
“Non-imitative ways of teaching pronunciation: why and how”

Questions and Answers from the
IATEFL Pronunciation SIG
Fielded Discussion
in October 2011

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Questions and Answers from the Fielded Discussion

These questions and answers have been adapted from the PronSIG Fielded Discussion on the PronSci Approach. This was the third IATEFL PronSIG Fielded Discussion and took place from 29th Oct to 6th Nov 2011. It was entitled '*Non-imitative ways of teaching pronunciation: why and how*' and can be viewed in full at <http://uk.groups.yahoo.com/group/iateflpronsig/>

We're very grateful to the participants for their questions and comments.

You are welcome to quote from our answers here. If you do so, please cite the source as: Messum, P and Young, R (2012) *Non-imitative ways of teaching pronunciation: why and how*. Accessed on *date*, from <http://www.pronsci.com/pronsci-approach/downloads/>

If you have any questions about what you read, or you find any mistakes, we would be glad to hear from you. Please contact us at p.messum@pronsci.com or roslyn.young@pronsci.com

For convenience in the use of pronouns, we have decided to write about female teachers and male students.

Abbreviations and unfamiliar words:

fidel Gattegno's name for his chart of sound to spelling correspondences

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SB speech breathing

SW Silent Way

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1. A few basic notions

Isn't the key to good pronunciation learning to hear the new language correctly?

This is a widespread assumption, but one which does not stand up to scrutiny, as we discuss below. There are also two practical objections to trying to teach pronunciation on this basis.

First, it takes a long time to learn to perceive sound differences in a foreign language even when this is done intensively, under laboratory conditions, with all the focus exclusively on this task. The time and commitment required just aren't available in normal classrooms. Even so-called 'language laboratories' in universities are largely ineffective, although their users are highly motivated undergraduate language students.

In fact, in phonetics courses, where the level of commitment and time available is higher still than in university language courses, so-called 'ear-training' is still a difficult course for many students.

It is a mistake to base normal classroom pronunciation teaching on something that demands an unrealistic level of teacher expertise and student time and commitment to be successful.

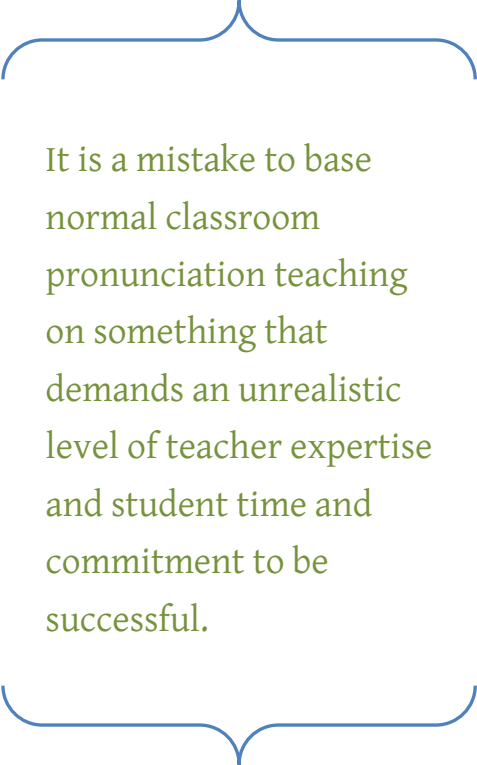
Second, even if and when the skill of analytic listening has been learnt, there remains the task of learning to produce the sounds. This has to be done with mouths rather than ears.

Better by far, to start by working on production. Everything produced by a learner is heard by that learner and helps to educate his perception at the same time that he is learning to pronounce well. All time spent gives a two-fold yield, for both speaking and listening.

People imagine we learn to pronounce by imitation. What forms can imitation take?

The word 'imitation' covers many different copying processes, including

- mimicry (recreating a sensory experience);
- matching (producing an effect taken to be similar to the original); and
- emulation (achieving the observed end result, possibly by different means).



It is a mistake to base normal classroom pronunciation teaching on something that demands an unrealistic level of teacher expertise and student time and commitment to be successful.

As an example, let's take learning how to walk a tightrope. When a beginner first starts to do this, he will have noticed that experts place their feet in front of each other and hold their arms out. He may well copy this, **matching** what they do. But most of his work will be **emulation**: he has to discover how to manage his centre of gravity, how to place his feet to make best use of their muscular, tendon and bone structure, how to hold his back and head, etc. All of this is individual discovery, but with the goal of emulating the success of the people he has observed. Anybody at all can **mimic** tightrope walkers – on the ground! To do this, you just wobble, wave your arms a bit, and so on, to recreate the visual effect of someone doing the real thing.

In the teaching of pronunciation, there can be some confusion between mimicry and matching. In principle, most teaching practice is based on attempted auditory matching by the learner, where we ask him to match his output to a model he has heard spoken by the teacher or on a recording. A more colloquial name for what we do is 'listen and repeat' (L&R). However, learners may not yet have the criteria in a new language to separate what is of linguistic significance in a model from what is personal to a particular speaker, and may mimic irrelevant elements of the teacher's speech.

Three other learning mechanisms related to imitation are also important in understanding how pronunciation is learnt.

'Mirroring' is when someone or something reflects what we have done back to us.

Obviously a mirror performs this role for a ballet dancer, but it also happens when we try on some new piece of clothing and we ask a friend what we look like in it. In the study of child development, mirroring is believed to be a very important source of information for infants. In one form of it, called 'affect attunement', the responses of caregivers to the display of emotion by infants is considered to be an early and important source of self-knowledge for the child. By watching his mother's response to his emotions – anger, fear, joy, etc - an infant learns about the nature of what he is experiencing.

Some months later than this, in the development of speech, caregivers are involved in a similar interaction when they 'reformulate' the babbling of their child. **'Reformulation'** is the interpretation of an utterance in terms of the language the caregiver speaks, and its reproduction in well-formed syllables of L1. So an infant may make an explosive sound with his lips; his mother's response of "pah" is a reformulation of this. This is the mechanism that draws children into their L1. Gattegno (1963:6) called it a 'bridge' from babbling into speech.

