English Vowels

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How much time for each language skill

Overview

According to Burley-Allen (1995), the average time spent on basic skills during the daily communication process is

35 % for speaking,
16 % for reading,
 9 % for writing, and
40 % for listening. (Flowerdew, 2005)

How can we polish our different skills in English?
How to Improve English Vowels
### Overview

#### Deviating sounds made by EFL students

<table>
<thead>
<tr>
<th>English sounds</th>
<th>Examples</th>
<th>Deviated sounds</th>
<th>Examples</th>
<th>Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>/i/</td>
<td>keep; keys</td>
<td>/ɪ/</td>
<td>kip; kiss</td>
<td><strong>Direct methods:</strong> audio-visual (multimedia) aids and face-to-face instruction</td>
</tr>
<tr>
<td>/ɪ/</td>
<td>ill;</td>
<td>/ɪ/</td>
<td>eel;</td>
<td></td>
</tr>
<tr>
<td>/ɹɪ/</td>
<td>take / hate</td>
<td>/ɛ/</td>
<td>/tɛk/; tek</td>
<td></td>
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<tr>
<td>/ɛ/</td>
<td>red</td>
<td>/ɹɛ/</td>
<td>raid</td>
<td></td>
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<tr>
<td>/æ/</td>
<td>bad; fast</td>
<td>/ɛ/</td>
<td>bed; fest</td>
<td></td>
</tr>
<tr>
<td>/ʌ/</td>
<td>mother</td>
<td>/ɑ/</td>
<td>/ˈmɑθə/</td>
<td></td>
</tr>
<tr>
<td>/ʌn/</td>
<td>run; country</td>
<td>/ɑŋ/</td>
<td>/ræŋ/; /ˈkɑŋtɹi/</td>
<td></td>
</tr>
<tr>
<td>/u/</td>
<td>food</td>
<td>/u/</td>
<td>/fʊd/ foot?</td>
<td></td>
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<tr>
<td>/u/</td>
<td>good</td>
<td>/u/</td>
<td>/gʊd/ go_?</td>
<td></td>
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<tr>
<td>/ʊ/</td>
<td>hope; boat</td>
<td>/ɔ/?</td>
<td>hop; bought</td>
<td></td>
</tr>
<tr>
<td>/ɔ/</td>
<td>caught; law</td>
<td>/ou/</td>
<td>coat; low</td>
<td></td>
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</tbody>
</table>

**Phonetic approaches:**

1. The fundamental issues of the vowel space;
2. The courses/routes of each vowel phoneme in each “sound area”;  
3. The recognition and the understanding of the fact that English with different accents might have different qualities of vowel phonemes.
## Overview

### Deviating sounds made by EFL students

<table>
<thead>
<tr>
<th>English sounds</th>
<th>Examples</th>
<th>Deviated sounds</th>
<th>Examples</th>
<th>Solutions</th>
</tr>
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<tbody>
<tr>
<td>/i/ with different durations</td>
<td>key</td>
<td>/i/ with similar durations</td>
<td>key</td>
<td><strong>Phonetic approaches:</strong> Provide examples and demonstrations</td>
</tr>
<tr>
<td>keys</td>
<td>keys</td>
<td>keep</td>
<td>keep</td>
<td></td>
</tr>
<tr>
<td>Types</td>
<td>English (IPA)</td>
<td>Mandarin (Pinyin)</td>
<td>Notes</td>
<td></td>
</tr>
<tr>
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<tr>
<td>front</td>
<td></td>
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<tr>
<td>high</td>
<td>/i/</td>
<td>/ü/</td>
<td>mismatch</td>
<td></td>
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<tr>
<td>mid</td>
<td>/eɪ/</td>
<td>/ei/</td>
<td>mismatch</td>
<td></td>
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<tr>
<td>low</td>
<td>/æ/</td>
<td>/i/</td>
<td>mismatch</td>
<td></td>
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<tr>
<td>mid</td>
<td>/ɛ/</td>
<td>/(i)e/</td>
<td>mismatch</td>
<td></td>
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<tr>
<td>low</td>
<td>/æ/</td>
<td>/i/</td>
<td>mismatch</td>
<td></td>
</tr>
<tr>
<td>mid</td>
<td>/ɔ/</td>
<td>/e/</td>
<td>mismatch</td>
<td></td>
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<tr>
<td>low</td>
<td>/a/</td>
<td>/a/</td>
<td>mismatch</td>
<td></td>
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<tr>
<td>back</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>mid</td>
<td>/ou/</td>
<td>/ou/</td>
<td>mismatch</td>
<td></td>
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<tr>
<td>high</td>
<td>/u/</td>
<td>/u/</td>
<td>mismatch</td>
<td></td>
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<tr>
<td>diphthongs</td>
<td></td>
<td></td>
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<tr>
<td>/ai/</td>
<td>/ai/</td>
<td></td>
<td>mismatch</td>
<td></td>
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<tr>
<td>/au/</td>
<td>/ao/</td>
<td></td>
<td>mismatch</td>
<td></td>
</tr>
<tr>
<td>/ɔɪ/</td>
<td></td>
<td></td>
<td>mismatch</td>
<td></td>
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</tbody>
</table>
English has a total of 12 basic vowel phonemes while Mandarin has only 9 basic vowel phonemes. Compare the following charts:

