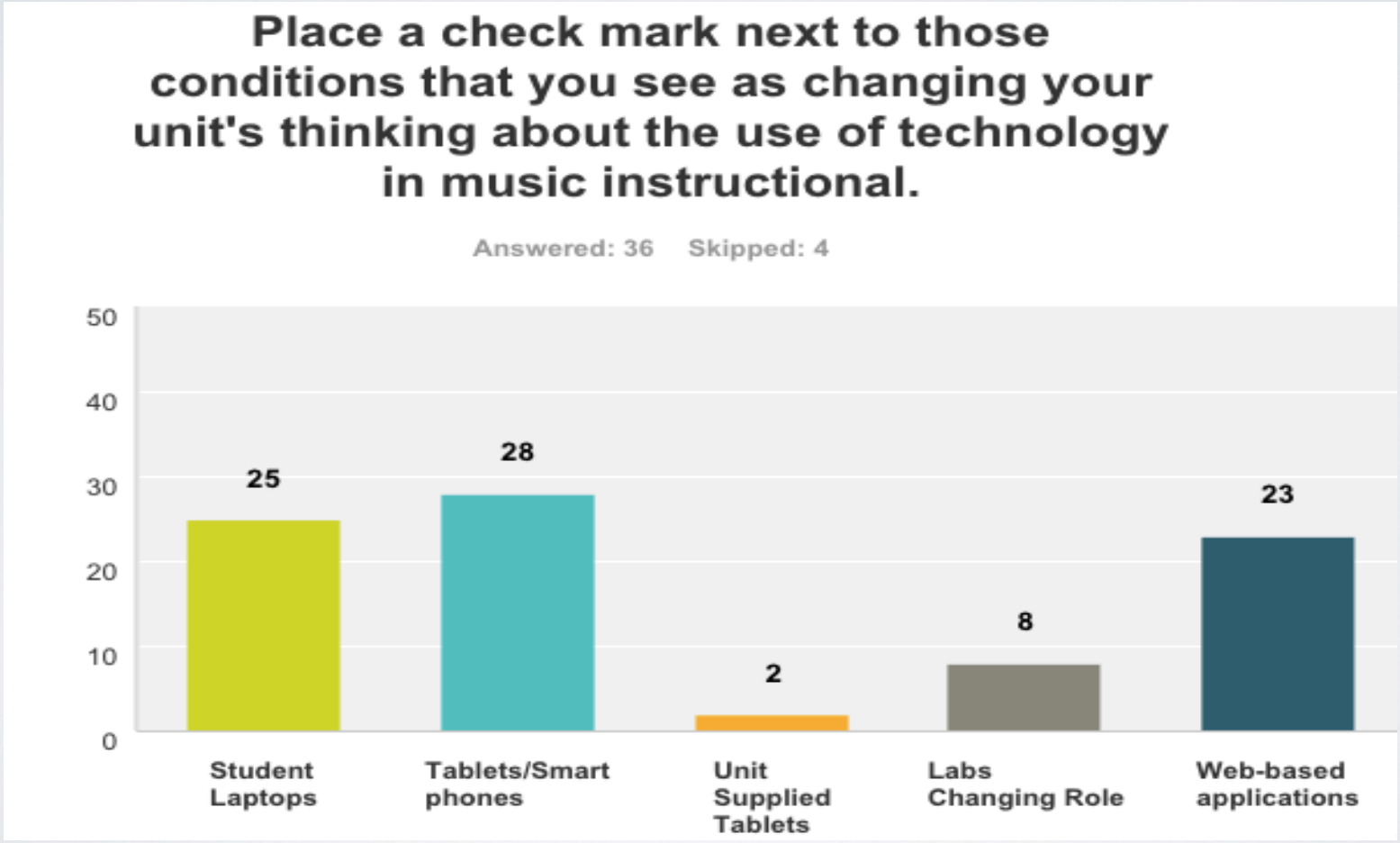


# COMMENT INTERNATIONAL

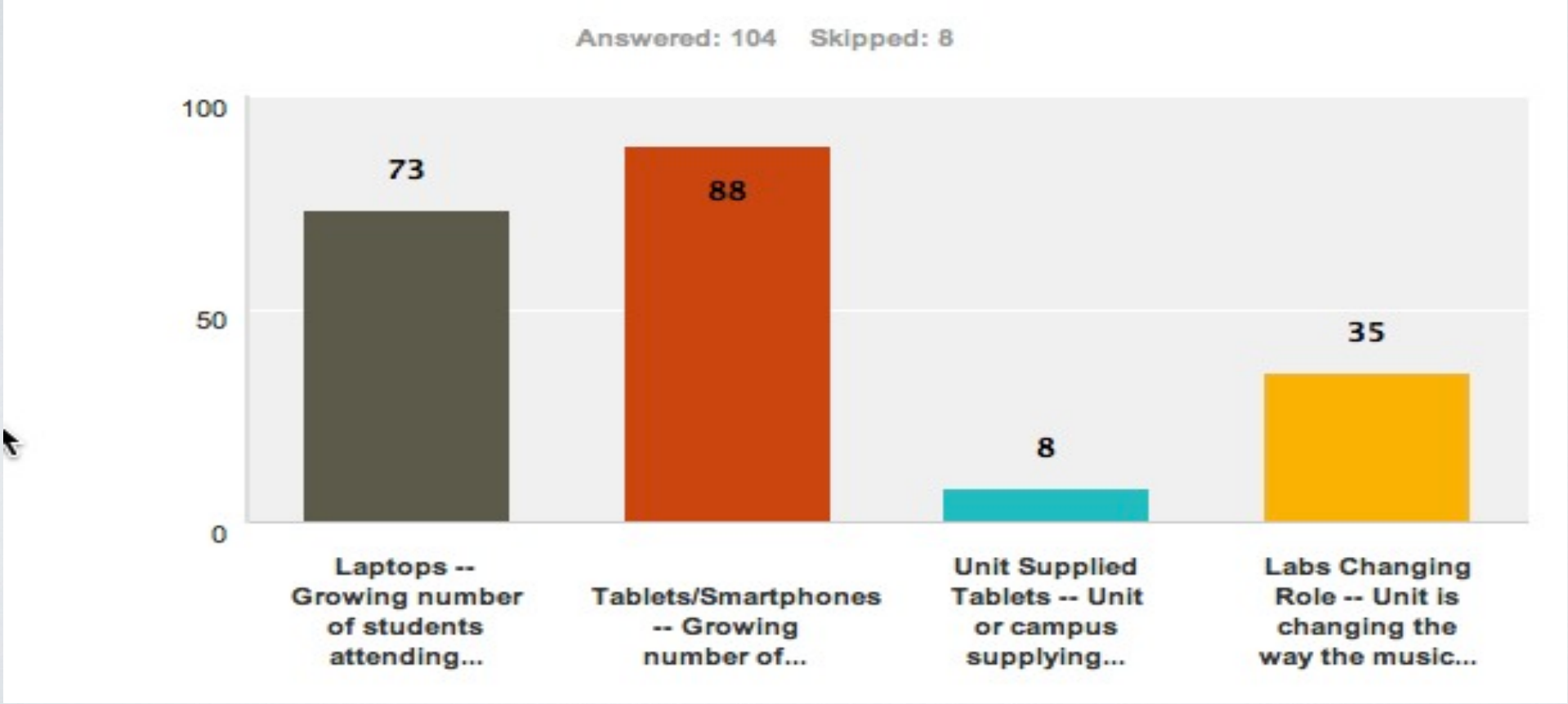
- **Scarce resources limit progress** integrating technology into the music curriculum.
- Classes were created with in **built flexibility to allow for changes** in technology.
- There is a **tendency towards integration, but much still remains to be done** for several aspects. Some areas need to be covered in special courses
- There is a great need for that in our faculty. Our dean has initiated a new masters degree program on music entrepreneurship that, to some extent, consists of music technology. But **the mental and physical capacity for such change is low in our faculty**. I tried to develop it in my multimodal course, but I am aware of how little it can do to change the scene. It is just breaking the ice...I have to **rely on my students' intrinsic motivation**.
- In our Music Technology program these are consistently revised, but in the **Music Performance and Composition programs use of music technologies are much less regularly revised**.
- Student use of technology in music courses tends to be limited to composition, orchestration, and arranging courses, with the **greatest emphasis being on using notation software to complete assignments**. All instruction in this area is integrated into these courses, and the maintenance of the lab is largely the responsibility of the one (1) faculty member who most uses these technologies for course assignments.
- **Established courses and those teaching them are slow to change**.