Finally, it's worth being aware of a distinction described by Parton (1976:14) between **learning by imitation** and **learning to imitate**. Learning **by** imitation is where someone

observes behaviours composed of actions that he has previously acquired. “Consider, for example, a preschool child who observes a model put on a hat, walk across the room, and pick up a book. Much earlier in life the child acquired the motor skill of walking and the visually guided reaching and grasping required for putting on hats and picking up objects such as books. Thus, ... what the child learns from the model includes ... the sequence of the performance ...”

Learning **to** imitate, on the other hand, is the process of turning what you see (for example) into what you do: *how* to reach and grasp to put on a hat, *how* to walk in a particular way, and so on.

Because learning by imitation often involves learning to do a series of things in a particular order, it is sometimes called **serial copying**. Learning to put together a string of speech sounds which you know already but in a new order that makes up a word that is new for you, is a good example of this.

What is the difference between ‘learning to pronounce a word’, and ‘learning to pronounce (speech) sounds’?

In any language, words are made up of speech sounds drawn from a limited set. Once you can pronounce some of the sounds then you can put them together to make words. You can only make all the words correctly when you can make all the sounds correctly and combine them correctly.

Learning to pronounce the sounds themselves – the limited set - is a different task, and one that you need to start doing before you can construct words. For learning to pronounce sounds, you need to learn to use your articulators in the specific way that the language requires.

2. Children learning to pronounce L1

Introduction

How children learn to pronounce speech sounds is relevant to the teaching of pronunciation to older learners for several reasons.

Firstly, because ‘listen and repeat’ is sometimes justified on the basis that children learn to pronounce sounds by imitation (by which, people mean that the child listens to adults, and then copies them). If this isn't how pronunciation of sounds develops in children, then the theoretical foundations of L&R are undermined.

Secondly, because how children learn can be a starting point for how we teach older learners. This is the approach that Gattegno took in *Teaching Foreign Languages in Schools* (1963:5-8). He had observed mothers imitating their children, and granted the children the intelligence to be making use of the information and feedback that this gave them. However, he didn't import this paradigm wholesale into language teaching. Instead, while he saw that teachers need to give information and feedback to their students, he realised that if they did this by imitating the learners it would lead back to L&R very quickly. He advocated a silent teacher.


Thirdly, because looking at what children do does sharpen our understanding of what needs to be done by everyone. If it makes us realise that learning to pronounce sounds is primarily a motor skill and not a question of improving one's listening, then it becomes obvious that there is no way to learn to pronounce new sounds other than by building the skill to do so, in the same way that we learn to walk, reach, skate or ski.

Don't children learn to pronounce by listening and then imitating what they have heard?


This is the conventional view about young children, but while it is certainly true for words, it's only an unquestioned assumption when it comes to how they learn sounds. We think it's wrong. It's the result of both phoneticians and speech development researchers not thinking carefully enough about what is involved in children learning to pronounce a language.

A good sign of this is that the distinction we have described between 'learning to pronounce a word' (which we do by imitation - by serial copying of events rather than auditory matching) and 'learning to pronounce (speech) sounds' appears nowhere in the literature. It's a crucial distinction to make, and the fact that it is absent is very revealing.

The academic focus within speech development has been on learning to speak rather than learning to pronounce. Very few people have explicitly said how they think young children learn to pronounce speech sounds. Fry did so in the 1960's and Kuhl more recently, but in both cases they were just asserting what they thought was common sense: that it happens by auditory matching. We



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don't think they were aware that there could be any alternative. Certainly neither provided any evidence for their assertion, and there isn't any. Not a scrap.

There isn't any direct evidence, either, for the alternative view that Gattegno described in 1963 and which one of us (PM) has been developing. So we're forced to look at the circumstantial evidence to see if that helps us. PM presented this at the International Child Phonology conference in 2011. He described 6 good lines of evidence that favour the 'mirroring' hypothesis over the 'auditory matching' one, and he presented them in a table at the end of the talk.

In ten minutes of discussion afterwards, no one in the audience could come up with any reason at all to prefer the conventional view. In fact, the opposite. Lise Menn (professor emeritus, University of Colorado) pointed out that the persistence of child mispronunciations over extended periods of development – “guck” for “duck” etc – was another very good reason for believing that children don't learn to pronounce by auditory matching. (To do so, they would have to be able to do two things: to hear both themselves and others veridically, and also to notice the mistake they are making.)

Since the conference, MacDonald et al. (2012) have reported an experiment which demonstrates that children aged two and half don't use their hearing to monitor their speech production. (4 year olds do use their hearing, and of course adults do this very effectively.) The fact that young children don't appear to listen to themselves speaking is strong evidence against the traditional assumption that children learn to pronounce by imitation.

When one investigates the question in any depth, a more plausible theory about how children 'learn to pronounce sounds' emerges. This is that a child uses the feedback from his mother about the sounds he makes to guide him into L1. There is positive evidence for this, including the well documented fact that in imitative games when an infant is around 12 months old, it's largely mothers who imitate their children, not the other way around. This is all the information the children need. (See Howard & Messum (2011) for a demonstration proof of this.)

What's the 'natural' way to learn to pronounce sounds?

There's disagreement about how children 'learn to pronounce sounds'. As discussed above, perhaps they imitate speech sounds *per se*, but this is unsubstantiated; it's just a belief that everybody had, which was then asserted by a few influential people without investigation and without them producing any evidence.

