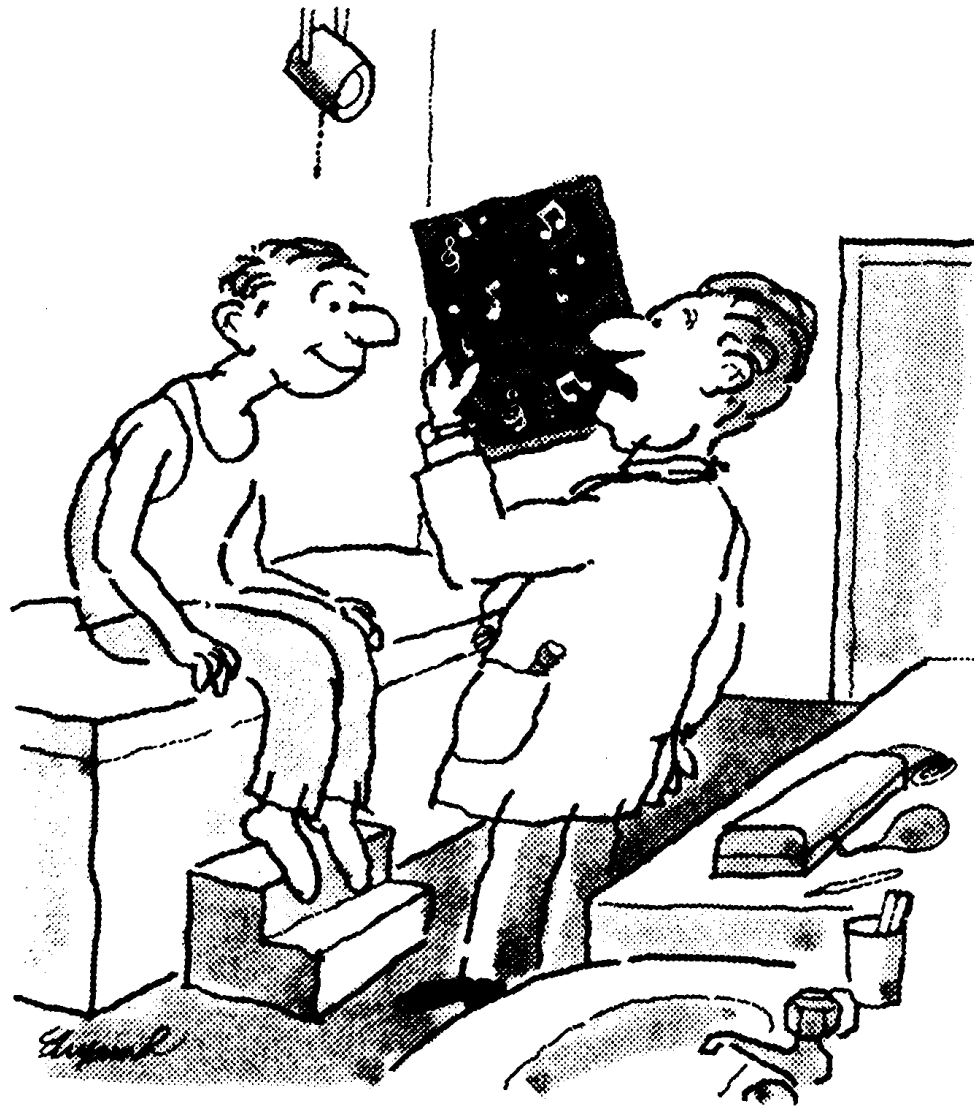


# Encouraging Imaginative Thought



Peter R. Webster  
School of Music  
Northwestern University  
Evanston IL, USA  
[pwebster@northwestern.edu](mailto:pwebster@northwestern.edu)  
<http://www.peterrwebster.com>



*All I can see is music, lots of  
it, simply dying to get out.*

**Children Love to Make Music!!!  
We Need to Let Them!!**



# Ways We Make Music

- Compose
- Perform Other's Music
- Perform Our Own Music (Improvisation)
- Listen

Thinking In Sound

Imagine

Audage

Audiate



# Key Question

**Have I maximized the opportunities for all learners to make their own aesthetic decisions with my guidance and encouragement?**



If we expect our students to be creative (divergent and convergent) in their thinking, perhaps we need to be as well.





A man with short, light-colored hair and glasses is speaking on a stage. He is wearing a dark blazer over a light-colored button-down shirt. The background is dark, with a red wall visible on the right side. A small, light-colored rectangular object is visible on a shelf to the left.

**FEB2006** MONTEREY**CALIFORNIA**

# Overview

- Part I: Webster Biases: A Little Philosophy
- Part II: Approaches to Assessment
- Part III: Implications for Education with Special Emphasis on the Role of Music Technology

# I. Webster's Biases: World of Constructed Thought and Action

- Constructive vs. Instructive
- Celebration of different kinds of thinking
- Projects
- Learner as Center, not Teacher
- Embedded Assessment

<u>Pedagogical Concept</u>	<u>Older View</u>	<u>Newer View</u>
<b>Relationship Between Ideas</b>	Hierarchical	Networked
<b>Environment</b>	Highly Structured	More Informal
<b>Thinking</b>	Lower-order, linear skills valued; convergent thinking, memorization	High-order, non-linear thinking valued, convergent and divergent thinking, application of knowledge, critical and creative thinking
<b>Instructional goal</b>	Memorization	Inquiry and invention
<b>Relationship Between Student and Teacher</b>	Instructors are experts with learners as passive receptors	Instructors are seen as mentors with students as active participants
<b>Teacher Role</b>	Fact Teller	Architect of school experience by creating opportunities for discovered learning
<b>Student Role</b>	Listener	Discover of learning with guidance from teacher and other resources
<b>Classroom Activity</b>	Didactic	Interactive
<b>Approach to Knowledge</b>	Accumulation of facts, centered in the classroom/school	Transformation and application of facts, knowledge sources both in and outside of the classroom/school
<b>Role of Technology</b>	Drill and practice reinforcement, information defined by the machine/system	Active agent for new knowledge via simulation, non-linear links, multimedia, interactivity
<b>Assessment</b>	Norm-referenced measures, standardized testing, objective measurement, teacher centered	Criterion-referenced, portfolios of achievement, self-assessment, rubric-based scales

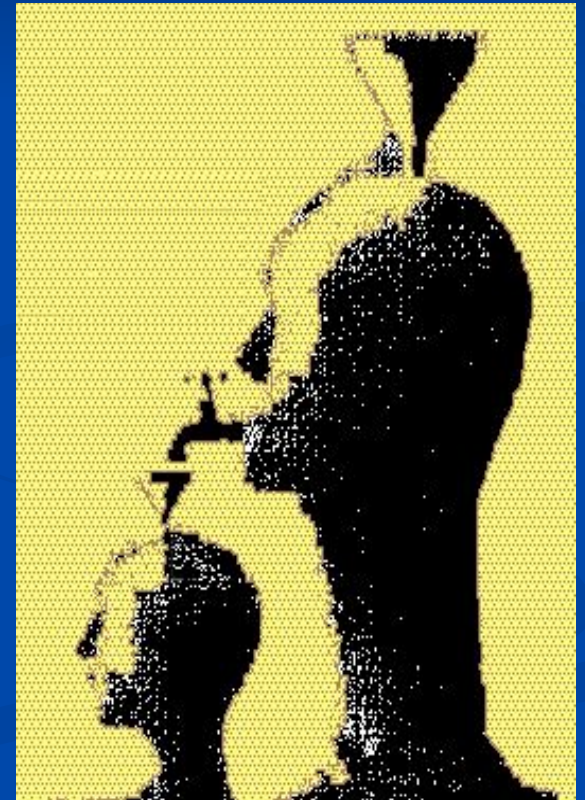
# Constructivism

- Knowledge is formed as part of the learner's active interaction with the world.
- Knowledge exists less as abstract entities outside of the learner and absorbed by the learner; rather it is constructed anew through action.
- Meaning is constructed with this knowledge.
- Learning is, in large part, a social activity.



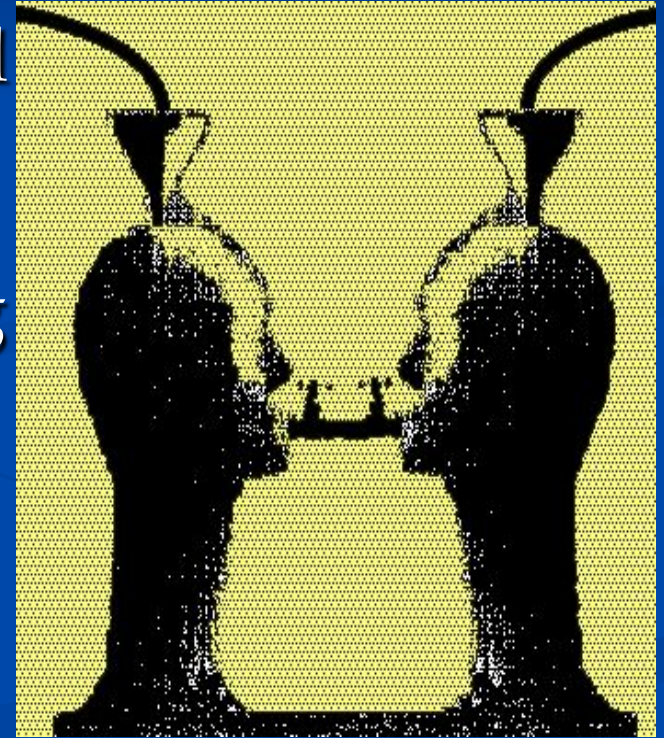
# Instructor-Centered learning

- Hierarchical relationships
- Structured environments
- Instructors as experts
- Students have little or no knowledge
- Convergent Thinking is valued



# Student-Centered

- Group learning celebrated
- Informal environments are valued
- Learners & mentors
- Students are recognized as having their own knowledge and experiences
- Combination of convergent and divergent thinking is valued



Learning happens in whole, authentic experiences—not in de-contextualized ways.

Problems are posed, products created, student's knowledge serves as a starting place.

**Primary Concepts and Big Ideas are Tackled!!**



# Answer Might Be:

## *Adapted Constructivism*

- Much in our profession that can be established effectively with top-down approaches
- But there is much room for encouraging the application of this knowledge in constructivist ways
- Students must learn to think **in** and **about** sound in ways that end in independent thinking
- For those learning goals that do not involve sound itself, ( i.e. ways to effectively practice, work musically with others, deal with stakeholders like parents and administrators, similar hopes for teaching independent and effective active action is important
- Less emphasis on covering large amounts of information quickly and less information more thoroughly

