Understanding and Using Visualization

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New Assumption

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

Visualization

What does it do?

- ✓ Feedback for teacher and student
- ✓ Objectifies the invisible by transferring it into a visual medium
- ✓ Helps us
  - ✓ Form a mental or aural picture
  - ✓ Demonstrate what we are looking and listening for
  - ✓ Objects support information retention

Visualization

Objects we use

- ✓ Mirror, mirror
- ✓ Anatomical illustrations
- ✓ Straws, gymnastic balls, elastic bands……..
- ✓ Video recordings
- ✓ Audio recordings – „auralization“

Visual aids

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

Voice visualization
a different kind of
mirror...

A new object

Visualization

Voice Visualization

Beginnings

- ✓ 1996 - Donald Miller and Harm K. Schutte, Garyth Nair
- ✓ Voce Vista – vocal sound spectrum
- ✓ Developed for research purposes

New Tools, but…

- ✓ Extended our knowledge
- ✓ Left the tool with the scientists
- ✓ Left a gap between
  - ✓ voice science and theories of vocal function, production and aesthetics
  - ✓ pedagogy and practical applications of technology and artistic goals
  - ✓ our desire to follow new ideas and practicality and availability of technology

How did we get here?

Voice Visualization

Today

- ✓ Many versions available for many purposes
- ✓ Easy availability
- ✓ Students pick it up ....

Vocal pedagogy: ...

- ✓ Traditional methods work
- ✓ Suspicious of the connection between technology, education and art
- ✓ Feeling insecure in the face of new challenges and changing roles
- ✓ Guilty conscience?

So what's our problem?

„Visualization creates a virtual space for discussion. We agree or disagree with the image, not the person.“

Warren-Kretschzmar

How does it work?

A new dimension

„The virtual world and the real world are not opposites. They should complement each other.“

Bordeaux

How does it work?

A new dimension

Navigation

✓ Sun and Stars

✓ Maps

✓ GPS

A new dimension

How does it work?

Interactive visualization

What can it bring to my teaching?

- ✓ Real-time feedback
- ✓ Objectifies sound
- ✓ Allows for dynamic navigation
- ✓ Opens the door to creative interest
- ✓ Clarifies the difference between vocal function and artistry

Interactive visualization

What can it bring to my teaching?

- ✓ Helps bridge the gap between perceived teaching and actual learning
- ✓ Changes the student-teacher relationship
- ✓ Changes our teaching

Four Phases of Interactive Visualization

Concept

- ✓ Why use it?
- ✓ What does it tell me?

Realism

- ✓ What do I do about it?

Planning

- ✓ How do I do it?

Interaction

Basic rules of pedagogy

Phase 1: Concept

Why use it?

- ✓ For the student
- ✓ Engages interest
- ✓ Encourages communication
- ✓ Changes the communication level
- ✓ Focusses concentration
- ✓ Furthers co-operation
- ✓ Encourages exploration
- ✓ Gives the student control over feedback
- ✓ Makes forming new habits specific

Phase 1: Concept

Why use it?

- ✓ For the teacher:
- ✓ Underlines information
- ✓ Gives a new perspective
- ✓ Increases credibility
- ✓ Furthers co-operation
- ✓ Encourages exploration
- ✓ Presents new challenges

Phase 2: Realism

What does it offer?

- ✓ Objectified information for teacher and student offers
- ✓ Analysis based on one source of information
- ✓ A source of orientation
- ✓ Added spatial understanding to aural perception
- ✓ A bridge over the gap between theory and practise

Phase 3: Planning

- ✓ Analyse the image
- ✓ Interpret
- ✓ Define the goal
- ✓ Model

What needs to change?

Phase 4: Interaction

- ✓ Teach!
  - ✓ Define my student: How does he/she learn?
  - ✓ Give contextual information
  - ✓ Experiment with methods
    - ✓ Trial and Error
    - ✓ Model – Imitate
    - ✓ Before and after
  - ✓ Develop awareness of argumentative, expressive and informative communication**

**Bordeaux

How to make changes?