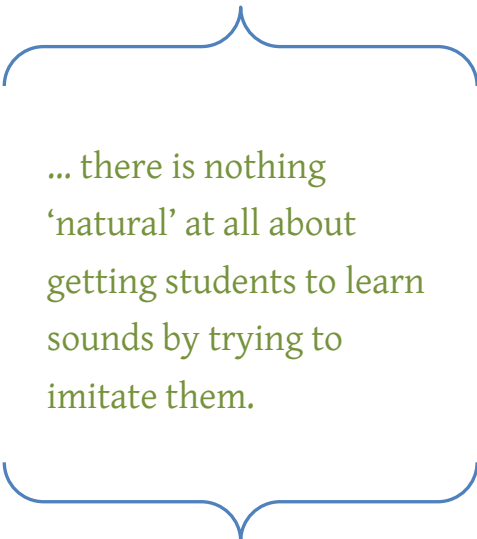
At present, all the evidence goes in the other direction, suggesting that children learn to pronounce speech sounds by trying things out, and deducing from their mothers' mirroring behaviour what the correspondences are between their production and the sounds of L1.

[For people reading this who are not familiar with child language development, we should add that the mirroring behaviour we're talking about is the well documented phenomenon of mothers imitating their children's babbled sounds, but in the form of reformulations into well-formed L1 syllables rather than with mimicked responses. Children are aware that the interchanges are imitative, so they know that in their mothers' judgment what the child has done and what the mother has said are equivalent. This is all that is needed for them to get a bootstrap into speech sounds, which they can now peel out of words that they hear their mothers and others saying and reproduce with their equivalent actions/sounds.]

This would mean that there is nothing 'natural' at all about getting students to learn sounds by trying to imitate them. The 'natural' way is to get students to experiment with making sounds and then give them feedback about how good their attempts are.

Note that giving students a model to copy just interferes with this. They can all mimic sounds to a greater or lesser degree, based on what they have done in the past. But pronouncing a language and mimicking it are two completely different things. Pronouncing a language is a motor skill which produces an output that has to be acceptable to listeners; as described earlier, mimicry is about reproducing a sensory experience rather than building a motor skill. We're interested in the motor skill, and learning to reproduce a sensory experience doesn't help with this.

The paradigm that we are recommending for older learners is almost certainly the 'natural' one. However, that shouldn't be the deciding factor with respect to how we teach - learning a second language is certainly different from learning one's first. But when one adds it to the argument about where our students' presence needs to be when learning a motor skill like pronunciation, then we think it helps to make a powerful theoretical case for the PronSci approach.



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Of course, no theoretical case should ever be conclusive! The real test is in the classroom. We and many other teachers who have adopted this approach are sure that it's right, but everyone has to try it out for themselves.

3. The 'silent' teacher

What exactly do you mean by 'listen & repeat' (L&R)?

We use the phrase 'listen & repeat' to describe any situation where the teacher is either introducing something new or correcting a pronunciation mistake and does so by providing a model and requiring the class or a student to imitate it. This could be anything from a 5-second intervention with a single student to a longer session with the whole class. It might involve the teacher's voice or a recording. It includes traditional drills, but that's not the only (or main) thing we have in mind when we use the phrase.

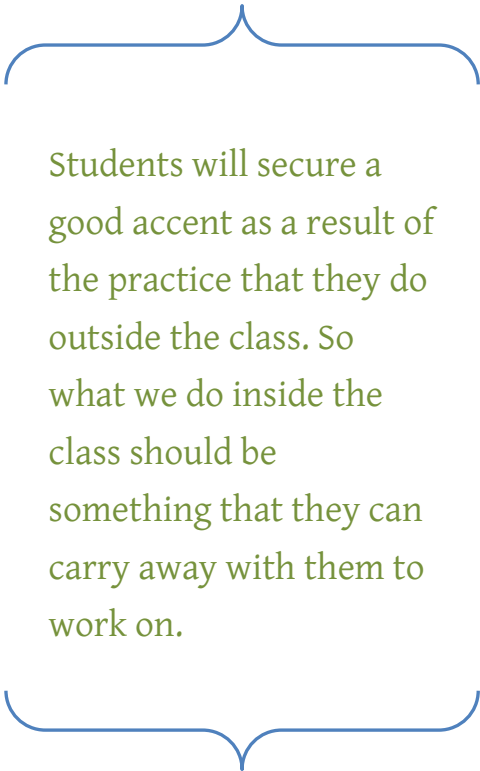
Why should I stop using L&R? (Why should I stop giving a spoken model?)

First and foremost, L&R doesn't work very well. It relies on the presentation of an acoustic model which fades quickly in the minds of the students even if it was heard correctly in the first place. Because it fades, this model will not be available to them later. If the student works on his motor skill, he knows what he has done with his muscles and can take this away with him and do serious experimentation and practice later. He can do much of the practice and other work necessary without a teacher.

Naturally good language learners know what they have to do to learn to pronounce well without being told. We want to give all our students this way of working, which will allow them to become good language learners, too.

Our students tell us that working this way in the classroom 'charges' them up to do the work. We know this from experience, too. We both remember that as soon as we had some insight into how to produce a problematic sound in languages we were learning, we spent hours practising how to get our mouth around it, either walking in the local park (RY) or sitting in the bus (PM). This is what we mean by being 'charged'.

The pronunciation of difficult sounds is not mastered by work done in the classroom. Students will secure a good accent as a result of the practice that they do outside



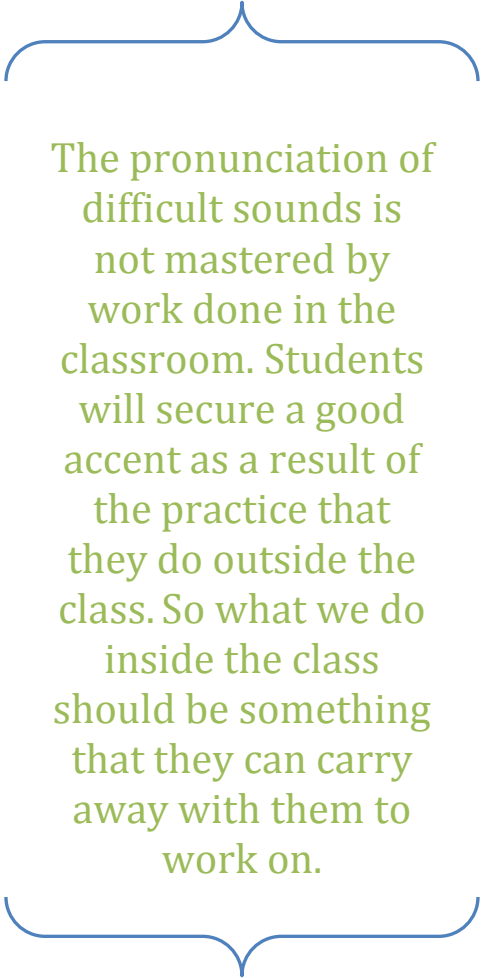
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the class. So what we do inside the class should be something that they can carry away with them to work on. The acoustic model of L&R doesn't help here as it fades too quickly.

