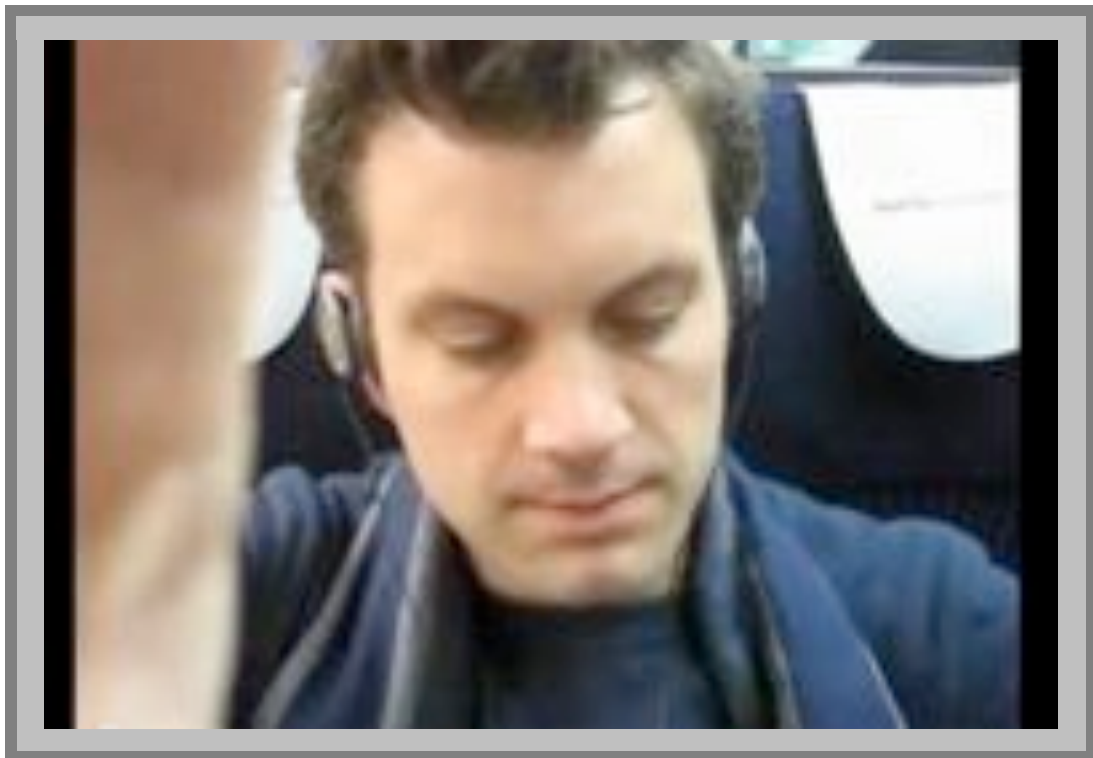


An auditory illusion

Language level:	Intermediate (B1) +
Learner type:	Teens; Adults; CLIL
Time:	50 minutes
Activity:	Reading; Listening; Speaking
Topic:	Psychology & behaviour; Linguistics
Language:	Minimal pairs; Nouns that end in <i>-ion</i>
Materials:	Video; Worksheet



Preparation, materials and equipment

1. For this activity, you will need a short clip titled: ***An auditory illusion (The McGurk effect)***. To access the clip on YouTube, click on the following link:

<http://bit.ly/eXwAus>

An alternative McGurk effect clip can be accessed here:

<http://www.youtube.com/watch?v=aFPtc8BVdjk>

2. Make a copy of the worksheet **The McGurk Effect** on page 7 for each student.
3. [Optional] The text used in the worksheet was transcribed from a second YouTube video titled ***McGurk Effect (with explanation)*** in which Dr John Medina, author of Brain Rules (www.brainrules.net) explains the auditory illusion. You may decide to play it to your students after they have completed the worksheet in step 13. Here is the link:

<http://www.youtube.com/watch?v=jtsfidRq2tw>

Decide how you are going to display the clip in class. Possibilities include:

- Laptop or desktop (good for small groups)
- Computer, projector + screen
- iPhone or other mobile device (good for one-to-ones/intimate classes)

Don't forget the loudspeakers

If you don't have Internet access in class, you could download or 'capture' the video from YouTube. Use www.savevid.com or a similar site. Note, however, that in doing so, you will be breaching YouTube's Terms of Use.

Lesson plan

1. Write the following on the board:

- i. *Ba-ba*
- ii. *Da-da*
- iii. *Ga-ga*

2. Drill the three sounds and make sure your students can distinguish between them.

Note: If students find it difficult to hear the difference between any of these three sounds, they will probably also have difficulty producing (pronouncing) them. If this is the case, practice with minimal pairs or minimal trios.