# Importance of Creative Thinking in Music

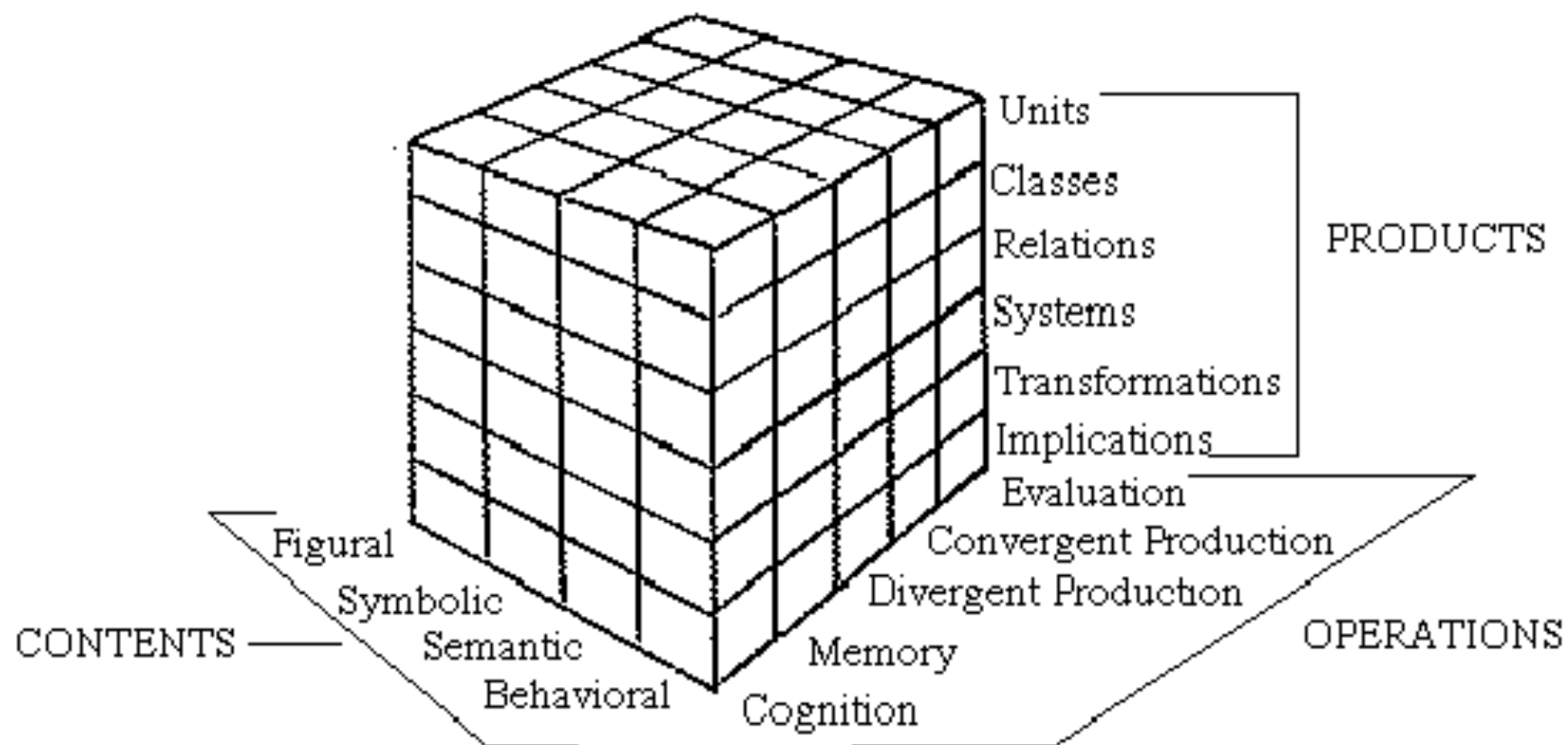


# Problems with Traditional IQ Testing

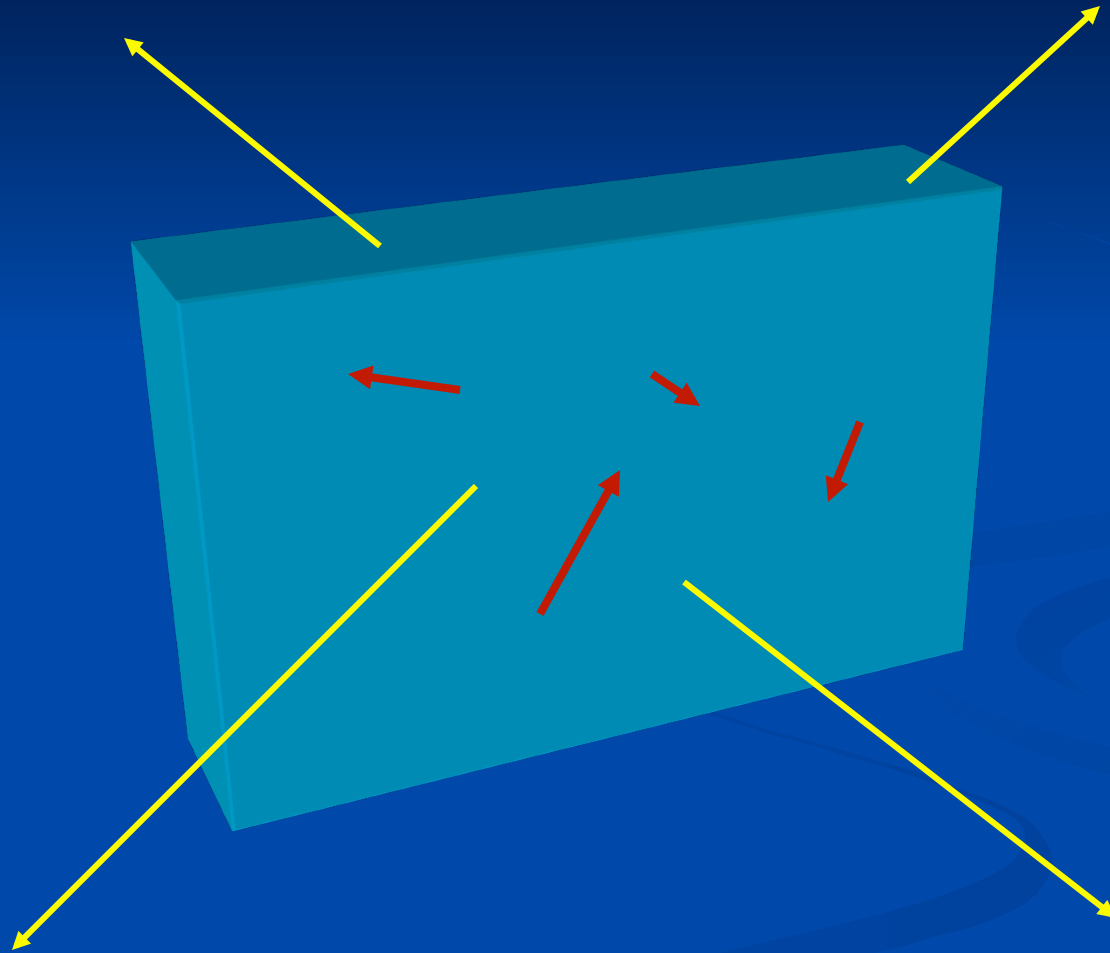




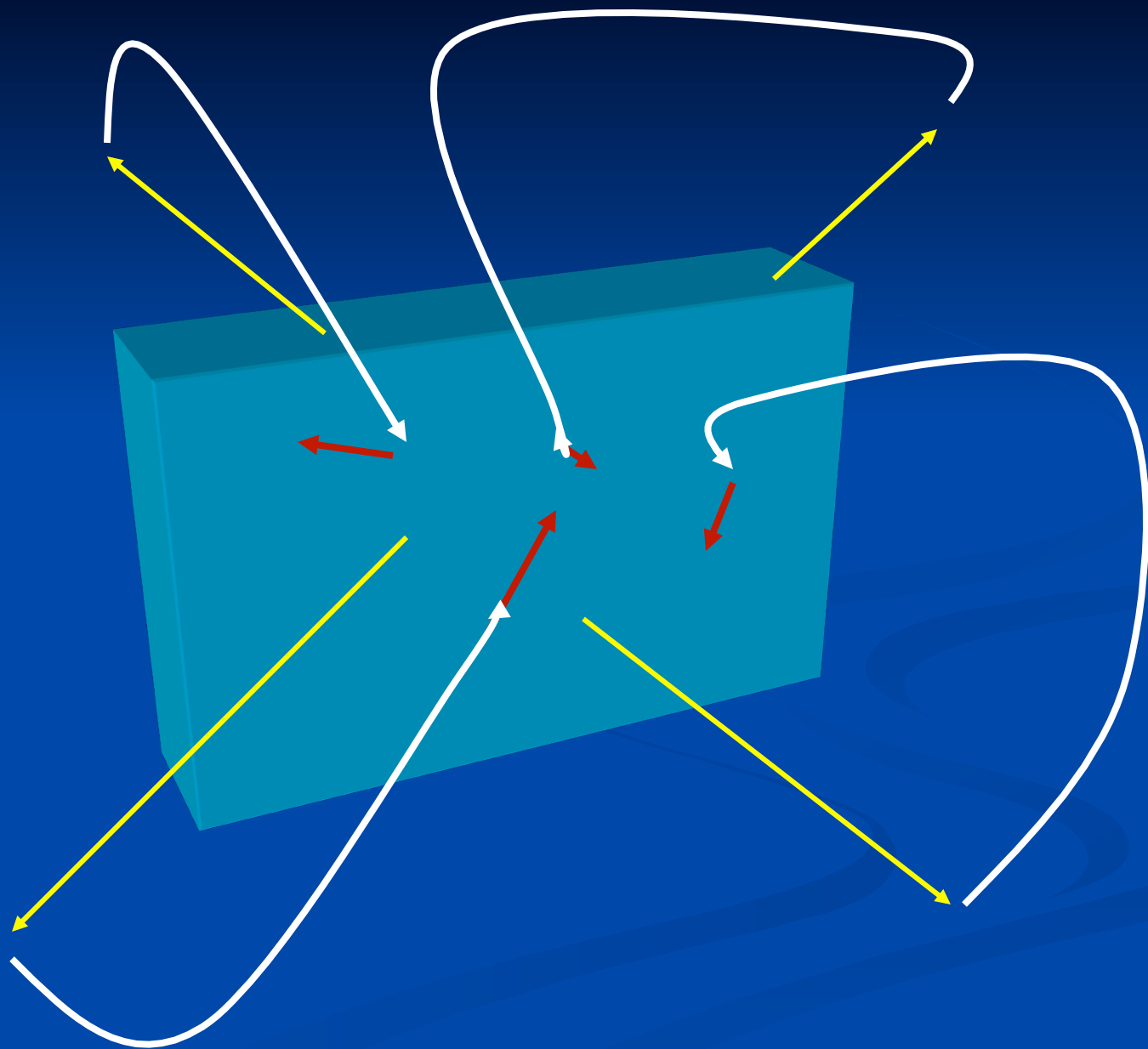
## Guilford's Structure of Intellect Model