*Schwa (unstressed vowels)

*zhi(ㄓ), chi(ㄔ), shi(ㄕ), ri(ㄖ), zi(ㄗ), ci(ㄘ), si(ㄕ)
Acoustic qualities of the vowel
The concepts of the first formant

Formant 1: reflecting the “high” or “low” of the vowel in the oral tract
The concepts of the second formant

Formant 2: reflecting the “backness” of the vowel in the oral tract
An expression with only the first formant
An expression with only the second formant
An expression with only the third formant
An expression with three formants but no F0
An expression with all formants

F0, F1, F2, F3
The relationship between $F_1$ & $F_2$

See also **CBCAP**
Articulatory and acoustic descriptions

See also **PRAAT**
A package of speech analyzer
How to locate the vowel space using PRAAT

Step 1: get the software package
Step 2: record sound or download sound
Step 3: segment the sound and keep the vowel
Step 4: use the “formant & LPC” format
Step 5: draw the scatterplot
Step 6: copy and paste the chart

Demonstrate PRAAT
Try to scatterplot the following sounds

Try to find the frequencies of F1 and F2 and locate the space for the following vowels:

heed, hid
hade, head
low, law
Try to scatterplot the following sounds

**heed** \((F_1 = 420, F_2 = 3082)\)

**hid** \((F_1 = 615, F_2 = 2437)\)

**hade** \((F_1 = 539, F_2 = 2741)\)

**head** \((F_1 = 843, F_2 = 2134)\)

**low** \((F_1 = 653, F_2 = 1489)\)

**law** \((F_1 = 805, F_2 = 1261)\)
The vowel space of /i, ɛ, æ, ɑ, ɔ, u/ (by an AES)
The VS of /i, ɛ, æ, α, ɔ, u/ (by an AES at UCLA)
The VS of /i, ɛ, æ, α, ʊ, u/ (by an AusES)

(The vowel is extracted from heed, Ed, hat, odd, law, who)
The vowel space of /i, ε, æ, α, ɔ, u/ (by a MS)

(The vowel is extracted from heed, Ed, hat, odd, law, who)
The VS of /i, ɛ, æ, α, ɔ, u/ (by another MS)

(The vowel is extracted from heed, Ed, hat, odd, law, who)
The vowel space of /ーせ ㄚ ㄛ メ/ (by a MS)
Contrasting the charts by an AES and a MS
Comparing the charts by two AESs
The charts produced by an ES & a MS

Vowel space
The charts produced by two ESs
How to detect the vowel movement?

The spectrogram of “food” by an EFL student

The course of /u/ in “food” by an EFL student
How to detect the vowel movement?

The spectrogram of “food” by a native speaker

The course of /u/ in “food” by a native speaker
How to detect the vowel movement?

The spectrogram of “food” by a native speaker

The spectrogram of “food” by an EFL student
How to detect the vowel movement?

The spectrogram of /u/ in “coo” by an EFL student

The course of /u:/ in “coo” by an EFL student
How to detect the vowel movement?

The spectrogram of /u/ in “coo” by a native speaker

The course of /u:/ in “coo” by a native speaker
Contrasting the vowel movements of /u/
How to specify the courses of the sound

Heed (BrE, male)

Hid (BrE, male)
How to specify the courses of the sound

Heed (BrE, male)

Hid (BrE, male)
The vowel directions of Englishes

AmE (male)

BrE (male)

NZE (male)

NTPU (male)
Contrasting *heed* and *hid*

**AmE (male) *heed* vs. *hid***

**BrE (male) *heed* vs. *hid***

**NZE (male) *heed* vs. *hid***

**NTPU (male) *heed* vs. *hid***
Contrasting *hade* and *head*

**AmE (male) *hade* vs. *head***

**BrE (male) *hade* vs. *head***

**NZE (male) *hade* vs. *head***

**NTPU (male) *hade* vs. *head***
Contrasting low and law (considered a tense-lax pair here)
Mechanism in the English phonemic system
Mapping the physical locations