Phase 4: Interaction

- ✓ A language that our students instinctively understand!
- ✓ Objectifies exercises and practise goals
- ✓ Encourages reflection
- ✓ Self-regulated learning
- ✓ Speeds follow-up in the next lesson

Establishing changes

Risks?

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

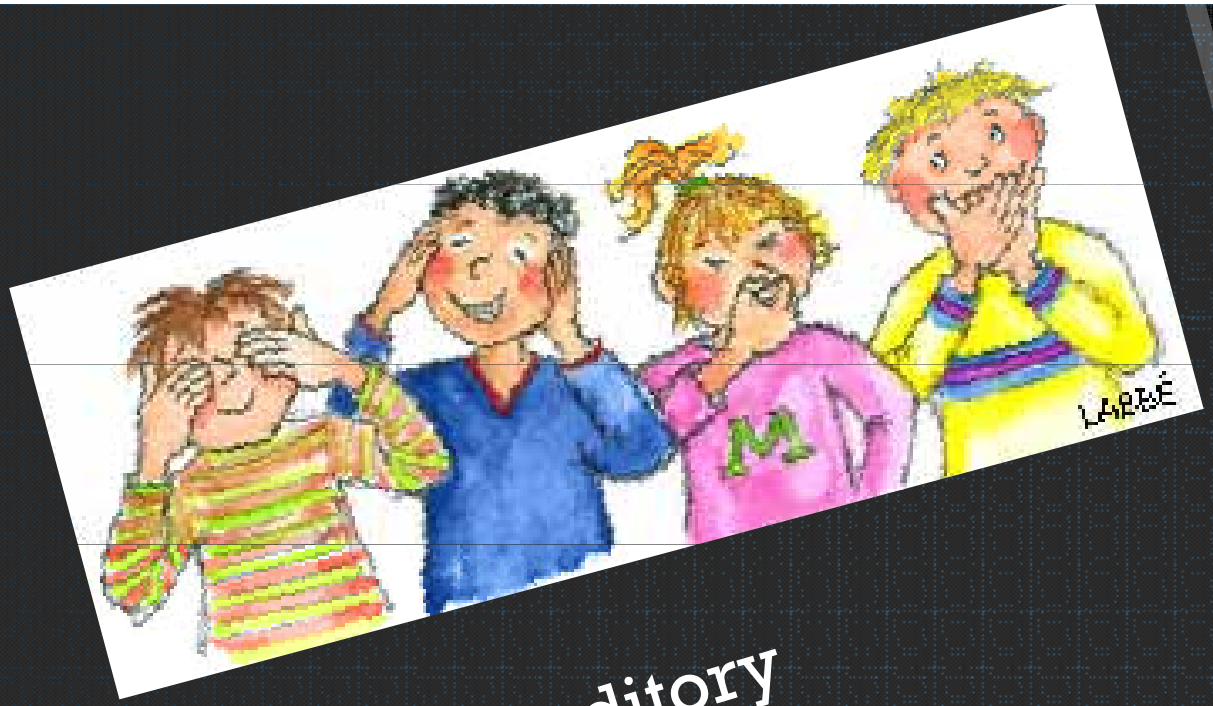
Applying Visualization Strategies

Brain and Information

Primary perception

- ✓ Jigsaw puzzle
- ✓ Global perception looks at the whole picture, then finds the details
- ✓ Cognitive perception looks at the pieces and puts them together to make a picture.