# DIVERGENT THINKING



# CONVERGENT THINKING



**The Creative Process**

**SEE** → Imagination

Seeing something in the  
mind's eye

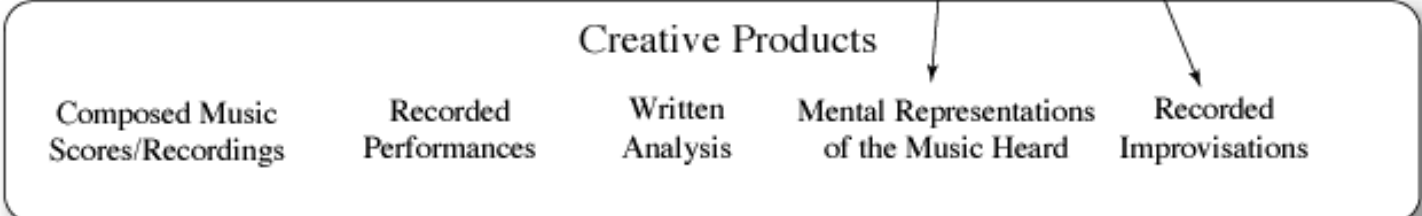
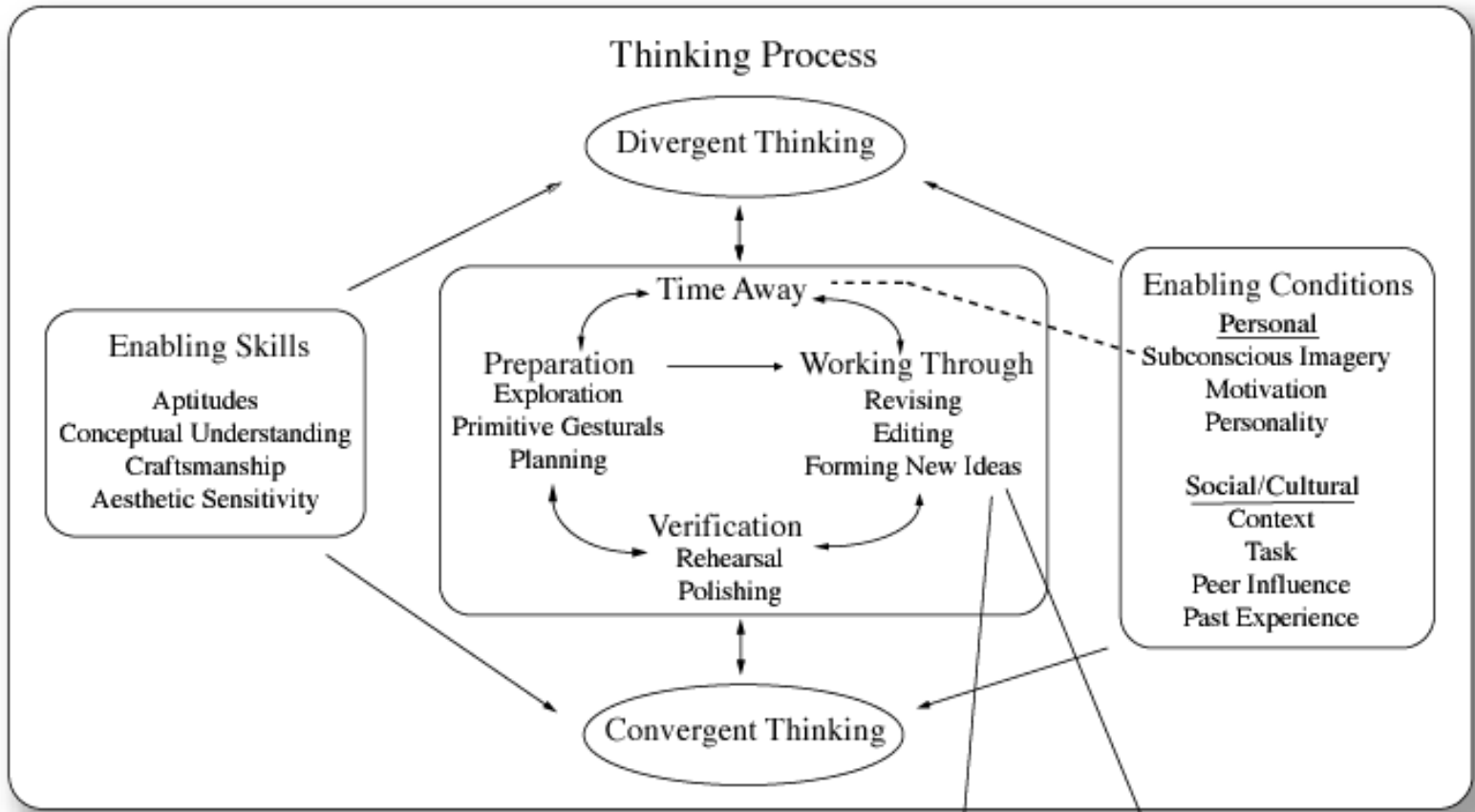
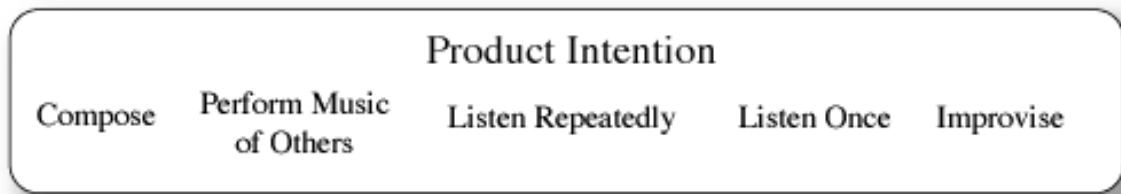
**THINK** → Creativity

Using imagination  
to solve problems

**PRODUCE** → Innovation

Applying creative ideas and  
implementing solutions





## II. Toward an Approach to Assessment

- Problem-solving context
- Convergent and divergent thinking
- Stages involved
- Some aspect of novelty
- Product that is evaluated by society

# Imagination and Creative Thinking and Its Relation to Intelligence

- Research Data Clearly shows a connection but not a completely linear one. ( $r=.50-.60$ )
- Reimer's Philosophical View on Creativity and Intelligence is very useful

Intelligence consists of the ability to make increasingly acute discriminations, as related to increasingly wide connections, in contexts provided by culturally devised role expectations.

# What is imaginative thought in music

Imaginative thought in music is a dynamic mental process, alternating between divergent and convergent thinking, moving in stages over time. It is enabled by Internal musical skills and outside conditions and results in a final musical product which is new for the creator

# Creative Thinking is NOT for just the “Gifted” Child

- Not for just children with high convergent-based IQ
- Not for just children who show signs of talent in “creative” fields
- Creative Thinking is possible for all children and should be encouraged at all levels” It’s a way of teaching for all subjects, including the arts.

# One approach to assessment: Measure of Creative Thinking in Music (MCTM)

- Creative thinking in, with, and about sound as part of music aptitude
- Inner hearing of sound
- Convergent and divergent thinking
- Quasi-improvisatory tasks
- Informal instruments that were capable of high/low, fast/slow and loud/soft; and had contrasting timbres

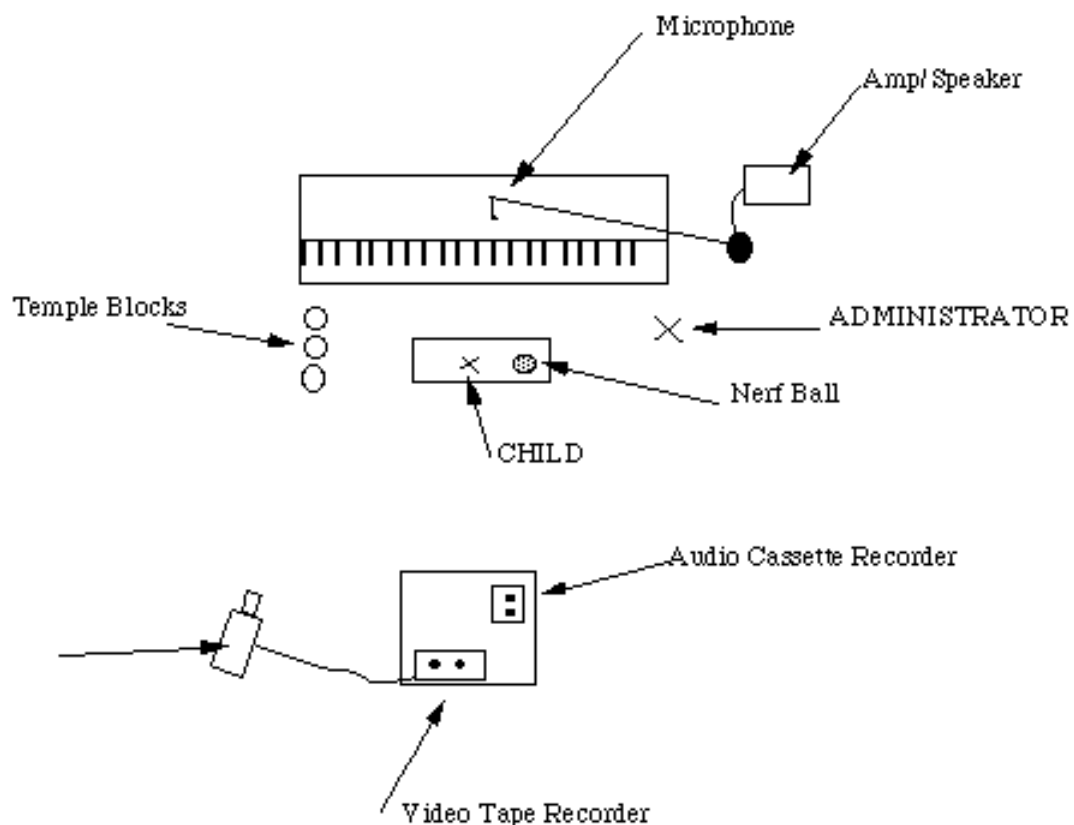
- Tasks that very most enjoyable for the kids (not a testing environment, as natural as possible)
- Video tape record
- Scored in both objective and subjective ways
- Scored for the four factors of music extensiveness, flexibility, originality, and syntax (some of these from general creativity literature—work of Torrance and Guilford)

# Scoring Factors—MCTM

- Musical Extensiveness -- the amount of clock time involved in the creative tasks
- Musical Flexibility -- the extent to which the musical parameters of "high" / "low" (pitch); "fast" / "slow" (tempo) and "loud" / "soft" (dynamics) are manipulated
- Musical Originality -- the extent to which the response is unusual or unique in musical terms and in the manner of performance
- Musical Syntax -- the extent to which the response is inherently logical and makes "musical sense"



## Setup for Measure of Creative Thinking in Music (MCTM)







SUMMARY SCORING SHEET

TASK	Musical Extensiveness (ME)	Musical Flexibility (MF)	Musical Originality* (MO)	Musical Syntax* (MS)
1 Rain Bucket		_____		
2 Elevator		_____		
3 Truck		_____		
4 Robot Song	_____	_____	_____	
5 Talking Blocks (Responses)	_____	_____	_____	
6 Talking Blocks (Stimuli)	_____	_____	_____	
7 Frog Music	_____	_____	_____	_____
8 Space Pictures	_____	_____		
9 Space Voyage	_____	_____	_____	_____
10 Free Composition	_____	_____	_____	_____
<b>Raw Totals</b>	_____	_____	_____	_____
Standard Score	_____	_____	_____	_____
Standard Score Average	_____			

# III. The Technology Piece



# Why Teach Music with Technology?

- Links my belief in the importance of thinking in sound with



# Why Teach Music with Technology?

- Links my belief in the importance of thinking in sound with ...
- My belief in the value of creative thinking in the context of ...



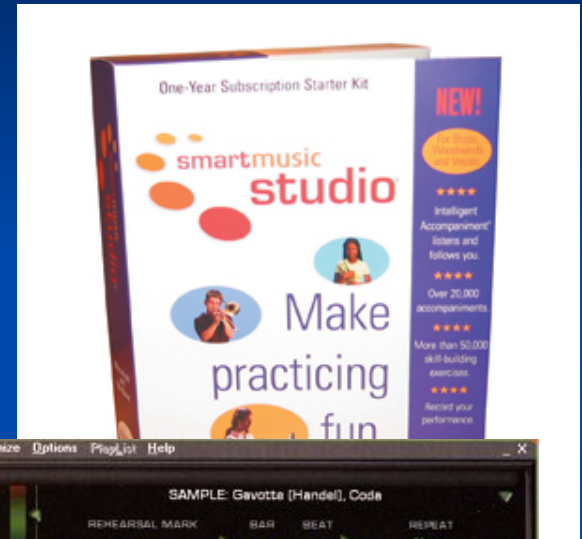
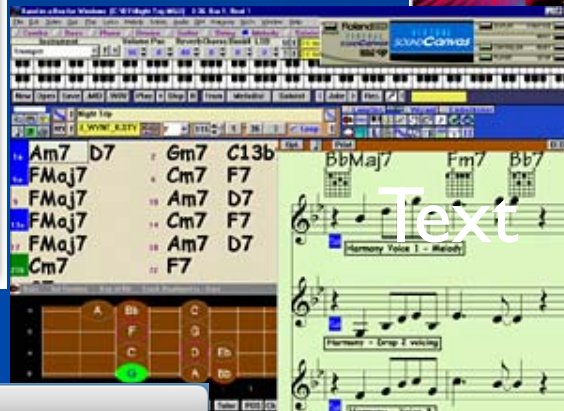
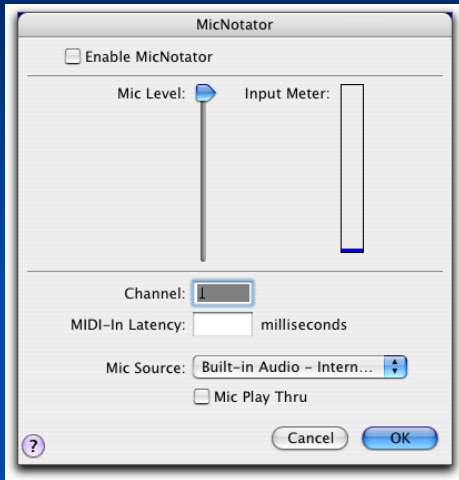
# Why Teach Music with Technology?