When someone does succeed with L&R, it is only because they subvert the teacher's instructions: they quietly practise on their own, experimenting and listening to themselves as they work, rather than just trying to copy a model.

As teachers usually apply L&R in practice, they simply trust that the new sounds will be 'acquired' as soon as the supposed listening problem is solved. The emphasis is on the listening rather than on the work that has to be done by students on their motor systems. In fact, if the supposed listening problem is solved this happens because those students who do so end up working on their production, as we suggest, and getting improved perception as part of this process.

Secondly, the L&R process is very dispiriting for everyone involved. We all know that a particular sound can be modelled by a teacher and said incorrectly by her students ten times in a row, with no improvement. The students feel bad, the teacher feels bad. No one has any idea what to do next. It's embarrassing. No wonder pronunciation is something teachers avoid doing despite, as we know, it being something that students want very much to improve.



The pronunciation of difficult sounds is not mastered by work done in the classroom. Students will secure a good accent as a result of the practice that they do outside the class. So what we do inside the class should be something that they can carry away with them to work on.

Why should I start teaching 'silently'?

Firstly, because it works better in practice. To convince yourself about this you will have to try it, but speaking personally, we've found it to be true both as learners ourselves and as teachers:

- When we're students in classes where the teacher is silent, we have been much more energised and willing to experiment than on the occasions in other classes when we have had to copy a model. (And we have seen exactly the same spirit of adventure in our fellow students.) At the end of the process, we have known what we have to do with ourselves in order to sound right.
- When we've taught classes and been silent as teachers, we've found our students reacting very positively to the situation, welcoming a space to experiment in and making good progress.

Secondly, the approach makes sense to us theoretically. We think Gattegno was right when he asserted that humans learn through their awareness and their awarenesses. (A notion which you might also have come across through Schmidt's 'noticing' hypothesis.) If so, then when one's teacher is silent, one is present to and aware of one's own articulators as well as what one produces. So one is learning about what one has to DO with oneself to make a new sound. When a student is copying a model he is asked to attend to the model rather than what he is doing physically, and if he does so he has little or nothing to take away from the experience.

Thirdly, as discussed earlier, children appear to develop speech sounds through a process of experimentation with feedback from their caregivers. It is therefore 'natural' to take this paradigm into the language classroom.

Students living in an English speaking country already have models. Why shouldn't the teacher be one, too?

It would be more correct to say that these students have lots of potential models, but they're not actual ones. When we listen just to understand what is being said to us, we're not listening in a way that develops our own model of how we should speak. That's why people can be stuck with their original accents even after 20 years of living in a foreign country.

Everybody has seen thousands, if not millions, of examples of letters written in common typefaces like Times New Roman or Arial. But could you draw any of the glyphs correctly from memory, beyond the features of letters that you learnt for your own handwriting? In Times, does <g> have serifs? Where? At a more mundane level, do you even notice whether the typeface you are reading uses a printed <a> or a cursive one?

Why not? Because when we read, we do so to extract the message and we are not interested by the form it takes as long as that does not affect the message.

We find this again if we are asked to repeat what someone has just said to us. We use our own words because we have retained the content but let the container it was delivered in disappear.

This happens with pronunciation, too. People listen to the message and ignore the 'container' - the way it is delivered.

One of a language teacher's principal responsibilities is to induce students to be present to the container and aspects of it that they might not otherwise notice, since this is something we can do for them which is hard for most students to do for themselves. This applies throughout the language, and not just for pronunciation. Training in looking at the

container – which means the way that English is produced physically and, more generally, the way the language functions – also helps students to realise that progress in English will depend on examining these things, an understanding which will continue to serve them once the course is finished.

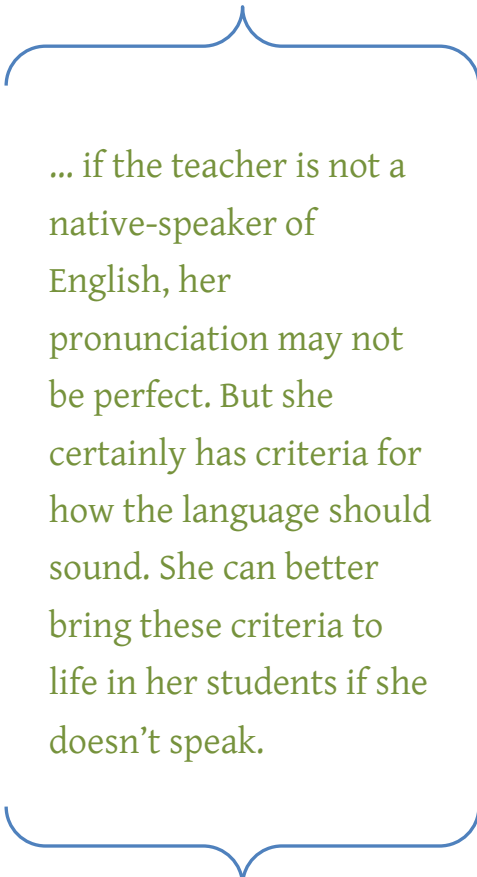
It's important to say that we do mean that the students themselves are noticing things, not that we are telling them. We're trying to help them to develop the know-how of language, not knowledge about it, even though knowledge is sometimes produced as a by-product.

What happens when the teacher models?