Locating the “vowel space” and get the true qualities of the vowel of American English
Try to pronounce the following vowels:
/i:, i; eɪ, ɛ; æ; ə; ɔ, ʌ; u, ʊ:/

[Diagram showing the movements for different vowels]
MRI graphs of oral tracts for vowels

/i/

/ɪ/

Vowels
Vowels

MRI graphs of oral tracts for vowels

/æe/

/ɑ/
MRI graphs of oral tracts for vowels

/o/

/u/
Contrast

The pair feet/fit

KK symbols: /i/ & /ɪ/

1. feet/fit
My feet don’t fit

/i/ /ɪ/
Practice: pairs of /i/ & /ɪ/

Contrast

03 The vowel /i/

1. E  ease  eat
2. bee  bead  beat
3. D  deed  deep
4. tea  tease  teeth
5. fee  feed  feet

Sentences:
1. He sees the key point.
2. Please leave me in peace.

05 The vowel /ɪ/

1. is  it
2. bid  bit
3. did  dip
4. middle  little
5. minute  visit

Sentences:
1. This kid is sick; he is shivering.
2. Give him six minutes to finish the quiz.
“eat” vs. “it”

Contrast /i/ and /ɪ/ (key)

1. is  ease
2. it   eat
3. did  deed
4. dip  deep
5. ship sheep

Sentences:
1. At least you can give me a list.
2. I know you live here, but you must leave tomorrow.
3. The sheep are on the ship now.
KK symbols: /u/ & /ơ/

4. food/foot  Don’t put the food near your foot.

/u/  /ơ/
### Practice: pairs of /u/ & /ʊ/

#### The vowel /u/

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>ooo!</td>
<td>ooze</td>
</tr>
<tr>
<td>2.</td>
<td>do</td>
<td>boob</td>
</tr>
<tr>
<td>3.</td>
<td>flu</td>
<td>food</td>
</tr>
<tr>
<td>4.</td>
<td>too</td>
<td>tube</td>
</tr>
<tr>
<td>5.</td>
<td>moo</td>
<td>mood</td>
</tr>
</tbody>
</table>

#### Sentences:

1. Sue bought a new suit.
2. Which will you choose: food or juice?

#### The vowel /ʊ/

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>pull</td>
<td>push</td>
</tr>
<tr>
<td>2.</td>
<td>pud(ding)</td>
<td>put</td>
</tr>
<tr>
<td>3.</td>
<td>bull</td>
<td>book</td>
</tr>
<tr>
<td>4.</td>
<td>full</td>
<td>foot</td>
</tr>
<tr>
<td>5.</td>
<td>could</td>
<td>cook</td>
</tr>
</tbody>
</table>

#### Sentences:

1. He looks like a good cook.
2. A good-looking woman wants to buy the book.
Contrast the vowels /u/ and /u/

1. book  boot
2. pull  pool
3. foot  food
4. took  tool
5. good  goose

Sentences:
1. You need to choose a good cookbook.
2. The food looks good. Can you put it in my room?
The pair let/late

KK symbols: /ɛ/ & /e/

2. let/late He is late. Don’t let him in.

/ɛ/ /e/
### Practice: pairs of /ɛ/ & /e/

<table>
<thead>
<tr>
<th>07</th>
<th>The vowel /ɛ/</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>egg</td>
</tr>
<tr>
<td>2.</td>
<td>bed</td>
</tr>
<tr>
<td>3.</td>
<td>dead</td>
</tr>
<tr>
<td>4.</td>
<td>tell</td>
</tr>
<tr>
<td>5.</td>
<td>fed</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>08</th>
<th>The vowel /e/</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>a</td>
</tr>
<tr>
<td>2.</td>
<td>bay</td>
</tr>
<tr>
<td>3.</td>
<td>day</td>
</tr>
<tr>
<td>4.</td>
<td>stay</td>
</tr>
<tr>
<td>5.</td>
<td>Kay</td>
</tr>
</tbody>
</table>

#### Sentences:
1. The weather there is great.
2. The red pepper does not sell well in the west.
3. What’s your name? Are you James?
Practice

“late” vs. “let”

Contrast /e/ and /ɛ/ (hate)

1. age  edge
2. bade  bed
3. mate  met
4. wait  wet
5. waste  west

Sentences:

1. I met my roommate yesterday.
2. Put the pepper on the paper.
The pair bought/boat

KK symbols: /ɔ/ & /o/

3. bought/boat  He bought a boat yesterday.