- Links my belief in the importance of thinking in sound with ...
- My belief in the value of creative thinking in the context of ...
- The way our youth encounter their world today

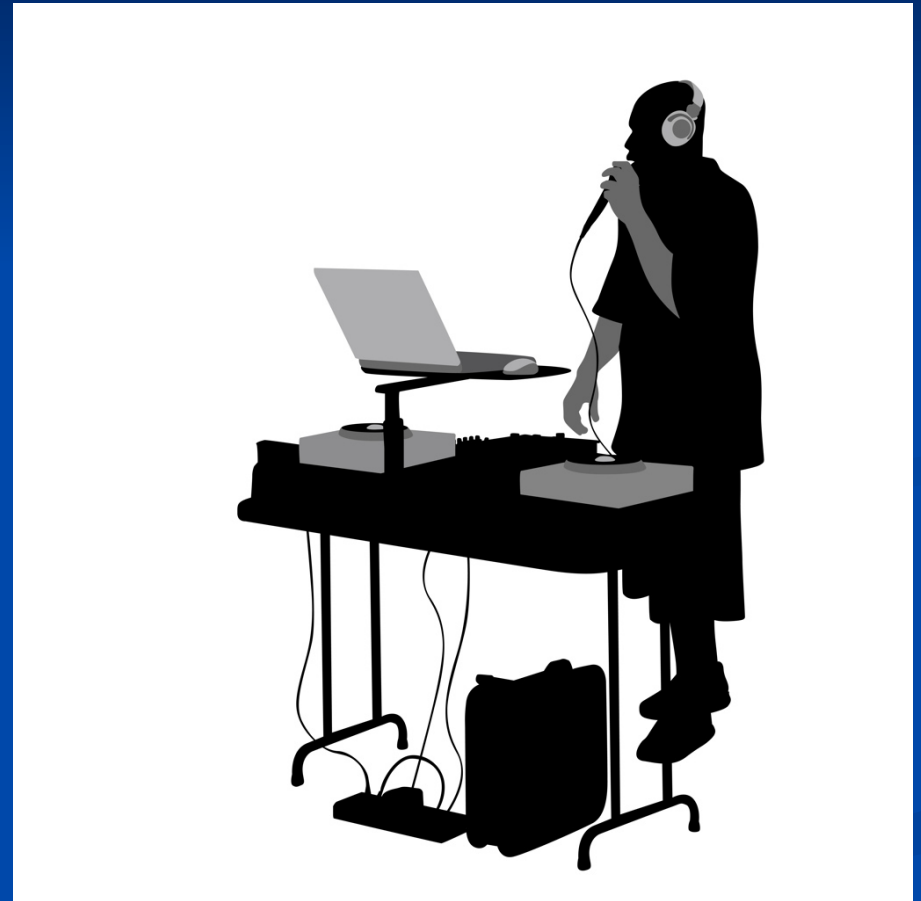




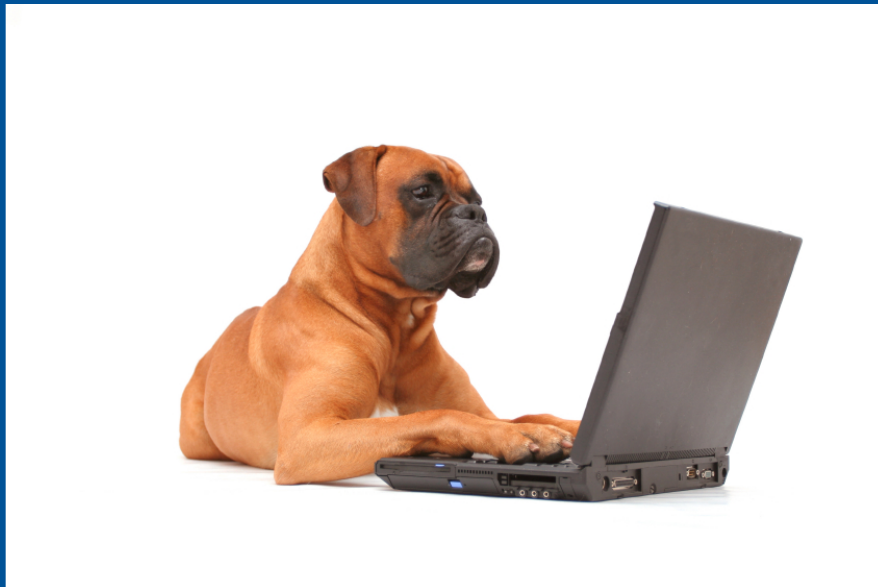
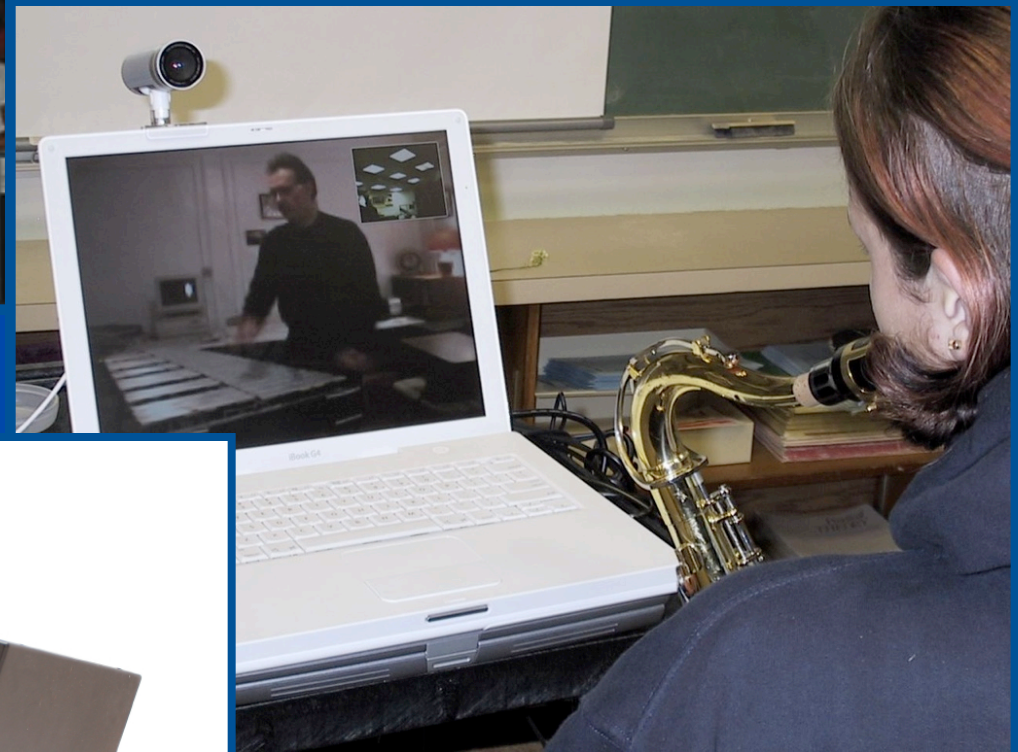
# Technology Trends



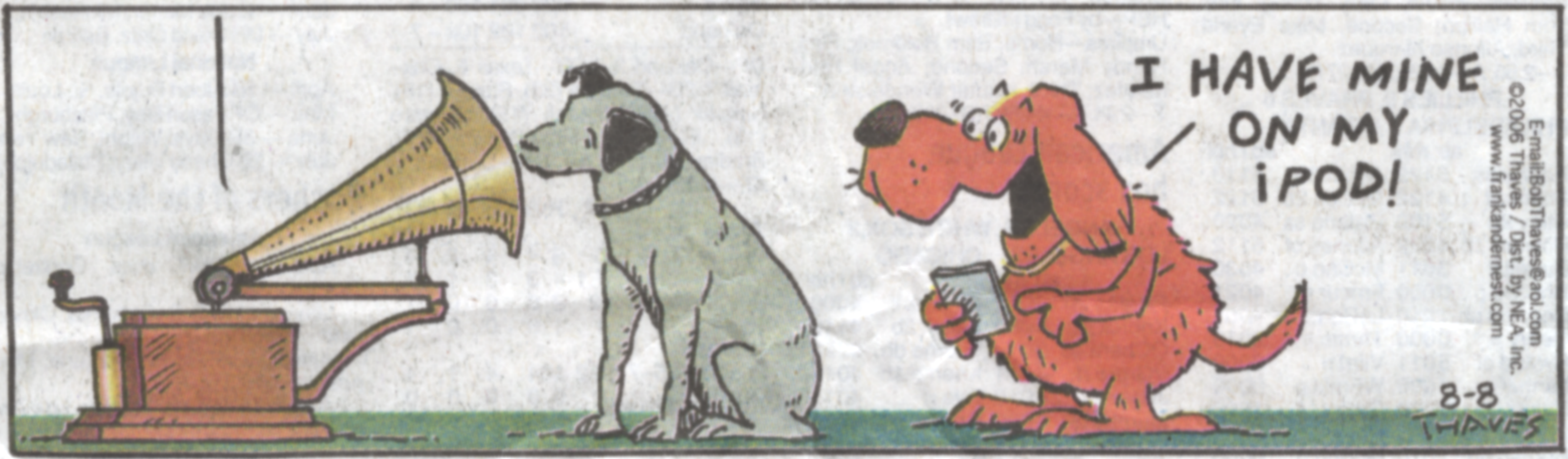
# Portability



# Portable & Personal



FRANK & ERNEST



E-mail: BobThaves@aol.com  
©2006 Thaves / Dist. by NEA, Inc.  
www.frankandernest.com



# Desktop to Laptop





M-AUDIO  
RECORDING INTERFACES | USB KEYBOARDS | STUDIO MONITORS | MICROPHONES | PREAMPS | SOUND LIBRARIES | MUSIC SOFTWARE

www.m-audio.com  
MSRP: \$ 249.95

# MidAir

25-Key Wireless USB MIDI Controller

NO CABLES!?!

I CAN'T BELIEVE IT'S WIRELESS!

TALK ABOUT REMOTE CONTROL!

THE BATTERY-POWERED MIDAIR 25 WIRELESS MIDI KEYBOARD HAS JUST ARRIVED, FREEING THOUSANDS TO REMOTELY CONTROL SOFT SYNTHS, DAWS AND STANDARD MIDI HARDWARE. THE END OF CABLE TYRANNY IS FINALLY HERE—ON STAGE AND IN THE STUDIO.

**M-AUDIO**

study, without technology

Cover story

Powerbook G4, which — along with his iPod and cellphone — is always close at hand. Hunter, of Uniondale, Ind., is a typical tech-savvy college student. He can access the social networking site Facebook from his cellphone. He uses e-mail and instant messaging anywhere on the wireless campus. He downloads music to his laptop and his iPod, and he uses a 1-gigabyte flash drive provided by the university to transfer files and songs and to access his digital portfolio.

even think of when I use it and when I don't. It's such a part of life," he says. Hunter isn't a techno-geek. He's just a "digital native" — a term that has been used to describe millennials, the first generation who grew up in a world filled with computers, cellphones and cable TV. These young people think, act and react much differently from how their parents and

Please see COVER STORY next page ►

# Wireless

# Overcoming Limits of Time and Space

- Commodity Internet and Internet2
- Video conferencing to tele-immersion
- Virtual performance in real time

The screenshot shows the Internet2 website homepage. At the top, there is a navigation bar with the Internet2 logo on the left and a search bar on the right. Below the navigation bar, the date "September 8, 2006" and a "Home" link are visible. The main content area is divided into several sections: "ABOUT" with a list of links, "MEMBERS" with a list of links, "PARTNERSHIPS" with a list of links, "EVENTS" with a list of links, "News" with a featured article about a partnership between ESnet and Internet2, and "Highlights" with a list of recent events. The featured article includes a graphic with the text "partnering to power science" and a description of the partnership between the U.S. Department of Energy's (DOE) Energy Sciences Network (ESnet) and Internet2.