Brain and Information



- ✓ Auditory
- ✓ Visual
- ✓ Tactile
- ✓ Kinetic

Secondary perception

Learning involves

- ✓ Concept - Concrete experience „I make holes, not lines. “
- ✓ Realism - Reflective observation - „What should I do? “
- ✓ Planning - Abstract hypothesis - „What changes if...? “
- ✓ Interaction - Active testing - „Can I sing better this way? “

Applying visualization

- ✓ Listeners
- ✓ Readers
- ✓ Writers
- ✓ Talkers
- ✓ Watchers
- ✓ Doers

Straker

Teaching and Learning Strategies

Applying visualization

Listeners

- ✓ Like to be told what to do
- ✓ Like lectures, slides, power point
- ✓ Want an end result they can use alone
- ✓ Want an order of things: what to do next
- ✓ Are suited to a traditional classroom environment and methods.

Applying visualization

Readers

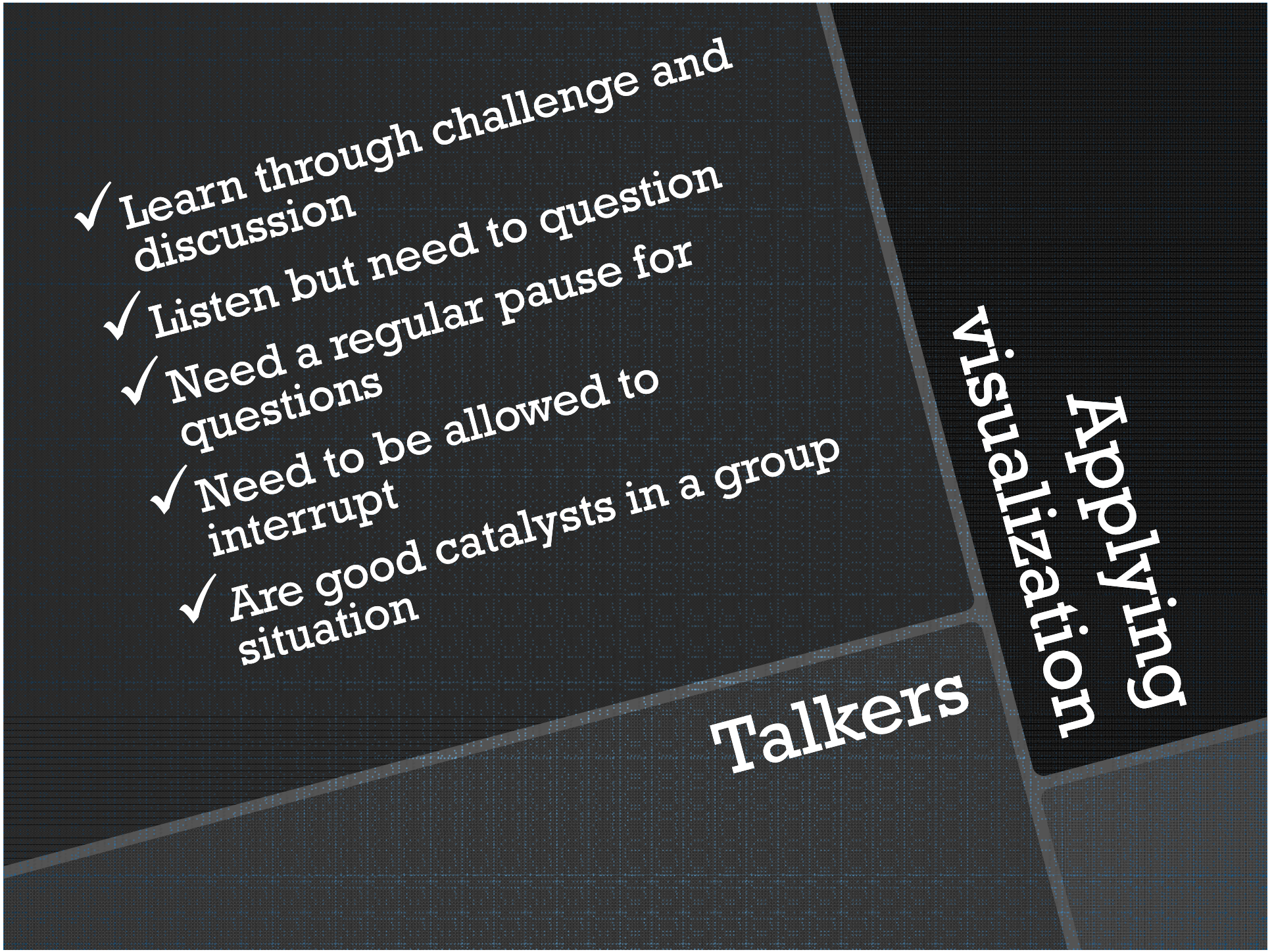
- ✓ Find others either too fast or too slow
- ✓ Listen only with one ear
- ✓ Get distracted with auditive input
- ✓ Want a book to read
- ✓ Want to go at their own pace