# CHANGING UNIT THINKING

International



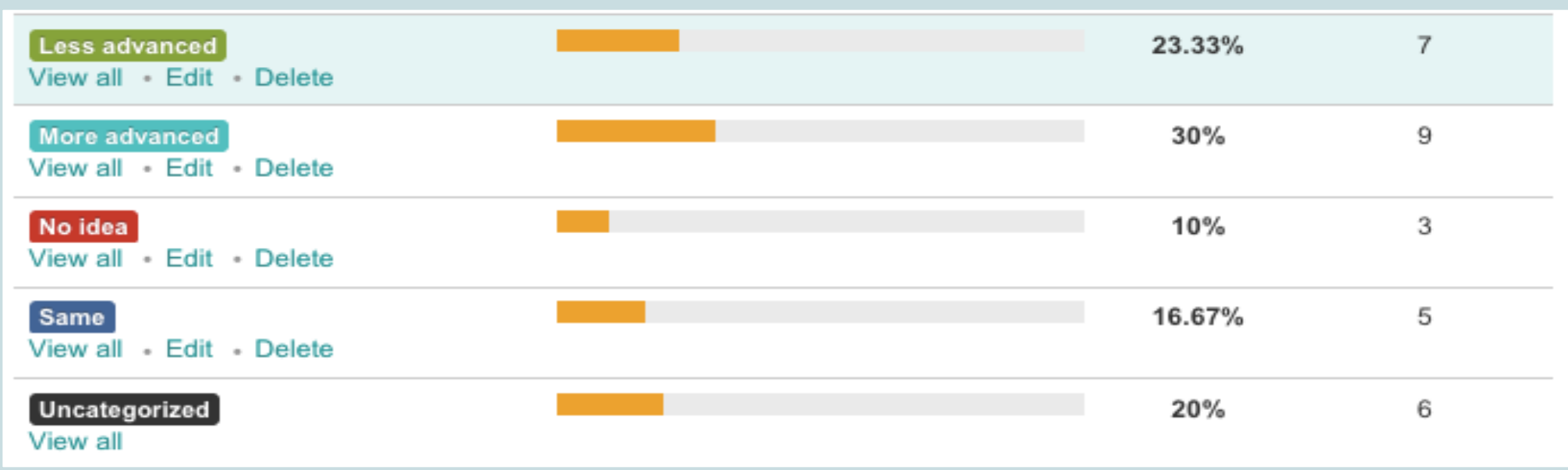
# 2013 CHANGING CONDITIONS



# COMPARISON TO OTHER

International

**From your own experience, how would you compare your music program's integration of technology in comparison to other tertiary programs in your country, or in other countries?**



# FINAL COMMENTS

## International

- General education course will be developed for non-music majors next year
- Perhaps you could reflect more, that American terms and categories are not always useful for comparisons
- This is such a timely research, as there are still some universities that are following the conservatory model. Technology is looked at as an added tool rather than an embedded necessity in music departments.
- internationally useful research
- Nice to see this research being done, but the competencies seem a little '1980s' - all the best
- Apart from formal integrations of technology (in-class instruction, assignments, etc.) a number of faculty also use technology in their studio teaching. In particular, many record student lessons on digital recorders or laptops and then make these recordings available to student for review on our online course environment. Other faculty have experimented with providing studio lessons via Skype using laptops/tablet when they have to be out of town for performances.

# NEXT STEPS

- Publication of the complete series of survey studies with added data from international informants
- Continue to pursue focused exemplars building on 2014 St. Louis presentation
- Core incorporation of work into a new edition *of Experiencing Music Technology,* 4th edition

# DISCUSSION