**INTERNET<sup>2</sup>**

Site Index | Internet2 Searchlight |

Membership | Communities | Services | Projects | Events | Newsroom | About

September 8, 2006 | Home

**ABOUT**

- >Abilene
- >End-to-End PI
- >HOPI
- >Internet2 Commons
- >Middleware
- >Security
- >K20
- >Working Groups
- >Related Projects

**MEMBERS**

- >University
- >Corporate
- >Affiliate
- >Association

**PARTNERSHIPS**

- >Government
- >International

**EVENTS**

- >Internet2 Events
- >Internet2 Days
- >Workshops
- >Related Events

**partnering to power science**

The U.S. Department of Energy's (DOE) Energy Sciences Network (ESnet) and Internet2 announced a partnership to deploy a highly reliable, high capacity nationwide network that will greatly enhance the capabilities of researchers across the country who participate in the DOE's scientific research efforts. The partnership brings together two advanced networks which have a combined 30 years of experience in providing network support to thousands of researchers around the world. Called ESnet4, the new network created

**News**

**31 August 2006**  
ESnet and Internet2 Partner To Deploy Next Generation Network for Scientific Research and Discovery  
[more...](#)

**11 August 2006**  
Internet2 Marks Five Year Anniversary of its Sponsored Education Group Participant Program  
[more...](#)

**07 August 2006**  
Internet2 Introduces Critical Middleware Software and Tools  
[more...](#)

**Highlights**

- New Internet2 Network
- Internet2 Fall Member Meeting Call for Participation
- Job Opportunities

**Events**

**Internet2 Events**

**December 2006**

- Fall 2006 Internet2 Member Meeting 4 - 7 Dec Chicago, IL  
[more...](#)

**April 2007**

- Spring 2007 Internet2 Member Meeting 23 - 25 Apr Arlington, VA  
[past](#) | [future](#)





# Social DIRECTIONS

1. Gen-Y behaviors
2. Ubiquitous access to electronic information

*Technology is that which wasn't around when you were born.* Alan Kay, Futurist

# Gen Y Behaviors

- Want their own rooms / own space (personalization)
- Live a 24/7 lifestyle and want privacy
- Have iPods, laptops, cellphones, PDAs etc.
- Expect services instantly
- Multi-task and expect flexibility

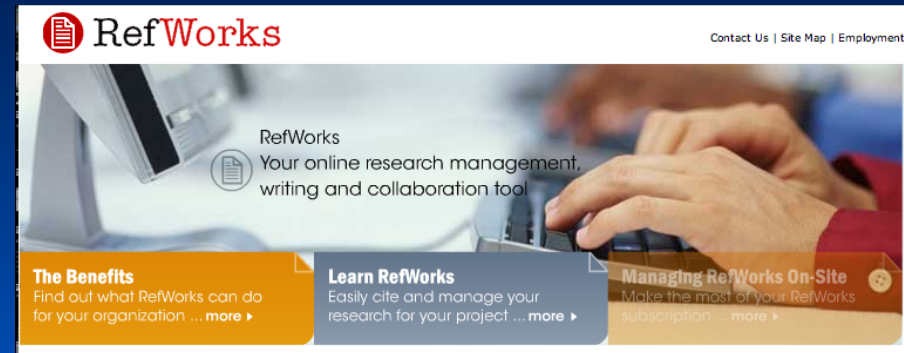
born 1982-2003

# Gen Y Behaviors

- Want their own rooms / own space (personalization)
- Live a 24 / 7 lifestyle and want privacy
- Have iPods, laptops, cellphones, PDAs etc.
- Expect services instantly
- Multi-task and expect flexibility
- Prefer to avoid reading if at all possible
- Want comfort, food & drink when computing
- Judge you by your website (within 3 secs)

# e-Information

- Search Engines
  - ✓ Google
  - ✓ Wikipedia (the good, the bad, and the ugly...)
  - ✓ Ask.com
- Materials in electronic form, not hard copy
- Online bibliography tools, journals, language translators



The image shows a banner for the RefWorks website. At the top left is the RefWorks logo, which consists of a red square with a white document icon and the text "RefWorks" in red. To the right of the logo are links for "Contact Us", "Site Map", and "Employment". Below the logo is a photograph of a person's hands typing on a computer keyboard. Overlaid on the photograph is the text "RefWorks Your online research management, writing and collaboration tool" with a document icon. At the bottom of the banner are three call-to-action boxes: "The Benefits" (Find out what RefWorks can do for your organization ... more >), "Learn RefWorks" (Easily cite and manage your research for your project ... more >), and "Managing RefWorks On-Site" (Make the most of your RefWorks subscription ... more >).

WEDNESDAY, AUGUST 09, 2006

## ➔ Will the University of California Join Google's Library Project?

"In a move with major significance for the worlds of academic research and publishing, the University of California is in talks to join Google's controversial project to digitize great libraries and offer books online."

# Approach to Understanding Software Categories

Experiencing Music Technology

Thomson/Schirmer

## **Experiencing Music Technology**

by David B. Williams and Peter R. Webster

Internet support for the textbook and DVD companion published by Thomson/Schirmer. **Experiencing Music Technology** is one of the [leading college textbooks](#) for music technology courses.

ISBN 0-02-865324-6

Site Navigation: [EMT Home](#) > Software List



**Working List of Software for Music Education Applications**

# Music Production

- Digital Audio Management and Editing
- Multitrack: Digital Audio
- Multitrack: Looping
- MIDI/Digital Audio Sequencing
- Virtual Synths, Samplers, and Instruments
- Notation and Scanning
- Multimedia Production



# Computer-Aided Instruction

- Drill and Practice
- Flexible Practice
- Guided Instruction
- Game-Based
- Creative
- Teacher Resource
- Internet



# Digital Audio Management and Editing



# iTunes (Mac/PC)

The screenshot displays the iTunes application window. At the top, the title bar reads "iTunes". Below the title bar, there are playback controls (play/pause, stop, next, previous) and a progress bar for the current track, "24 Préludes, Op.28, 4. In E Minor" by Ivo Pogorelich, which is 0:23 into a 2:08 track. A search bar and a "Browse" button are also visible.

The main area is divided into two panes. The left pane, titled "Source", lists various music sources: Library, Podcasts, Videos, Party Shuffle, Radio, Music Store, 60's Music, My Top Rated, Recently Played, and Top 25 Most Played. The right pane, titled "Name", displays a list of music items with columns for Name, Compos, Time, and Artis. The item "24 Préludes, Op.28, 4. In E Minor" by Ivo Pogorelich is selected and highlighted in blue.

At the bottom left, there is a "Now Playing" window showing the album cover for "Frédéric Chopin PRELUDES" by Ivo Pogorelich. The cover features a photograph of the pianist. Below the album cover, there are several control buttons: a plus sign (+), a shuffle button, a repeat button, and a volume icon. At the bottom center, the status bar shows "919 items, 3.1 days, 4.75 GB". At the bottom right, there are icons for a window, a list view, a settings gear, and a home button.

Name	Compos	Time	Artis
<input checked="" type="checkbox"/> - Allegro		17:53	Lu
<input checked="" type="checkbox"/> - Largo - attacca:		5:48	Lu
<input checked="" type="checkbox"/> - Rondo alla Polacca		12:42	Lu
<input checked="" type="checkbox"/> 'Round Midnight	Mil...	5:59	Th
<input checked="" type="checkbox"/> "Academic Festival" Overture, Op 80	Jo...	10:46	Jol
<input checked="" type="checkbox"/> "Alphorn", Op. 15 No. 3 For Soprano, Horn, And Piano		5:13	Ba
<input checked="" type="checkbox"/> "Crown Imperial": A Coronation March	Wil...	9:55	Ea
<input checked="" type="checkbox"/> "Hammersmith" - Prelude and Scherzo	Gu...	13:42	Ea
<input checked="" type="checkbox"/> "Tragic" Overture, Op. 81	Jo...	14:05	Jol
<input checked="" type="checkbox"/> (Allegro) Suite In D Major	Ge...	1:48	Jea
<input checked="" type="checkbox"/> (If You Love Somebody) Set Them Free	Sting	4:57	Sti
<input checked="" type="checkbox"/> (Sarabande) Suite In G Major	Ge...	2:34	Jea
<input checked="" type="checkbox"/> (This Is My First Affair So) Please Be Kind		5:34	Da
<input checked="" type="checkbox"/> 1. Andante sostenuto. Moderato con anima	Tc...	18:59	Da
<input checked="" type="checkbox"/> 2. Andantino in modo di canzone	Tc...	9:14	Da
<input checked="" type="checkbox"/> 3. Scherzo: Pizzicato ostinato	Tc...	5:50	Da
<input checked="" type="checkbox"/> 4. Finale: Allegro con fuoco (live recording)	Tc...	9:19	Da
<input checked="" type="checkbox"/> 12-Bar Original	Jo...	2:55	Th
<input checked="" type="checkbox"/> 24 Préludes, Op.28, 4. In E Minor	Fr...	2:31	Ivo
<input checked="" type="checkbox"/> 1000 Years	Sti...	3:02	Sti
<input checked="" type="checkbox"/> A Day In The Life	Le...	5:04	Th
<input checked="" type="checkbox"/> A-Roving		3:00	Th
<input checked="" type="checkbox"/> Across The Universe	Le...	3:28	Th

Music > Classical > Gabrieli Players, Paul McCreesh > Monteverdi: Vespers 1610 (Bonus Version)

# Gabrieli Consort, Gabrieli Players & Paul McCreesh

Monteverdi: Vespers 1610 (Bonus Version)

Genre: Classical  
Released Nov 14, 2006  
Total: 41 songs  
© 2006 Deutsche Grammophon GmbH, Hamburg

\$19.98 **ADD ALBUM**  
Gift This Music

**TOP SONGS**

- Hail, Bright Cecilia!, Z. 328 Ode for St...
- St. Matthew Passion, BWV 244: No. 1...
- Ave Verum Corpus: Communion
- In Ecclesiis A 14 (C78)
- Solomon: "Music, Spread Thy Voice A...

**Time Artist**

Time	Artist
3:53	Gabrieli Players
0:48	James Johnstone
1:10	James Johnstone
0:48	Gabrieli Consort, Gabrieli Pla...
0:30	Gabrieli Consort, Gabrieli Pla...
0:42	Gabrieli Consort, Gabrieli Pla...
3:35	Gabrieli Consort, Gabrieli Pla...

**Track List:**

Name
41 Affetti musicali, Op. 1: La Foscarina (Bonus Track)
38 Free Improvisation - Organ: Dialogo secondo
13 L'organo suonarino - Organ: Ante Duo Seraphim: D...
35 Vespro della Beata Vergine: Antiphona ad Mar...
17 Vespro della Beata Vergine: Antiphona ad P...
20 Vespro della Beata Vergine: Antiphona ad P...
2 Vespro della Beata Vergine: Antiphona ar...
5 Vespro della Beata Vergine: Antiphona ar...