Applying visualization

Writers

- ✓ Need to transfer information into their own words
- ✓ Ignore prepared summaries
- ✓ Make their own notes
- ✓ Constantly have a pencil in their hand
- ✓ Doodle (draw patterns while listening)

Applying visualization


✓ Learn through challenge and discussion
✓ Listen but need to question
✓ Need a regular pause for questions
✓ Need to be allowed to interrupt
✓ Are good catalysts in a group situation
Talkers
Applying visualization

Observers

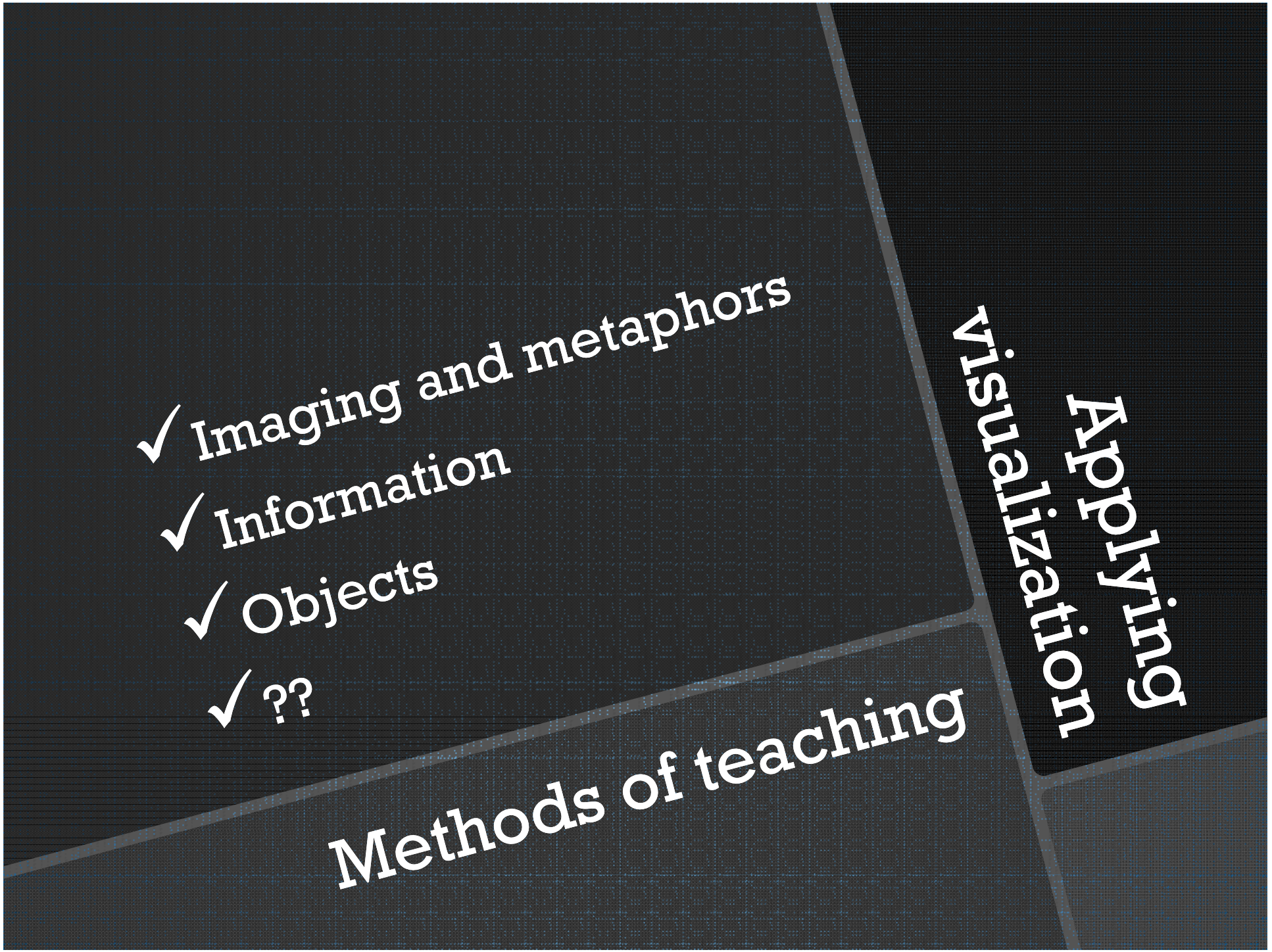
- ✓ Want a living example to watch
- ✓ Learn well from demonstrations
- ✓ Also want to know how not to do it
- ✓ Imitate well - use the parrot method
- ✓ Like watching a video

