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Cross-Disciplinary Teaching: Bridging Cultural Divides

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Cross disciplinary teaching: Bridging Cultural Divides

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* Now at Auburn University
What is the name of the instrument that was playing as you entered the room?

Tanpura
Physics & World Music

• NOT about the physics of music (strings, waves, harmonics, overtones etc.)

• ABOUT the teaching and learning of music by a physics professor (10+ years)

• ABOUT Catalyst events, Transformations and Hybrid pedagogy*

• ABOUT deep engagement by student(s)

* Thanks Kathy
Deep Engagement

“Learning to be a full participant in the field”

John Seely Brown
Scholarship

“World Music Ensembles: Balancing Institution, Identity and Improvisation”

Jonathan Hull
MUSC 499, Spring 2008
Christopher Newport University
Ethnomusicology thesis
literature review and field work in WMEs

Advisors: Brana Mijatovic, S. Raj Chaudhury
Learning Sciences

How People Learn (NRC 1999)

- Learning in Informal and Formal Environments Center (Bransford et. al.)
- How did life-wide learning contribute to course design, implementation and assessment?
**Course Description**

**PHYS 141**

Designed for non-science majors. Physical concepts including mechanics, heat, sound, electromagnetism and nuclear physics are studied in the context of everyday phenomena. Investigation begins with whole objects and looks inside them to see what makes them work. Because it concentrates on concepts rather than math, and on familiar objects rather than abstract constructs, this course offers students with many different learning styles substantial insights into our modern world.

**Course Description**

**MUSC 118**

This auditioned ensemble is a unique experience, incorporating world music instruments and traditions. The ensemble performs once per semester, with the option of performing more as opportunities arise. Students may register each semester, but no more than eight credits can count toward graduation.
Compare Pedagogies

- Introductory one semester science course

- What are typical goals of such a class?

- What does instruction look like?

- What does assessment look like?

- Introductory one semester Indian music ensemble?

- What might be typical goals of such a class?

- What does instruction look like?

- What does assessment look like?

1 credit course, meets once a week for 2 or 3 hours

Science

Music
**Course Description**

Phys 141

Course Description

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**Course Description**

Musc 118

Course Description

Designed for non-science majors. Physical concepts including mechanics, heat, sound, electromagnetism and nuclear physics are studied in the context of everyday phenomena. Investigation begins with whole objects and looks inside them to see what makes them work. Because it concentrates on concepts rather than math, and on familiar objects rather than abstract constructs, this course offers students with many different learning styles substantial insights into our modern world.
“The introductory laboratory should engage each student in significant experiences with experimental processes including some experience designing investigations.” (AAPT, 1997)
“The goal of the world music ensemble should [then] be to cultivate creative capacities and cultural understanding through active engagement with and through the tradition” (J.H., 2008)
Tabula Rasa?

Did I have a blank slate to write on?
Portal of engagement?
Catalyst

• Need for World Music Ensemble instructor
• UCLA connection with Ethnomusicologist
• Music dept. desire to provide in-depth musical experience as opposed to breadth
• I was there, no extra funds needed
• Cooperative Music & Physics dept. chairs
World Music Ensemble, Fall 2007
Transformative

- North Indian classical & semi-classical (not World) at a regional college (low diversity)
- Offered three semesters in a row
- Enrollment 10-12 consistently
- Several ‘repeat’ students
- 3 students took Physics class(es) + Music
- Perform at local cultural events for the ethnic community (!)
What pedagogy to use?

“We teach the way we were taught”

“Performance is the crux of the world music ensemble. Playing the music is what attracts people not just learning about it.”

J.H., 2008
Apply my Physics pedagogy to Music?

- Active Learning
- Formative Assessment

... or create a new Hybrid pedagogy?
Hybrid Pedagogy

Tabla
Harmonium

Dha Dha Ni Sa Re Ga
Ni Ni Sa Re Ga Ma
Sa Sa Re Ga Ma Pa
Re Re Ga Ma Pa Dha
Ga Ga Ma Pa Dha Ni

Performing in (your) syllable.
Limits on the pedagogy

- University had no instruments (self)
- Use *voice* as the medium for instruction
- Instructor
  - No degrees or formal coursework in music (how to satisfy SAACS?)
  - No knowledge of Western classical music
- Students
  - No auditions to encourage enrollment
  - No ethnic Indians; no language courses
Assessment

• Typical science class
  • Quizzes, tests, lab reports
• Active Learning science class
  • Presentations, group work
• World Music Ensemble - PERFORMANCE
UCLA Indian Music Performance Group
1986
CNU World Music Ensemble
Fall 2007
Measures of success?

• Science class
• Student performance on tests etc.
• Music Ensemble
• University based experts not available
• Depend on ethnic community
• Performed at Hindu Temple
Making Thinking Visible

...full participant in the field?
Improvisation & Surprise

Fig. 5.1. – Composition in Raag Bhairav (expectancy)

Fig. 5.2. – Composition in Raag Bhairav (surprise)
“I had to use my ears and emotions more to fully encompass the meaning of the music rather than focus on meticulous details that I feel now kept me from fully developing musically” - Student in J.H. 2008
“The hardest challenge for me was breaking myself of my trained perspective of music, with this new perspective. One needs an open and accepting mind, clear of conventions”.

“At first I tried to apply my former understanding of music to understanding Indian music. You simply cannot do that. Indian music works under a completely different paradigm of thought...”
Improvisation Index

Tabula Rasa?

- Ethnomusicology Student
- Non-ethno student w/prior Western
- Non-ethno student w/o prior Western
Final thoughts

- “To understand and acquire the new system required problem solving and restructuring of abstract conceptual processes”
- “…it is in experiencing the collisions and problems that growth from one’s own tradition leads to growth towards another”.
- Cognitive Dissonance & Conceptual Change!!
- Goals in Physics & Music could be the same!
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