SEE ALL ALBUMS  
ALERT ME  
TELL A FRIEND

Apple Music logo

General Podcasts Playback Sharing Store Advanced Parental

On CD Insert:

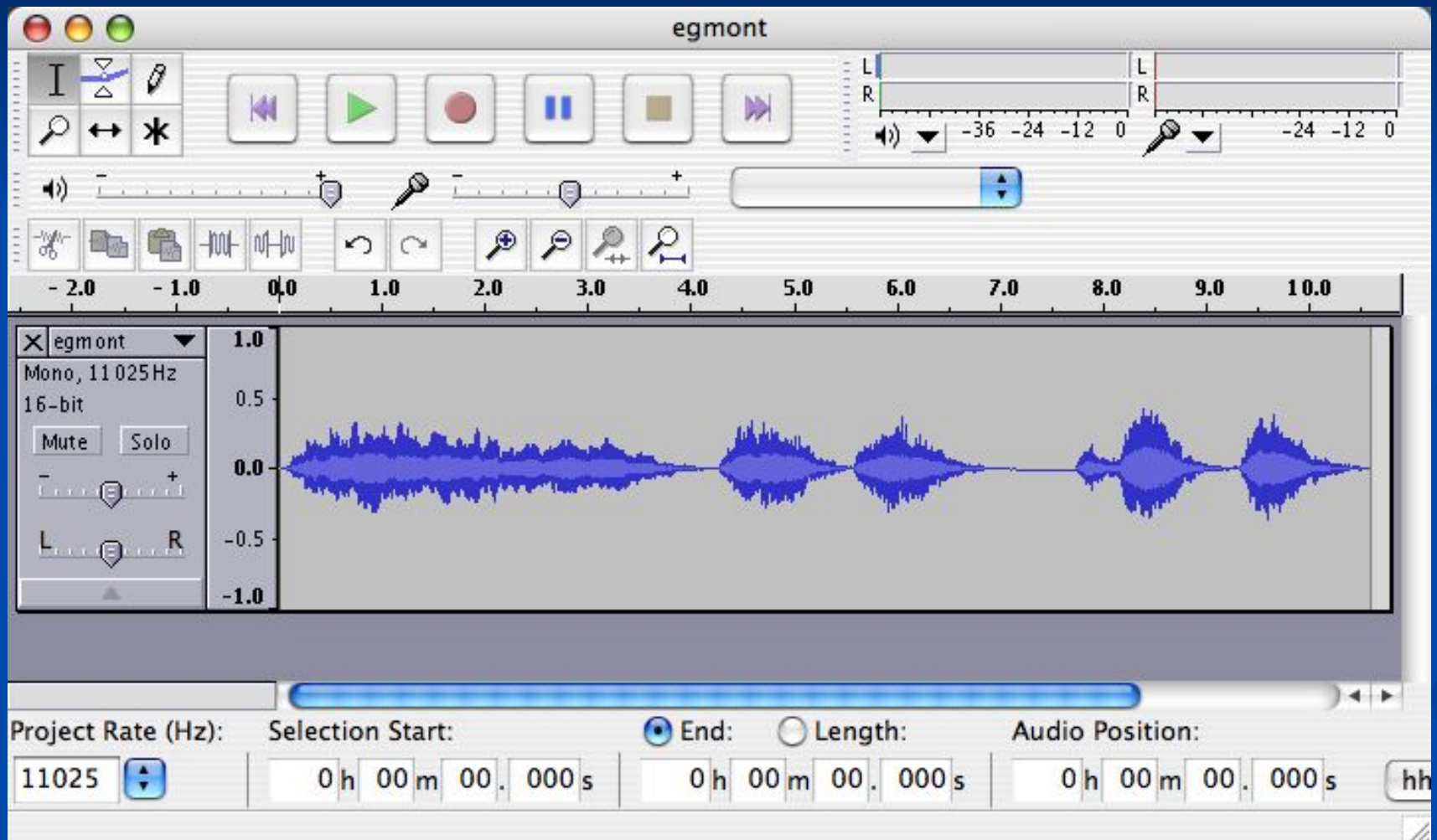
- Show CD
- Begin Playing
- Ask To Import CD
- Import CD
- Import CD and Eject

Import Using: Apple Lossless Encoder

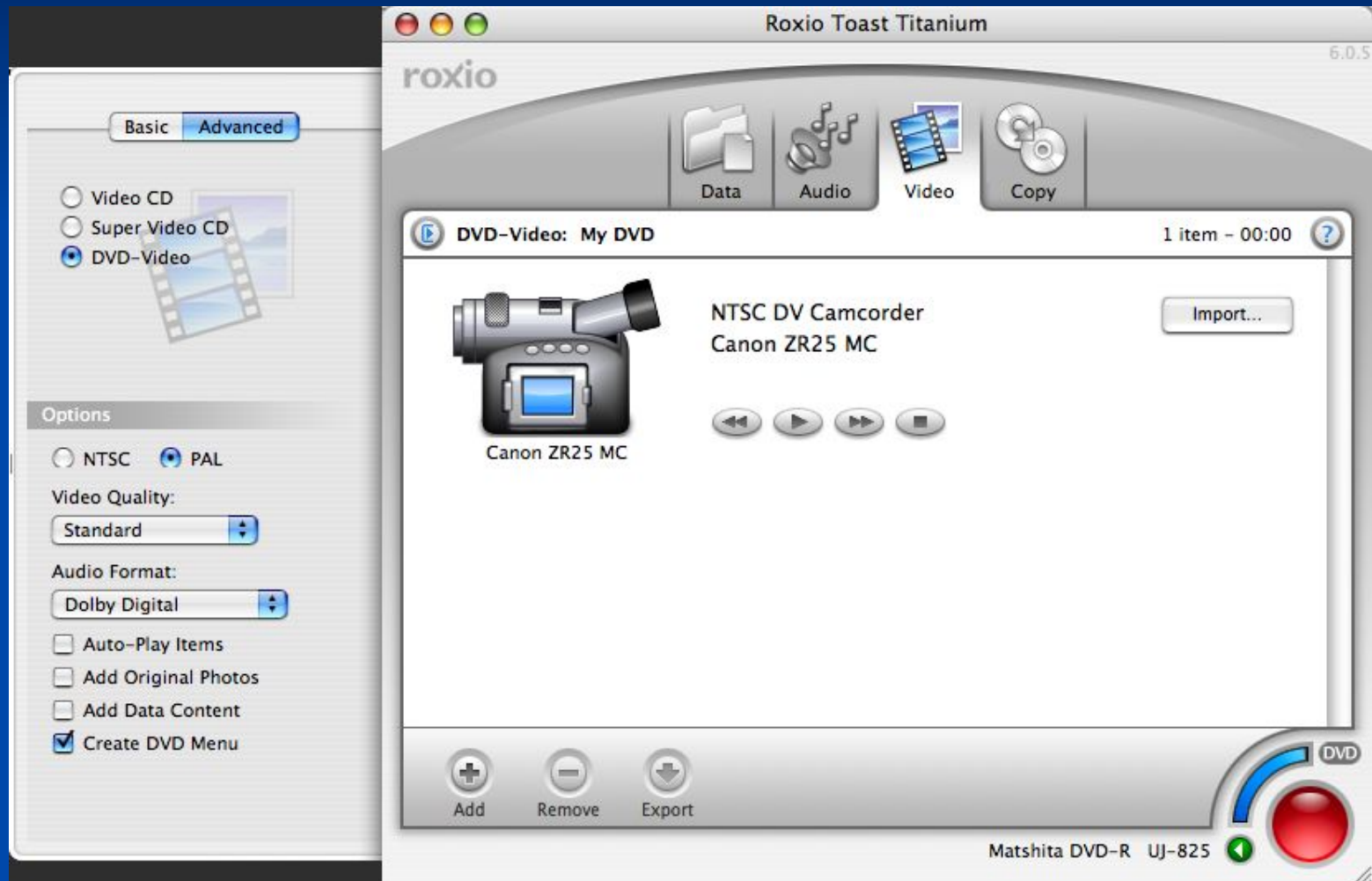
Setting: Automatic

Details

# Audacity (Mac/PC)



# Toast Titanium (Mac)



# Multitrack and Looping

# Audition (PC)

The screenshot displays the Adobe Audition interface for a session named "Audition-Theme.ses (Read-Only)". The main workspace shows a multi-track audio session with the following tracks:

- Kick Drum (M S R)
- Snare Drum (M S R)
- TomToms (M S R)
- Overhead (M S R)
- Drum Reverb (M S R)
- Bass (M S R)
- Bounced Guitars (M S R)

The tracks are arranged in a grid with waveforms and volume levels. The session is divided into sections: Verse 1, Verse 2, Chorus 1, Verse 3, Chorus 2, Solo, Bridge, and Chorus 3. The transport controls at the bottom show the current time at 1:45.487. The session properties are set to 149 bpm, 4 beats/bar, and 4/4 time. The master levels are visible at the bottom, showing a range from -68 to 0 dB.

Track	Volume Level
Kick Drum	-4.9
Snare Drum	-3
TomToms	-3
Overhead	-9
Drum Reverb	-7
Bass	-4.1
Bounced Guitars	-6

Transport controls: 1:45.487

Session Properties: Tempo: 149 bpm, 4 beats/bar, Key: A, 4/4 time

Master Levels: -68 to 0 dB

Opened Session in 9.75 seconds

Overhead Drum Mics (2) | 44100 • 32-bit Mixing | 120.82 MB | 7.61 GB free | 6:26:30.613 free | Timeline

# GarageBand (Mac)



The screenshot shows the Loops browser in GarageBand. The browser is organized into categories such as All Drums, Kits, Bass, Beats, Percussion, Synths, Electronic, Relaxed, Intense, Strings, Shaker, Brass, Country, Cheerful, Dark, Slide Guitar, Tambourine, Woodwind, Orchestral, Dry, Processed, Vocals, Vinyl, Mallets, Cinematic, Grooving, Arrhythmic, Textures, Conga, Clavinet, Jazz, Melodic, Dissonant, FX, Bongo, Vibes, Experimental, Part, Fill, Harmonica, Harp, Harpsichord, English Horn, French Horn, and Celesta. The Loops browser is currently displaying a list of loops with columns for Name, Tempo, Key, Beats, and Fav. The selected loop is 'Ambient Beat 01' with a tempo of 100 and 16 beats.

Name	Tempo	Key	Beats	Fav
80s Pop Beat 07	110	-	8	<input type="checkbox"/>
80s Pop Beat 08	110	-	16	<input type="checkbox"/>
80s Pop Beat 09	110	-	16	<input type="checkbox"/>
80s Pop Beat 10	110	-	16	<input type="checkbox"/>
<b>Ambient Beat 01</b>	<b>100</b>	-	<b>16</b>	<input checked="" type="checkbox"/>
Blip Synth 01	90	-	2	<input type="checkbox"/>
Classic Rock Beat 01	140	-	16	<input type="checkbox"/>
Classic Rock Beat 02	140	-	16	<input type="checkbox"/>
Classic Rock Beat 03	140	-	8	<input type="checkbox"/>
Classic Rock Beat 04	140	-	16	<input type="checkbox"/>
Classic Rock Beat 05	140	-	16	<input type="checkbox"/>
Club Dance Beat 001	125	-	16	<input type="checkbox"/>
Club Dance Beat 002	125	-	16	<input type="checkbox"/>
Club Dance Beat 003	125	-	16	<input type="checkbox"/>
Club Dance Beat 004	125	-	16	<input type="checkbox"/>

# Super Duper Music Looper (PC)

New Song Open Song Save Song E-mail Song Help Exit

Volume: 100  
Key: D#  
Tempo: 120

LooperVision™

Play Stop Record Paint Erase

+ Add a New Loop to Your Song

31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53

4 On The Floor 37  
Filtered Drums 10  
FX TurnTable Scratch 18  
Latin G Bass 02  
Electric Bass 16  
Fast Sequence 07  
Lead Synth 10  
Latin G Horns 01  
Home of Humans

Choose a Loop

Step Two: Choose a Loop

Bell Pad Melody.wav	Choir Stabs 02.wav	Dance
Celesta.wav	Dance Happy.wav	Dance
Choir Phrase 01.wav	Dance Synth 01.wav	Dance
Choir Phrase 02.wav	Dance Synth 02.wav	Dance
Choir Stabs 01.wav	Dance Synth 03.wav	Electri

Add Loop Cancel



# Live (Mac/PC)

Live File Edit Insert View Options Help

Untitled

TAP 120.00 4 / 4 0 EXT 1. 1. 1 OVR 1 Bar 3. 1. 1 4. 0. 0 KEY MIDI 1% D

Desktop

Name

- (Parent Folder)
- 369
- 421
- Admin work
- alumni course
- CSEME
- harnum independent study
- journal reviews
- MUSIC alias
- nasm06
- personal work
- print
- Student Teaching Placemen
- Teach ed council
- top journals project

1 Audio	2 MIDI	A Return	B Return	Master
<input type="checkbox"/>	<input type="checkbox"/>			▶ 1
<input type="checkbox"/>	<input type="checkbox"/>			▶ 2
<input type="checkbox"/>	<input type="checkbox"/>			▶ 3
<input type="checkbox"/>	<input type="checkbox"/>			▶ 4
<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/> Stop Clips
<b>Audio From</b> Ext. In	<b>MIDI From</b> All Ins			<b>Cue Out</b> ii 1/2
1/2	All Channe			<b>Master Out</b> ii 1/2
<b>Monitor</b> In Auto Off	<b>Monitor</b> In Auto Off	<b>Audio To</b> Master	<b>Audio To</b> Master	<b>Sends</b> Post Post
<b>Audio To</b> Master	<b>MIDI To</b> No Output	<b>Sends</b> A B	<b>Sends</b> A B	<b>Sends</b> Solo
<b>Sends</b> A B		<b>Sends</b> A B	<b>Sends</b> A B	<b>Sends</b> Solo
<b>Sends</b> A B		<b>Sends</b> A B	<b>Sends</b> A B	<b>Sends</b> Solo

# Logic Pro (Mac)

The screenshot displays the Logic Pro software interface for a project named "riders.iso:Song Data Arrange". The interface is divided into several main sections:

- Top Section:** Includes transport controls (play, stop, record), a digital display showing the time "00:00:27:09.25", and a MIDI/Logic Pro status bar.
- Left Panel:** Contains MIDI Thru settings (Quantize, Loop, Transpose, Velocity, Dynamics, Gate Time, Delay) and a list of tracks including Audio 5-17 and Output 1-2.
- Center Section:** The main arrangement area showing audio waveforms for tracks like "Great new storms" and "Audio 6#02.38".
- Bottom Left:** A piano roll view showing MIDI notes on a keyboard grid.
- Bottom Center:** A digital display showing the time "00:00:27:09.25" in red.
- Right Panel:** A detailed mixer for "riders.iso:Song Data:AudioInst10#3", featuring EQ, Inserts (ChanEQ, Comp), Sends, and I/O settings.
- Top Right:** A MIDI piano roll view for "riders.iso:Song Data:AudioInst10#3" showing a list of notes with columns for Position, Status, Cha, Num, Val, and Length/Info.

