

Understanding and using Visualization

Presentation for FIS

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✓ ICT: Information and
Communication
Technology

✓ Interactive voice
visualisation software

✓ A new object in teaching

✓ A non-traditional tool for
the singing studio

What are we
talking about?

- ✓ Assumption
- ✓ Definition
- ✓ History
- ✓ Materials
- ✓ Methodology
- ✓ Risks
- ✓ Concluding observations
- ✓ Sources
- ✓ Demonstration

What will we
think about?

Visualisation can improve
our effectiveness in
teaching singing,
just as it has helped us
understand how the vocal
instrument functions.

New Assumption

Oxford English Dictionary

- ✓ Visual: concerned with seeing, information received through sight.
- ✓ Visualization: make images of something not present or visible.

Wikipedia: Visualization

- ✓ Types, e.g.
 - ✓ Creative
 - ✓ Flow
 - ✓ Interactive
- ✓ Systems, e.g.
 - ✓ Graphic images
 - ✓ Light analysis
 - ✓ Sound analysis

Visualization as an Object

- ✓ Computer world:
objectifying the invisible
by transferring it into a
visual medium
- ✓ Objects (mirror) help us
 - ✓ Form a mental picture
 - ✓ Describe what we are
looking/listening for
 - ✓ Support information
retention
 - ✓ Make self-training easier

History Sound Visualization

- ✓ 1976 – Atari Video Music
- ✓ Computer music with visualization – 1980s and 90s
- ✓ Winamp, Audio, SoundJam (2000), Laser displays
- ✓ Sound spectrum

History Computers, Teaching and E-Learning*

- ✓ 1960-70 CAT
- ✓ Computer Assisted Teaching
- ✓ Focus: Computer as teacher
- ✓ Method: Courses for independent learning (e.g. languages)
- ✓ Keep from this era: development of individualization in teaching

* Demaizière

History Computers, Teaching and E-Learning*

- ✓ 1970s – 80s Simulation
- ✓ Example: flight simulator
acoustic voice simulation
- ✓ Focus: computer as a teaching
tool
- ✓ Method:
 - ✓ Returns control to the teacher
 - ✓ Improved information-instruction
balance
- ✓ Keep from this era: focus on the
student

* Demaizière

History Computers, Teaching and E-Learning*

- ✓ 1990s
 - ✓ Arrival of the Internet
 - ✓ Speed of communication
 - ✓ DL – digitalized distance learning
- ✓ Result - hybrid communication:
combinations of DL and teacher
presence

* Demaizière

History Computers, Teaching and E-Learning*

- ✓ 2000 - WEB 2.0
 - ✓ Internet development
 - ✓ Social media Twitter, Facebook, Wikipedia
 - ✓ Focus:
 - ✓ social contact in the learning process
 - ✓ Peer information
 - ✓ Method: Users create and exchange content publicly
 - ✓ Keep:
 - ✓ Openness, communication
 - ✓ Creativity
 - ✓ Connection between theory and practise:
„Can someone help me with this?“
 - ✓ Watch: content quality and reliability

* Demaizière

- ✓ Early form: Stimmfeldmessung der Grundfrequenz und Umfang
- ✓ 1996 - Donald Miller and Harm K. Schutte, Garyth Nair
- ✓ Voce Vista – digitalized vocal sound spectrum: „Endlich sehen was ich schon immer gehört habe.“
- ✓ Developed for research purposes

Voice Visualisierung History

- ✓ Left the tool with the scientists
- ✓ Extended our knowledge
- ✓ Left a gap between
 - ✓ voice science and theories of vocal mechanics, production and aesthetics and
 - ✓ pedagogy, practical applications of technology and artistic goals
 - ✓ our desire to follow new ideas and practicality and availability (e.g. cheap and easy to use)

New tools, but

- ✓ Suspicious regarding the connection between technology, education and art?
- ✓ Guilty conscience?
- ✓ Stuck in traditional methods (that work)?
- ✓ Feeling insecure in the face of new challenges and changing roles?

What's our problem?

Vocal pedagogy....

Visualisation can
improve our
effectiveness

in teaching singing,
but we don't know

how to use it.

New Assumption

Methodology

“ Something you are shown, such as a picture, film or map, in order to help you understand or remember information”

Cambridge International
Dictionary of English

Visual aids –
goal of

- ✓ Software should be
- ✓ Easy to handle – plug and play
- ✓ Free or cheap
- ✓ Attractive and
- ✓ Easy to understand

**Our Object:
Software**

- ✓ Sing and See
- ✓ Apps for android and iPhones
- ✓ Sygyt
- ✓ Voce Vista
- ✓ Diva
- ✓ Praat
- ✓ And many more

Very incomplete list!

Current
programmes

“ Visualisation creates a virtual space for discussion. We agree or disagree with the image, not the person.”*

“ We need to learn that the virtual world and the real world are not opposites,** but ideally should be integrated with each other.

*Warren-Kretschmar

**Bordeaux

HOW does it
WORK?