B	Bait	Big	Bet	Buy
D	Date	Dig	Debt	Die
G	Gate	Gig	Get	Guy

Start by writing one of the trios on the board and number them as shown:

1. **Bet**
2. **Debt**
3. **Get**

Produce one of the sounds and ask students to identify which one you are saying by giving you the corresponding number (1, 2 or 3). After this, invite individual students to do the same - they should choose one of the sounds and produce it while the other students identify it.

3. Tell students that in phonetics, the three sounds are represented with the following symbols:

/b/ Bet
 /d/ Debt
 /g/ Get

Ask students to consider how the sounds are produced and ask them to consider:

- What do the three sounds have in common?
- How do they differ?

4. Copy the explanatory text (see next page) onto the board. Ask students to copy it into their notebooks and fill in the missing words – they are all parts of the body. Students may work together for this if they desire.

/b/, /d/ and /g/ are examples of plosives. That means that they are produced by stopping airflow in the (i) _____, building up pressure and then releasing.

/b/ is produced when the (ii) _____ meet and stop airflow.

/d/ is produced when the tip of the (iii) _____ meets the part of the mouth just behind the upper (iv) _____ (the alveolar).

/g/ is produced when the back of the (v) _____ meets the soft part at the back of the (vi) _____ (the soft palate).

All three sounds are voiced. That means that the vocal chords vibrate while the shapes are made in the (vii) _____.

5. Go over the answers:

- i. *Mouth*
- ii. *Lips*
- iii. *Tongue*
- iv. *Teeth*
- v. *Tongue*
- vi. *Throat*
- vii. *Mouth*

6. Tell students that you are going to play a short video clip in which a man produces a sound. Label all students as either A or B.

- **Tell A students that you want them to close their eyes and listen only.**
- **Tell B students that you want them to watch and listen to the clip.**

Tell students that their task is to write down the spoken sound that they hear in the clip. Make it clear that they should ignore all background noise.

- Students who listen only will usually hear *ba-ba*.
- Students who listen and watch will usually hear *da-da*.

7. Play the clip and then let students compare what they heard.

8. Let students change roles: those who listened with their eyes closed should now listen *and* watch at the same time. Those who listened and watched should close their eyes.
9. Again, allow students to compare what they heard.
10. Put students into pairs or small groups and ask them to consider how the discrepancy can be explained. If anyone thinks they have the answer, invite them to share it with the rest of the class.
11. Ask students if they know what an optical illusion is. Ask for some examples. Tell them that this is an example of an auditory illusion called the McGurk effect. Make use of the following explanation:

- In the video the actual, objective sound that is produced is **ba-ba**. You heard this when you listened with your eyes closed.
- However, if you turn the sound down and read the man's lips (i.e. watch his mouth movements), you see that he says **ga-ga**.
- If you watch and listen at the same time, the sound you perceive is half way between **/b/** and **/g/** - that is **/d/**.

Note: You can strengthen your explanation using your hands to form the shape of a mouth in which the tips of your fingers are the lips:



- Front of mouth
- Actual sound
- What the ears hear

- Middle of mouth
- Perceived sound
- What the brain hears

- Back of mouth
- Visual sound
- What the eyes hear

12. Ask students if they can tell you what the McGurk effect demonstrates (the answer will be in the text in the worksheet).

13. Give out the **McGurk Effect** worksheet and ask students to complete it.
14. Allow students to check answers with each other before feedback.

Answers:

- | | | | |
|-------------------|------------|----------------|-------------------|
| (a) Da-da | (b) Ba-ba | (c) Ga-ga | (d) Ga-ga |
| (e) Ba-ba | (f) Da-da | (g) Illusion | (h) Information |
| (i) Participation | (j) Vision | (k) Perception | (l) Demonstration |
| (m) Isolation | | | |

The McGurk Effect

Dr John Medina is the author of *Brain Rules* (www.brainrules.net). In a video which you can see on YouTube, he explains the McGurk Effect.

The following is adapted from his explanation. Fill in the gaps with the words in the box at the bottom of the page.



1. “What did you think the man was saying when you watched and listened to the film clip? If you thought he was saying _____ (a) you are in the grand majority.”
2. “But when you closed your eyes and listened instead of watching, you heard that the man was actually saying _____ (b). And when you watched without the sound, his lips were saying _____ (c).”
3. “So why is it that when the visual says _____ (d) and the sound says _____ (e), our brains read _____ (f)?”
4. “This is called the *McGurk effect*. It’s an example of an auditory _____ (g). It’s a great way to show that the accurate perception of _____ (h) can involve the _____ (i) of more than one sensory system – in this case _____ (j) with sound. We call it *multi-modal* _____ (k).”
5. “The McGurk effect: It’s a terrific _____ (l) of the fact that the senses did not evolve in _____ (m) from each other but actually work together to help us perceive our world.”

Ba-ba

Ga-ga

Information

Vision

Ba-ba

Ga-ga

Isolation

Da-da

Demonstration

Participation

Da-da

Illusion

Perception