Position	Status	Cha	Num	Val	Length/Info
12 4 1	1 Note	1	C2	80	1
12 4 2	38 C-Press	1	A2	82	16
12 4 2	127 C-Press	1		0	
13 1 1	1 Note	1	D2	108	
13 2 1	1 Note	1	A2	82	
13 2 3	1 Note	1	D3	98	
13 3 3	1 Note	1	D2	110	
13 4 1	1 Note	1	A2	82	
13 4 3	1 Note	1	D3	100	
14 1 1	1 Note	1	C2	106	1
14 2 1	1 Note	1	C2	86	
14 2 3	1 Note	1	C3	88	
14 3 3	1 Note	1	C2	106	
14 4 1	1 Note	1	G2	88	
14 4 3	1 Note	1	C3	90	
15 1 1	1 Note	1	D2	110	1
15 2 1	1 Note	1	A2	84	
15 2 3	1 Note	1	D3	104	
15 3 3	1 Note	1	D2	112	

# Virtual Studio

# Reason (Mac/PC)

The image displays the Reason software interface, titled "Tutorial Song.rns\*", showing a detailed digital mixing console and various audio processing modules.

**MIDI IN DEVICE:** Shows 16 channels (CHANNEL 1 to CHANNEL 16) with MIDI devices like "Redrum In", "Dr.REX In", and "Subtractor In" assigned to specific channels.

**AUDIO OUT:** Shows the audio output configuration, including "CoreAudio M-Audio Oz" and "reason hardware interface".

**MIXER 1:** A 16-track mixer with faders, EQ (TREBLE, BASS), and auxiliary (AUX) sends for each track. The tracks include "REDRUM", "DR.REX", "NN-KIT SAMPLE", "SUBTRACTOR", and 14 other channels. A "RETURN" track is also visible.

**DDL-1 DIGITAL DELAY LINE:** A delay module with parameters for "MS" (set to 8888), "STEPS" (1/16), "UNIT" (1/8T), and "STEP LENGTH". It includes "FEEDBACK", "PAN", and "DRY/WET" controls.

**CF-101 CHORUS/FLANGER:** A chorus/flanger module with "LFO" and "MOD AMOUNT" controls. The "Master Level" is set to 100.

**SUBTRACTOR POLYPHONIC SYNTHESIZER:** A synthesizer module with two oscillators (Osc 1 and Osc 2), "Filter 1", "Filter 2", "Mod Envelope", "Filter Envelope", and "Amp Envelope" sections. The patch is "Bread Bass".

**Bottom Panel:** Includes CPU usage, MIDI SYNC, FOCUS, CLICK, TEMPO (145), SIGNATURE (80), POS (0024), LOOP ON/OFF, and PATTERN SHUFFLE controls.

# Notation

# Sibelius (Mac/PC)



## HARRY'S BOOGIE

*commissioned by Harry Holland and Dave Edwards  
for the BBC*



Screenshot of the Sibelius 4 interface showing the score for "Blueish Grass" for Steel-string guitar. The score is in 3/4 time, marked "Allegro". The interface includes a playback window, a keyboard window, and a navigator window. The score is displayed in a multi-staff view, showing the guitar part and the treble staff. The score includes a guitar tablature section (TAB) and a keyboard section.

Blueish Grass  
Allegro  
for Steel-string guitar

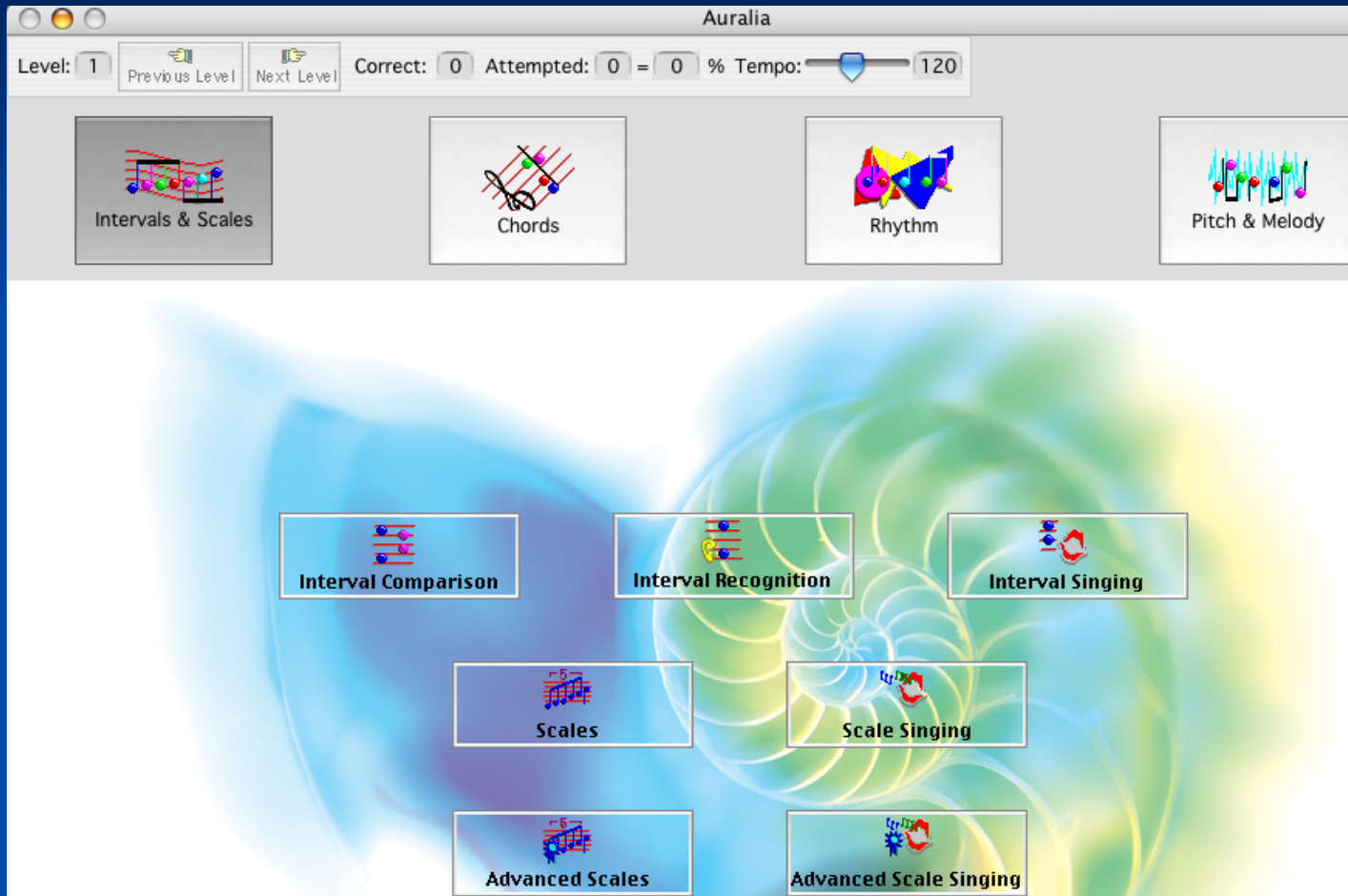
Blueish Grass - Guitar  
Blueish Grass - [treble staff]

Blueish Grass  
Allegro

Blueish Grass  
Allegro

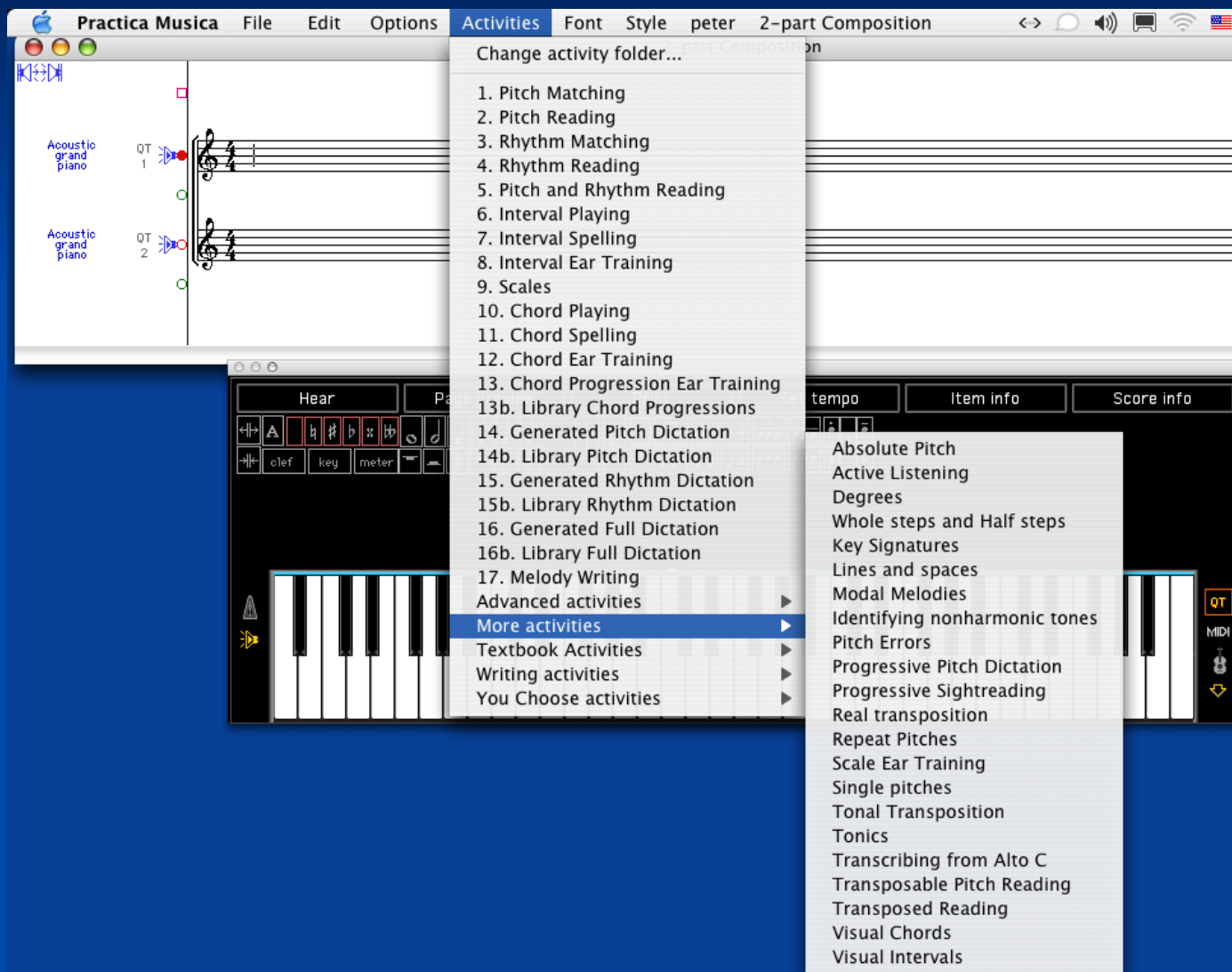
# Computer-Aided Instruction (CAI)

# Auralia (Mac/PC)





# Practica Musica (Mac/PC)



# TimeSketch (Mac/PC)

Songs by Blood, Sweat, & Tears

## Symphony for the Devil (1970)



This "arrangement" of the Rolling Stones' "Sympathy for the Devil" was recorded by Blood, Sweat, & Tears on their third album in 1970.