Firstly, the students must explore the language. If the teacher models the pronunciation from the beginning, there will be no exploration, only an attempt to copy what she has said. Such attempts undermine the aim of the course—to get English into the muscles of the students' chests and mouths. Learning to speak a language is an intimate activity. The teacher must put the students in contact with themselves if she wants them to construct the means to speak well.

Secondly, although the students know that there are different accents in English, the work they actually do when copying their teacher might well produce the mindset that there is only one correct way to pronounce English: hers. Other perfectly acceptable ways to speak will seem wrong. On the other hand, by not modelling, the teacher can easily give them entries into several pronunciations of the language, all of which are standard. For example, it's in the students' best interest to become aware of the differences between American English and British English. This is primarily a question of a change in two parameters: the level of energy and the retroflexion of /r/. American English is spoken with a lower level of energy than British English. Once they are at home with British English, students can produce a good impression of American English in as little as 20 minutes. Then the teacher needs to make sure they gain experience speaking both varieties, thus allowing them to choose which one they prefer for their own speech and being able to understand the other.

Thirdly, if the teacher is not a native-speaker of English, her pronunciation may not be perfect. But she certainly has criteria for how the language should sound. She can



... if the teacher is not a native-speaker of English, her pronunciation may not be perfect. But she certainly has criteria for how the language should sound. She can better bring these criteria to life in her students if she doesn't speak.

better bring these criteria to life in her students if she doesn't speak. In fact, whether native speaker or not, the teacher is more helpful if she doesn't distract her students with her own pronunciation.

If the teacher doesn't speak, what does the student use as a model?

We're all familiar with the model used in the L&R approach: it's an acoustic one presented by the teacher which the student is supposed to use to guide his pronunciation towards hers.

In the PronSci approach, the student hears nothing that he can copy. Instead, the teacher will usually mouthe the sound or give some other visual indication of how it should be made, so the student is clearly directed to become aware of his motor model, that is to say, to become aware of what he is doing with articulators. What he does may start some way away from what will produce the right sound, but the teacher's feedback enables him to refine his model until it is correct. She is the source of authority to begin with.

However, this is not purely 'mouth' training. As the student gets better at pronouncing, his criteria for what is correct start to develop in the auditory domain as well as the motor one. Eventually, he is able to rely on what he hears to give him quick and efficient feedback on how he is speaking, but the process didn't start this way. To begin with, he had to work on how his tongue, lips, jaw and other articulators actually function in the new language.

This process is absolutely the norm in learning any skill. One learns the skill on one basis, and then develops criteria for control and correctness on another basis or several more, which may turn out to be better suited for monitoring automatic action than the original. The first example of this that PM found in his own life when he started thinking about it was how he ties a new tie. To begin with, he relies on the position of the seam and how the tie looks in the mirror. But after a while, any given tie starts to wear a bit, and he can just feel how it should drape around his neck to start the tying process. There's no need for a mirror.

Lots of other example come to mind. When PM started driving he used to look at the speedometer to find out how fast he was going. Now he knows from the speed at which the scenery passes him by and from the sound of the engine.

How do students profit from hearing and watching other students?

Have you ever had the opportunity of watching the lower-placed contestants in a figure-skating competition? It's very instructive. When the champions do it, the commentator tells us that they have just done a wonderful triple Salchow, or a double Axel, or whatever, and RY absolutely can't tell the difference. All she sees is this: they steady themselves, they

leap and they land. It's so smooth that she can never see whatever it is that they are doing which makes it a Salchow or an Axel. When we get down to the lower level candidates, it's quite different. They don't have the smoothness and the grace, and suddenly the movements are much easier to see.

This applies to non-native speakers, too. Learners can more easily detect what non-native speakers do to pronounce sounds, words and sentences than what fluent, expert native speakers do. They will learn more from watching and listening to other students than from trying to copy the teacher.


What does the teacher do, if she's not giving her students a model to copy?

In the PronSci approach, the student has to do the work that only he can do. The role of the teacher, though, is crucial: she is his coach, making sure that he is doing his work, giving him the feedback he needs in order to fine-tune his production, and suggesting (usually silently) things he can do that may help him to improve.


The basic learning paradigm is the one that people use to learn all motor skills: trial and error. The challenge is some sound, word or phrase to be said. The teacher has to indicate this silently so that she doesn't invite mimicry.

To do this, she may use IPA symbols or the written form, although we prefer coloured rectangles and coloured words on charts. Then the student makes his first trial and he needs to get some information back from the 'environment' about how successful his trial was.

It is the same as learning any other physical skill or sport, except that in most physical activities we see or feel the feedback from the environment for ourselves and adjust our next attempts accordingly. With speech, a student doesn't yet have the criteria to evaluate his own output, so a teacher is essential: she gives the students feedback on how they are doing.



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Aren't you just teaching phonetics?

The discipline of phonetics has a practical side: the 'know-how' of articulation. This is what we are teaching. As a result, the analysis of English we use is determined by what is needed for teaching pronunciation, not what is needed to understand the theoretical and other questions that phoneticians ask.

Our starting points are a theory of learning, developed by Caleb Gattegno, and a theory of first language development, also developed by him. We have taken from phonetics what it can contribute within this framework.

So, in the PronSci rectangle chart, the underlying model of the vowel space can be seen to be different from the model that most phoneticians use for their purposes – the IPA quadrilateral - while still being 100% correct phonetically. Theirs is an acoustic model, ours is an articulatory one. Both are correct and have their place, but we need ours because our needs as teachers are different from theirs as phoneticians.

For those not familiar with the theory behind the IPA quadrilateral, although the labels on its axes are 'front-back' and 'high-low', these do not refer to tongue positions. It sounds like they should, it may well be that they originally did, but in fact now these are acoustic labels. (In our view, it's irresponsible for phoneticians to persist in describing vowels this way, given the potential and actual confusion it causes, but this is what they do.)

However, within phonetics there are alternative ways of characterising vowels, for example by reference to the tongue, jaw and lip gestures that create them. The tongue, in particular, is a complex set of muscles in itself, and is linked by other muscles to different parts of the mouth. The possible combinations of all these muscles favour gestures in particular directions. We think it's helpful for teachers and students to work within a model that is based on this understanding.