/ɔ/  /o/
The vowel /ɔ/

1. audit  ought
2. pause  bought
3. daub   daughter
4. taw    taught
5. cause  caught

Sentences:
1. You ought to sit in and audit the course.
2. He bought some chalk for his daughter.

The vowel /o/

1. oh     ode     oat
2. bow (n.) bode   boat
3. foe    vogue   vote
4. toe    toad    toke
5. go     goad    goat

Sentences:
1. This is an old show about a goat.
2. He told me that it was cold outside and gave me the coat.
“low” vs. “law”

Caught cause law saw bought all
No nose note boat hope hose

Contrast /ɔ/ and /o/
1. oat ought
2. boat bought
3. pose pause
4. law low
5. coat caught

Sentences:
1. He bought a new boat last week.
2. He showed me the original copy of Shaw’s notebook.
Contrast

The pair bought/boat

KK symbols: /ɛ/ & /æ/

5. said/sad He said his dad was very sad.

/ɛ/ /æ/
Contrast Practice: pairs of /ɛ/ & /æ/

10 The vowel /æ/

1. add at
2. bad bat
3. dad dash
4. tab tap
5. cab cap

Sentences:
1. I’m not mad, but I’m sad.
2. I’m glad that Jack is back.

11 Contrast /ɛ/ and /æ/

1. X ax
2. bed bad
3. dead dad
4. left laughed
5. guess gas

Sentences:
1. I guess the fire was caused by gas.
2. The dragon had two heads.
3. He said he was sad.
Practice

“bed” vs. “bad”

Contrast /ɛ/ and /æ/:
1. X       ax
2. bed     bad
3. dead    dad
4. left    laughed
5. guess   gas

Sentences:
1. I guess the fire was caused by gas.
2. The dragon had two heads.
3. He said he was sad.
Contrast the vowels /ʌ/ and /ɑ/

1. up       op (operation)
2. duck     dock
3. bucks    box
4. luck     lock
5. gut      got

Sentences:
1. The government seems to be bothered by some kind of trouble.
2. Shut the door, or you’ll be shot.
Practice

The vowels followed by an /r/ sound

[ɪə][ear year beer near hear volunteer]

[ɛə][air bear pair fair dare share chair]

[әɪ][ire byre fire liar dire desire retire]

[ɜː][bird verb perch first work worm word]

[ɚ][actor doctor letter better]
A 1. At least you can give me a list.  
   2. I know you live here, but you must leave tomorrow.

B 1. I met my roommate yesterday.  
   2. Put the pepper on the paper.

C 1. I guess the fire was caused by gas.  
   2. The dragon had two heads.  
   3. He said he was sad.

D 1. The government seems to be bothered by some kind of trouble.  
   2. Shut the door, or you’ll be shot.

E 1. He bought a new boat last week.  
   2. He showed me the original copy of Shaw’s work.

F 1. You need to choose a good cookbook.  
   2. The food looks good. Can you put it in my room?
1. We ran in the rain on Sunday noon.
2. He bought a boat and put it on the cold shore.
3. The caterpillar lived on the leaf.
4. The woman cooked food for the two poor tourists.
5. We love to lie down and look at the sky at night.
6. I want you to take it easy and don’t make me hate you.
7. His mother was lucky enough and won another new cup.
8. My dad was sad when I packed my bag.
1. A given vowel is longest in an open syllable, next longest in a syllable closed by a voiced consonant, and shortest in a syllable closed by a voiceless consonant.

(key)

2. Other things being equal, vowels are longer in stressed syllables.

3. Other things being equal, vowels are longest in monosyllabic words, next longest in words with two syllables, and shortest in words with more than two syllables.

speed  speedy  speedily
Rules for English vowel allophones

4. A reduced vowel may be voiceless when it occurs after a voiceless stop (and before a voiceless stop).

permission, tomato, compare, potato, catastrophe
preparatory, introduction, replicate, complicate

5. Vowels are nasalized in syllables closed by a nasal consonant.

ban, run, seen

6. Vowels are retracted before syllable final [ɬ].

peel, pail, pal
Good evening, ladies and gentlemen, and welcome. I’m sure we have all heard the expression, “Think Green.” Tonight we are going to talk about ways that we can “Act Green” in our everyday lives.