Play

Index

# Music Ace I and II (Mac/PC)




Menu      8. More Treble Staff ABC's      Vol      << Skip      Skip >>      Lesson


Score: 30  
1 2 3 4 5 6  
0% 100%

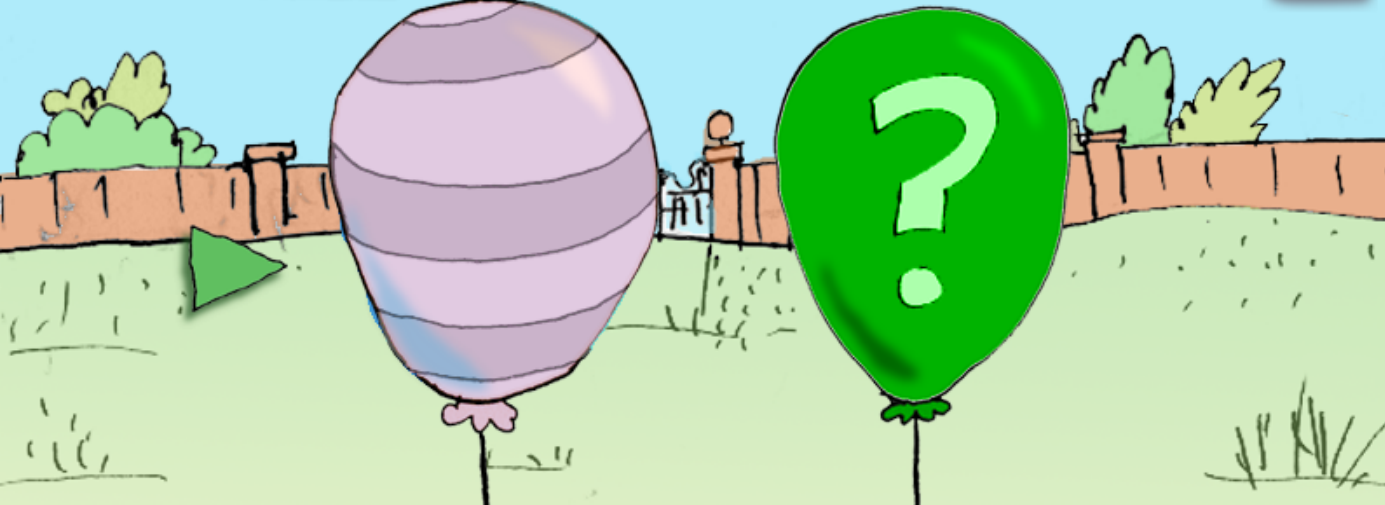
Click... **E**






# Hearing Music (Mac/PC)


COMPARING  
NAME THE DIFFERENCE

Matching  Reading  Ordering 

LEVEL 1 2 3 4  
  
Reset



faster  lower  backwards  upside-down  same 

HOME  HELP

# Smart Music (Mac/PC)



# Sibelius Instruments (Mac/PC)

**Instruments**

## Late Romantic orchestra (c.1880-1910)

Except for percussion, the composition of the instrumental families had stabilized. Orchestral instruments had by now acquired their final shapes and technological structure.

**Other percussion**

Wagner, Mahler etc. used even larger orchestras.

**Timpani**

**Tuned percussion**

**Tam-tam**

**Trumpets**

**Horns**

**Trombones**

**Tuba**

**Clarinets**

**Bassoons**

**Oboes & English horn (cor anglais)**

**Piano**

**Flutes & Piccolo**

**Celesta**

**Harps**

**1st Violins**

**2nd Violins**

**Violas**

**Contrabasses (Double basses)**

**Cellos**

**Conductor**

MAHLER, Gustav: Symphony no. 1 'Titan' in D major (1884-1898)

The screenshot displays a detailed digital orchestra layout. At the top, the window title is 'Instruments'. Below it, the title 'Late Romantic orchestra (c.1880-1910)' is followed by a descriptive paragraph. The instruments are arranged in a semi-circular pattern, with labels for various sections: Percussion (Timpani, Tuned percussion, Tam-tam, Other percussion), Brass (Trumpets, Horns, Trombones, Tuba), Woodwinds (Clarinets, Bassoons, Oboes & English horn), Strings (1st Violins, 2nd Violins, Violas, Cellos, Contrabasses), and other instruments like Piano, Flutes & Piccolo, Harps, and Celesta. A conductor icon is positioned at the front center. At the bottom, a software interface includes a title bar for 'MAHLER, Gustav: Symphony no. 1 "Titan" in D major (1884-1898)', a set of instrument icons, and a playback control bar.

# Band-in-a-Box (Mac/PC)

The screenshot displays the Band-in-a-Box software interface. At the top, the menu bar includes File, Edit, Styles, Opt., Play, Lyrics, Melody, Soloist, Audio, GM, Harmony, Notation, Window, and Help. Below the menu bar is a control panel for the selected instrument, '5 Rhodes Electric Piano'. This panel includes settings for Volume (90), Pan (20), Reverb (40), Chorus (0), Bank0 (0), and LSB (0). It also features a keyboard layout with a red key indicator and a dropdown menu for 'M F 0 < no harmony >'. Below the control panel is a piano keyboard graphic. The main interface contains a toolbar with icons for New, Open, Save, Save As, .MID, .WAV, Play, Replay, Stop, Pause, From, Melodist, Soloist, <Juk, Juke, Juk ->, Rec, R. Aud, A.Ham, Plugins, Synth, and Panic. Below the toolbar is a song information section showing 'Song... F Sky Blue (Lee-Rit.STY demo) Jazz-Funk-Rock..El.Pno' and 'Style... F LEE\_RIT'. The main area displays a chord progression for 32 measures. The chords are: 1a: Em9, 2: (blank), 3: A9sus, 4: (blank), 5: Em9 F#7b9 F#m, 6: GMaj7 A/BBm, 7: Em9 F#7b9 F#m, 8: GMaj7 A/BBm, 9b: A9sus, 10: A13, 11: Am7, 12: A13, 13b: A9sus, 14: A13, 15: Am7, 16: A13, 17: GMaj7 F#m7, 18: Em7, 19: F#/B AbMaj7, 20: Ab/Db BbMaj7, 21b: Eb9sus Bb13b9/Eb, 22: Db/Eb, 23: Eb13b9, 24: Db/Ab AbMaj7, 25: AbMaj7, 26: C#m7 F#m11 Bm11, 27: Bm11, 28: (blank), 29b: end Em9, 30: (blank), 31: (blank), 32: (blank). The progression ends with a double bar line and a 3x repeat sign.

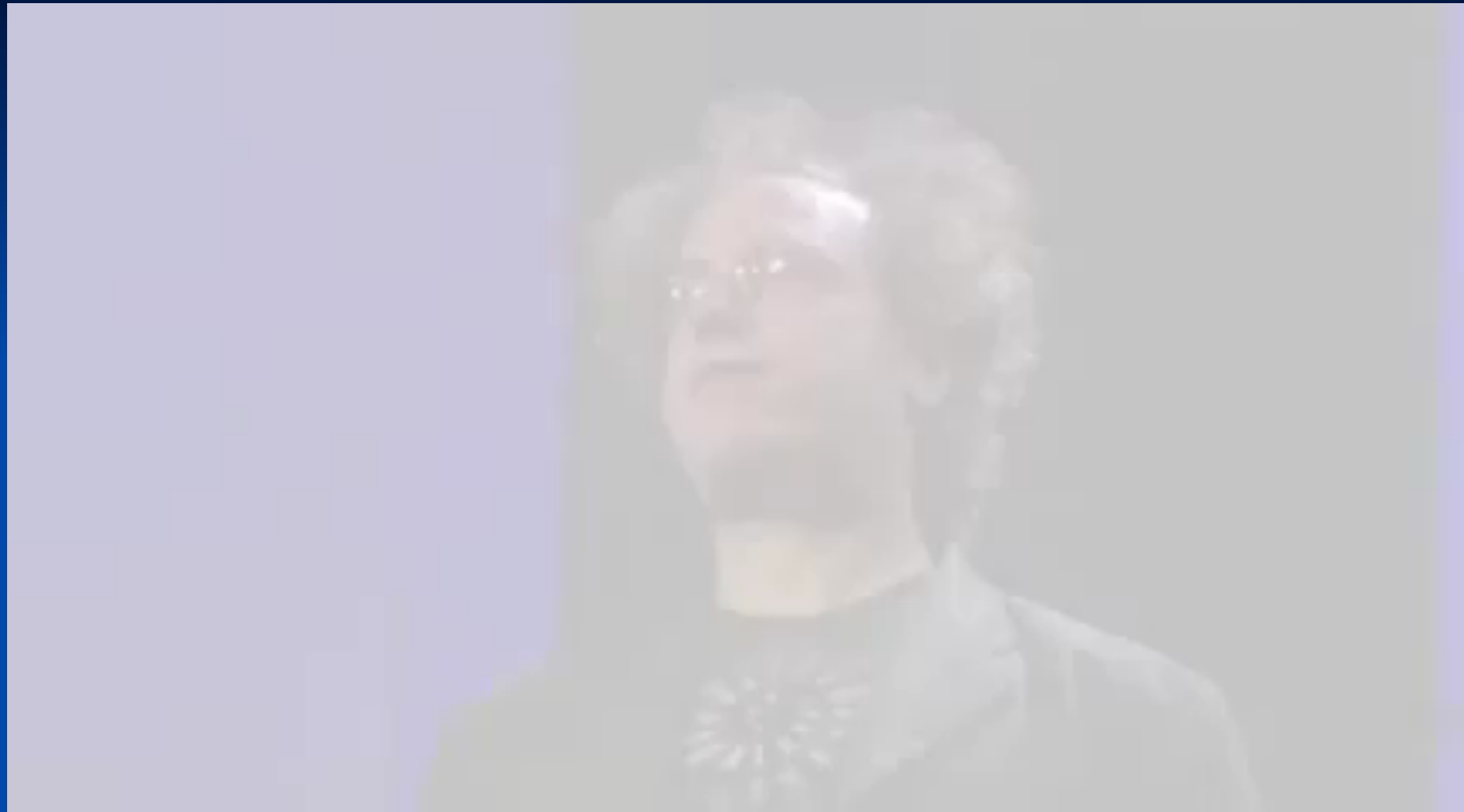
1a	:Em9	2		3	A9sus	4	
5	Em9 F#7b9 F#m	6	GMaj7 A/BBm	7	Em9 F#7b9 F#m	8	GMaj7 A/BBm
9b	A9sus	10	A13	11	Am7	12	A13
13b	A9sus	14	A13	15	Am7	16	A13
17	GMaj7 F#m7	18	Em7	19	F#/B AbMaj7	20	Ab/Db BbMaj7
21b	Eb9sus Bb13b9/Eb	22	Db/Eb	23	Eb13b9	24	Db/Ab AbMaj7
25	AbMaj7	26	C#m7 F#m11 Bm11	27	Bm11	28	
29b	end Em9	30		31		32	

# Making Music (Mac/PC)









# Key Question

**Have I maximized the opportunities for all learners to make their own aesthetic decisions with my guidance and encouragement?**

# Questions!!