We're indebted to Sydney Wood (e.g Wood SAJ 1993. The throat-tongue-lip model of vowel articulation. *Phonum (Umea)* 2: 139-149), whose work in this area inspired our early designs of rectangle chart, but more recently we have adopted John Esling's (similar) framework (Esling JH 2005. There are no back vowels: The laryngeal articulator model. *Canadian Journal of Linguistics* 50: 13-44).

Does knowledge of phonetics help or hinder the teacher?

It helps, but with caveats.

We think phonetics is an excellent discipline for teachers to study, **if and only if** they then don't start expounding what they know in the classroom. That danger arises because once one has some knowledge, one often wants to teach it, to distribute it.

If phonetics gives teachers heightened sensitivity to what they do with themselves when they speak, then it's a discipline which is extremely useful for them.

We recommend Catford's 'A Practical Introduction to Phonetics' in this respect. For teachers, he's the greatest phonetician of the last century. He shows how to introspect and

discover what we do with ourselves when speaking. His writing is elegant, easy to read, very clear and the book is quite simply brilliant. (He was an English teacher for many years as well as being a phonetician, and we've heard former students of his attest to his skills as a teacher.)

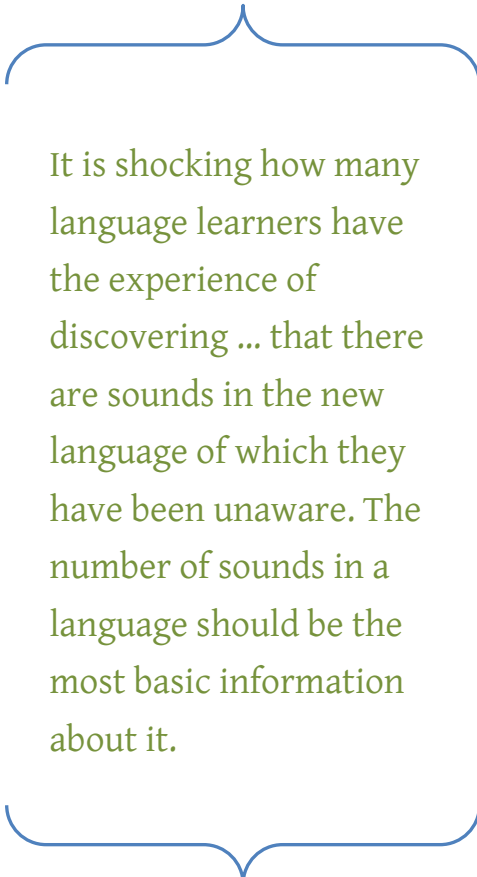
4. The materials: the PronSci charts

Why is it important to have a 'synthetic' view of the English sound system in front of students?

It is shocking how many language learners have the experience of discovering after many years that there are sounds in the new language of which they have been unaware. The number of sounds in a language should be the most basic information about it.

Here are testimonies from two language learners:

1. "When I learned French, nobody explained to me there were two different close rounded vowels, /y/ (front) and /u/ (back). I just assumed (by analogy with English) that the vowels in "vue" and "vous" were the same, even though they were modeled correctly by my French teachers at school. It wasn't until I learned phonetics at university and had someone point out to me that the vowels were different that I got it. That was a bit of a penny-dropping moment."
2. "For me, when I first started using the dictionary to check the phonemic transcription of my English words, I started comparing this transcription with the way I heard words pronounced on TV, and then I got to the immediate discovery that I would pronounce the vowels in 'home' and 'horse' in the same way."



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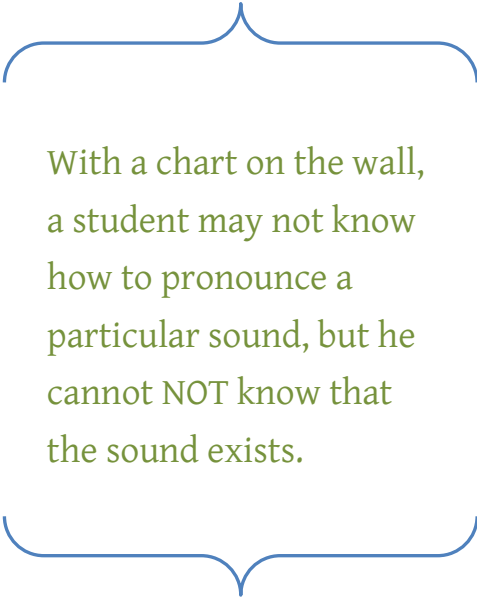
When we read these stories, what struck us was that these two good students could go through the whole of their schooling without realising that French or English had two different sounds where they thought there was only one. What were their language teachers doing?! Clearly, they were not thinking about how to get these students to pronounce the language correctly.

This kind of story confirms to us that a synthetic visual approach is vital. By that, we mean an approach in which the students can see, up on the wall in front of them, a representation of the total number of sounds in the language, a complete view. The periodic table displays all the chemical elements and performs the same function.

With a chart on the wall, a student may not know how to pronounce a particular sound, but he cannot NOT know that the sound exists. There it is in front of him, and he knows he has to work on it until he gets it.

So the students know, from the start,

- what sounds have been mastered,
- what sounds they still have to master, and
- when their work will be complete.



With a chart on the wall, a student may not know how to pronounce a particular sound, but he cannot NOT know that the sound exists.

Why use colour rather than IPA symbols?

The advantage of using the IPA symbols would be that students who are interested in pronunciation will find them in their dictionaries.

However, with colour we can have our cake and eat it: we can have both the sounds of words and their spellings portrayed at the same time. This makes it possible to create word charts which support both grammar and pronunciation work, and a fidel which allows students to undertake a detailed investigation of the relationship between pronunciation and spelling (which is much less arbitrary than many people imagine). Otherwise this relationship is rarely directly addressed and students are left to muddle through.