- ✓ Technology and visual aids
- ✓ Are already integrated into artistic, educational and social practise
- ✓ Use a language that our students instinctively understand!
- ✓ Can we ignore millions of hits and questions on Internet forums?
- ✓ Do we navigate by the stars or use GPS?

important?

Why is it

- ✓ Objectifies sound
- ✓ Allows for dynamic navigation
- ✓ Opens the door to creative interest

**Interactive
Visualization**

- ✓ Change your relationship with your student
- ✓ Change your idea of your student's voice
- ✓ Help bridge the gap between perceived teaching and actual learning

What can it bring to my teaching?

- ✓ They do not
- ✓ Replace the teacher
- ✓ Replace verbal information
- ✓ Replace metaphors
- ✓ Replace anything

What do visual aids
NOT do?

- ✓ Concept: Why do it?
- ✓ Realism: What does it tell me?
- ✓ Planning: What do I do about it?
- ✓ Interaction: How do I do it?
- ✓ Self-training: Doing it alone

Five phases of interactive visualization

- ✓ Why use it for THIS student:
- ✓ Engage interest
- ✓ Encourage communication
- ✓ Change the communication level
- ✓ Focus concentration
- ✓ Further co-operation
- ✓ Encourage exploration
- ✓ Give control to the student
- ✓ Make forming new habits easier

Phase 1: Concept
What is my goal?

- ✓ As a teacher, do I want to:
- ✓ Refresh my traditional methods
- ✓ Underline information
- ✓ Give a new perspective
- ✓ Increase credibility
- ✓ Build trust
- ✓ Further co-operation
- ✓ Encourage exploration
- ✓ Present new challenges

Define my student:

How does he/she learn?

Kolb: Learning styles

Phase 1: Concept
Why should I use it?

- ✓ Objectified information
- ✓ Gives the teacher and student the same information
- ✓ Gives orientation
- ✓ Adds spatial understanding to aural perception
- ✓ Allows us to experience the voice differently
- ✓ Bridges the gap between theory and practise

Phase II: Realism Information

- ✓ Three steps
- ✓ Analyse the image
- ✓ Give information as to ist meaning
- ✓ Define the specific goal, what to look at: clean attack, better vowels, clear tone, experiment with vocal colour, etc.

Phase 3: Planning
What to change?

Use traditional methods: Teach!

- ✓ Experiment - Trial and Error
- ✓ Model - Parrot system
- ✓ Compare - before and after
- ✓ Give contextual information

Phase 4: Interaction
HOW do I change it?

- ✓ Changes our communication:
- ✓ Argumentative
- ✓ Expressive
- ✓ Informative communication*

*Bordeaux

Levels of
communication

- ✓ A language that our students instinctively understand!
- ✓ They use it - with or without us
- ✓ Objectifies exercises and practise goals
- ✓ Encourages reflection
- ✓ Speeds follow-up in the next lesson

**Self-training
or Practising**

- ✓ Using it as proof underlining the teachers' role as the „Master“ - argumentative
- ✓ Loosing a sense of timing
- ✓ Loosing sight of creativity
- ✓ Loosing sight of artistic goals
- ✓ Spending money on unnecessary equipment
- ✓ Using unreliable information

Risks?

We're all on the train

- ✓ Locomotive - Technology freak
 - ✓ Forgets that the tool is not the teacher
 - ✓ Overindulges
 - ✓ Gets lost in gadgets
 - ✓ Front of the train
 - ✓ Freedom fan – willing to experiment
 - ✓ Forgets to guide the student
 - ✓ Middle: the perfect, balanced teacher we all want to be
 - ✓ Back of the train
 - ✓ Questioners and sceptics
 - ✓ Distrust their student
 - ✓ Fear losing command
 - ✓ Give important correctives
- BUT**



- ✓ We will still
- ✓ Listen: Use our ears as the most effective source of analysis
- ✓ Describe smelling the roses: Use descriptive metaphors
- ✓ Inform: Give appropriate information
- ✓ Not use technology if we find it irrelevant

Revolution?

„Working with new media offers a constant new challenge but it must also be done with creativity.“*

*Bordeaux

Conclusion

Working with new media will not revolutionize our teaching, but it will certainly

- ✓ Enrich it if we use it wisely,
- ✓ Help us to explore innovative ways of teaching
- ✓ Give us a different perspective on teaching
- ✓ Establish a new relationship with our students.

Finally:

Sources:

1. Warren-Kretschmar, Dr. Barty: *Visualization in Landscape Planning – Choosing appropriate Visualisation methods for Public Participation*, doctoral thesis, 2010
2. Bordeaux, Dr. Marie-Christine – Media and Art Education expert, Grenoble : Comments on EVPWeek, January 2011
3. Demaizière, Françoise, ICT (Information and Communication Technology) in Teaching/Learning; ARIAM, AFPC-EVTA France
4. Oxford English Dictionary
5. Cambridge International Dictionary of English
6. Wikipedia: Visualization

**Now let's get
practical!**

Thank you for your attention!