The best place to start, of course, is in the home. Every day, people all over the world are hurting the environment without even knowing it. For example, busy families buy paper napkins and plastic food wrap at the supermarket. This helps them save time on housework, but after these things have been used, what happens to them? They go in the trash. In many places, especially in North America, big cities are running out of places to throw their trash. Shouldn’t we do something about this before it’s too late?
The vowel movements of different accents

1. British  
[i], [ɪ]; [ɛ], [ɛ]; [æ]; [ɑ]; [ɔ]; [ʊ], [u]  
[i], [ɪ]; [ɛ], [ɛ]; [æ]; [ɑ]; [ɔ]; [ʊ], [u]  

2. Australian  
[i], [ɪ]; [ɛ], [ɛ]; [æ]; [ɑ]; [ɔ]; [ʊ], [u]  
[i], [ɪ]; [ɛ], [ɛ]; [æ]; [ɑ]; [ɔ]; [ʊ], [u]  

3. South Africa  
[i], [ɪ]; [ɛ], [ɛ]; [æ]; [ɑ]; [ɔ]; [ʊ], [u]  
[i], [ɪ]; [ɛ], [ɛ]; [æ]; [ɑ]; [ɔ]; [ʊ], [u]  

4. New Zealand  
[i], [ɪ]; [ɛ], [ɛ]; [æ]; [ɑ]; [ɔ]; [ʊ], [u]  

5. Irish  
[i], [ɪ]; [ɛ], [ɛ]; [æ]; [ɑ]; [ɔ]; [ʊ], [u]  

6. Saint Kitts  
[i], [ɪ]; [ɛ], [ɛ]; [æ]; [ɑ]; [ɔ]; [ʊ], [u]
Thank you!

Of the vowel section
It would be interesting to speculate on what that ‘saturation point’, or final ‘market penetration’ of English might be. At this stage, very rough estimates based on the emerging patterns of middle class and urbanisation hint at around 3 billion speakers by around 2040. In other words, it is doubtful whether, even if the ‘World English Project’ were successfully implemented, that more than around 40% of the global population would ever become functional users of English.
<table>
<thead>
<tr>
<th><strong>Target variety</strong></th>
<th>EFL</th>
<th>Global English</th>
</tr>
</thead>
<tbody>
<tr>
<td>Native speaker, usually American or British</td>
<td>Focus on internationally intelligibility rather than a specific variety; carry-over of some L1 characteristics; expected to maintain national identity through English; need for receptive skills in a range of international varieties</td>
<td></td>
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<tr>
<th><strong>Skills</strong></th>
<th>EFL</th>
<th>Global English</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus on speaking and listening; communicative curriculum</td>
<td>All skills including literacy; translation and interpretation skills often required; emphasis also on intercultural communication strategies</td>
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<tr>
<th><strong>Teacher skills</strong></th>
<th>EFL</th>
<th>Global English</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language proficient, trained in methodology</td>
<td>Bilingual with subject knowledge and understanding of local exams; or may have wider pastoral role for developing study skills and student support</td>
<td></td>
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<tr>
<th><strong>Learner motives</strong></th>
<th>EFL</th>
<th>Global English</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixed; often poor motivation</td>
<td>Usually instrumental</td>
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<thead>
<tr>
<th><strong>Starting age</strong></th>
<th>EFL</th>
<th>Global English</th>
</tr>
</thead>
<tbody>
<tr>
<td>10–13 years old, secondary school</td>
<td>Builds on foundation provided by EYL</td>
<td></td>
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<table>
<thead>
<tr>
<th><strong>Primary purposes</strong></th>
<th>EFL</th>
<th>Global English</th>
</tr>
</thead>
<tbody>
<tr>
<td>To communicate with native speakers; to satisfy entrance requirements for jobs, universities</td>
<td>To get jobs in own country; to communicate with non-native speakers from other countries</td>
<td></td>
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<tr>
<td>Learning environment</td>
<td>EFL</td>
<td>Global English</td>
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<td></td>
<td>Classroom focused; time-tabled subject; occasional visits to native-speaking country</td>
<td>Classroom is a key context but is insufficient. Private sector and home tutoring often play a role</td>
</tr>
<tr>
<td>Content/materials</td>
<td>Local government textbook; international publisher</td>
<td>Content often relates to another curriculum area in CLIL style approach</td>
</tr>
<tr>
<td>Assessment</td>
<td>Either: local exams or international (IELTS, Cambridge ESOL, TOEFL, TOEIC)</td>
<td>Existing exams often not appropriate; assessment often via assessment of ability to carry out tasks in English or by assessing knowledge taught through English</td>
</tr>
<tr>
<td>Failure pattern</td>
<td>Low proportion of learners reach high proficiency</td>
<td>‘Mission critical’ process where broader education or employment is dependent on actual skills (rather than token certification)</td>
</tr>
</tbody>
</table>
Thank you!

Comments and suggestions, please!