What is the history of the PronSci materials?

The approach started with Gattegno, whose first book on the Silent Way (SW) in 1963 pointed out the importance of mothers imitating their children for a child's language development. Gattegno taught pronunciation while remaining silent himself because he realised that a student needs to be present to his articulators when learning new sounds, and not distracted by demands to copy a teacher's model.

In the 1960's and 1970's, Gattegno's SW materials were the 'fidel' (the name he chose for his charts of sound to spelling correspondences using colour) and the word charts. Then, in 1978, he decided to teach a course which became the series *English by Video*. He used two classes. One was in the studio with him being filmed. The other was a group watching the course on television in the next room. This second class couldn't follow the pointing on the

fidel; the pointer was having to cover too much, too quickly as it moved around on the eight charts.

Gattegno needed a solution for the next day's filming, and he came up with a condensed version of the fidel: the sound/colour chart. But this chart had to be consistent with the fidel he had been working from up to then, so all the columns on the fidel were represented on the sound/colour chart. (It should be noted that the fidel itself was made for Words in Colour, i.e. reading and writing for native speakers, usually children.) The sound/colour chart turned out to be such a powerful instrument that he went ahead and published it.

However, there were two major problems with it. The first was that his chart has rectangles for all the spelling combinations of English, and as a result has far too many two-coloured rectangles. Many are not needed on a chart where sound sequences should simply be pointed as one sound followed by another, irrespective of the spelling. The second was that the order of the rectangles followed the columns of the fidel rather than reflecting the sound system of the language. (In sound/colour charts he produced later, for other languages, he organised the sounds to a greater degree than he had done in English.)

The PronSci rectangle chart is the result of contributions and feedback from a team of eight Silent Way teachers at the Centre de Linguistique Appliquée of the University of Franche-Comté who worked on it from the mid-1980's onwards. They were joined by PM in the early 1990's. More recently, Don Cherry has been collaborating with us on the American English version of the charts.

RY also developed the French sound/colour chart for SW, and with Fusako Allard revised the Japanese one.

A few years ago, we realised that it would be possible, and beneficial, for teachers to be able to use Gattegno's insights into pronunciation teaching without having to embrace the rest of the Silent Way. So we published the new PronSci rectangle chart, a new fidel that follows this organisation of sounds and is better adapted to language learners than the old one (which was, in fact, a literacy fidel), and a set of word charts organised by parts of speech so that words are easy to find.

It might also be of interest to know that Adrian Underhill also worked with Gattegno, and acknowledges his debt to him in his book on pronunciation teaching, 'Sound Foundations'.

Why did you develop a new sound/colour chart?

As we said above, Gattegno's chart was developed literally overnight, as a compact version of the fidel.

However, by starting from first principles for language teaching alone (i.e. not taking the needs of native speaker children learning to read into account), people have been able to improve on Gattegno's chart. It is better for language learners to find exactly one rectangle for each individual sound. This means we can drop off about a third of the rectangles that Gattegno put on his chart, which represented spelling combinations on the fidel. These combination rectangles (as opposed to the true diphthongs) are not necessary for our purposes.

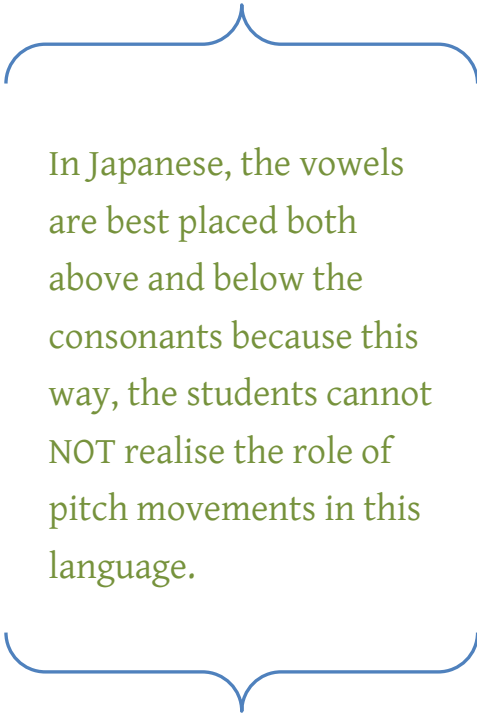
We have also found a way to show vowel reduction on the chart. Since vowel reduction is characterised by a loss of energy, we show this by using dots rather than rectangles. Then, since reduced 'vowels' are very different from normal vowels in other ways, we put the reduced sounds at the bottom of the chart so that it's clear that they really are very different from the real vowels at the top.

Why has the rectangle chart been organised?

Gattegno's original sound/colour chart reflected his existing spelling fidel, but this is not the best starting point for learning English as a foreign language. The sounds on the PronSci rectangle charts are organised so that the relationships between them which are important for language learners are clearly presented. They are thus much easier to learn. You can read a detailed description of the organisation in the notes available at <http://www.pronsci.com/products-and-training/gallery/>

As an example from another language, in the synthetic chart RY uses for teaching French, the ordinary vowel sounds (/i e ɛ a ɔ/) are presented along one line, and their rounded variants are presented just below them, paired one to one. That way, the students learn the ordinary vowels, and then they learn to round them. If they can make the ordinary vowel, the corresponding rounded one comes more easily. Similarly for the nasal vowels. They are placed so that they are related to the non-nasal vowels they come from, and so are easier to situate and learn to make. This way, the French language is presented as a coherent system, rather than as just an unstructured collection of all sorts of different sounds that can be very difficult to differentiate.

In Japanese, the vowels are best placed both above and below the consonants because this way, the students



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Why did you put dots on the word charts?

In RY's teaching career, she has taught hundreds of students who have had 5, 7, or even 10 or more years of school English. She doesn't think that when they arrived in her class, any single one of them could have made the following statement:

"In English, there are about 40 words which have two pronunciations - strong and weak - with the speaker choosing one or the other depending on what he is trying to say."