Applying visualization

Doers

- ✓ Learn by trial-and-error
- ✓ Never read instructions unless absolutely necessary
- ✓ Impatient to get going
- ✓ Keep trying until they find out what works - researchers
- ✓ Need ideas for independent practice, not a set programme

Applying visualization


✓ Imaging and metaphors
✓ Information
✓ Objects
✓ ??
Methods of teaching
Applying visualization

Connecting the strategies

- ✓ Appeals to imagination and senses
- ✓ Observers do well imitating sensual and visual images
- ✓ Communicates experience not facts
- ✓ Individual physical and aural sensations differ
- ✓ Artistically expressive
- ☐ Depends on a common frame of reference: needs cultural and language(!) conformity
- ☐ Is not objective or factual
- ☐ Imparts no knowledge of vocal function
- ☐ Effective images are not necessarily physiologically correct

Imaging and Metaphors
Sun and stars

Connecting the strategies

- ✓ Talkers, observers and readers love this
- ✓ Often have a good feeling for the larynx
- ✓ Body imaging helps achieve healthy vocal function
- ☐ Easy to be distracted by technical details
- ☐ Gets lost in pursuit of optimizing tone quality
- ☐ Does not develop musicality or artistry

Giving information
Using a map

Connecting the stategies

- ✓ Listeners, doers and observers love real-time feedback, direct results
- ✓ Physical movement or on-screen image helps concentration
- ✓ Tactile exercises give orientation
- ✓ Playing and having fun can be part of singing
- ✓ Opens the door for knowledge and imagination
- ☐ Does not deal with subjective aspects
- ☐ Needs a with-without strategy for long-term effectiveness

Objects and Technology
GPS?

We're all on the train

- ✓ Locomotive
  - ✓ Technology freak
  - ✓ Forgets that the tool is not the teacher
  - ✓ Overindulges
- ✓ Front of the train
  - ✓ Liberation fan
  - ✓ Forgets to guide the student
  - ✓ Give old practises new names
- ✓ Middle: the perfect, balanced teacher
- ✓ Back of the train
  - ✓ Sceptics
  - ✓ Afraid of losing command

*Demaizière

Creative teaching

Working with new media will open a new door to creative, effective teaching and be

- ✓ Enriching if we use it wisely,
- ✓ Innovative if we explore it courageously,
- ✓ Challenging as we seek new perspectives.

Thank you for your attention!