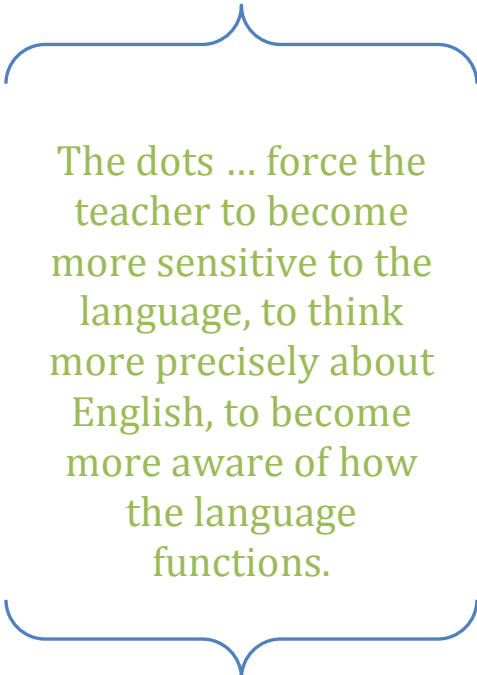
In fact, she thinks that most of their teachers could not have said this sentence either! Many teachers *kind of* know this *kind of* thing happens in English, but they are not aware of the exact nature of the phenomenon: neither of how limited it is with respect to the numbers of words, nor indeed, of how pervasive it is.

Obviously there are also thousands of words which can be slurred from five to four syllables, like 'contemporary', or four to three, or three to two—like 'library'. These are words in which one can drop a syllable in fast speech. But the 40 or so words we are talking about are different. They can systematically be pronounced in several ways and the way one should choose depends on how they are placed and what one is saying.

The dots indicate the weak - but more common - pronunciation of these words. We consider that they convey vital information for anyone studying English. Once students realise what they indicate, they can work better on the system of stress in English and discover how it functions.

These 40 words are not just anywhere. They are all to be found on the PronSci charts but are almost all on three of the fourteen charts. They are very common words that behave in a special way. As far as pronunciation is concerned, they are one of the keys to speaking English well.

The dots have another advantage. They force the teacher to become more sensitive to the language, to think more precisely about English, to become more aware of how the language functions.



The dots ... force the teacher to become more sensitive to the language, to think more precisely about English, to become more aware of how the language functions.

5. Teaching pronunciation using the PronSci approach

Introduction

When language teaching is discussed, there's much talk of getting the learner to do all the work, of learner autonomy, of independence, of minimising teacher talk, etc. There is a good reason for this: successful language learning does indeed require the learner to do the work, to be as autonomous and independent as possible, and so on.

The problem is always to get the students to practise until they have reached mastery: fluidity and ease of production with the movements of their articulators which are required to produce all the new sounds and combinations of sounds in the language. For this they need time to work on all this.

What pedagogical principles is your approach based on?

First, **it's not because I teach that they learn**. Once you think about this for a moment, it's obvious. The teacher goes into the room, does what she does for an hour or so, the same for everyone, and then goes off. The fact that we then feel the need to examine the students to find out whether they have learned what they were taught demonstrates clearly that there is no direct link between teaching and learning. Therefore we have to work with our classes in such a way that the students learn, which entails a radically different attitude towards teaching.

Learning to speak a language means constructing a set of know-hows. This is done by working on muscles and how they should move, rather than by trying to build an intellectual understanding aka knowledge. Why is this? Because of several other principles ...

Knowledge never spontaneously becomes a know-how. The reason this is important is that, for us at least, speaking a language is a know-how. Imagine that you go on a skiing holiday as a beginner and the instructor tells you on the first morning, "We are going to start by looking at the physics of turns and the chemistry of snow." We expect you would look for a different instructor, and you would be right to do so. You know that what you need is equipment, snow and time. You know that the kind of information she wants to give you will not help you as a beginner learning to ski (although it may be useful for an Olympic skier.) You can only give yourself the 'know-how-to-ski' by doing it until you can do it. Speaking a language is exactly the same! You learn to speak by speaking. The only difference is that in skiing, the environment gives you feedback (you fall over) whereas in learning a language, giving feedback is one of the teacher's roles. We should be aware that our teacher talk can be as irrelevant as the physics of turns and the chemistry of snow.

Knowledge is forgotten, know-hows last a lifetime. Every time we memorise some piece of knowledge, we run the risk that it will be forgotten. When we build a know-how, it will last for ever. Lifelong learning is made of know-hows, not knowledge. Think of all the things you memorised at school and kept just long enough to pass the exam, and then think of riding a bicycle. Once you can do it, it's yours. You might be shorter of breath or weaker in muscular power, but you can still ride that bicycle. The know-how itself is there all your life.

For more of the principles that the PronSci approach is based on, see Chapter 1 of Roslyn Young's *L'anglais avec l'approche Silent Way* (Eyrolles, 2011).

When do you introduce the sounds?

We introduce the sounds represented on the rectangle chart at the very beginning of any course; one by one and in combinations. The students spend time learning to pronounce the sounds which are difficult for them. The work on pronunciation continues throughout the course, in micro lessons which fine-tune the sentences being said.


Most sounds are easy, as they are the same in many languages; others are quite different and need attention. It can take hours to learn to say a new sound in the initial, middle and final positions of a syllable and before and after all the other sounds it comes in contact with. Putting syllables into words and words into sentences takes more practice, and we want the students to be able to say these sounds easily and naturally.

Very importantly, we want work on pronunciation to happen with beginners, before they have had a chance to develop any bad habits that they would have to spend hours eradicating later in life if these bad habits become fossilised.


How do you introduce the sounds?

For vowel sounds, the teacher points out the rectangle and might mime the sound, but she never actually makes it herself nor does she play a recording of it. In this way of working, the students hear the target sound for the first time when one of them actually gets to it.

The teacher encourages the students to produce their best guesses at the sound. When the class has done what it can profitably do collectively, she chooses a student whose guess is better than most, gets him to say the sound again, indicates by gesture that the sound



Every time we memorise some piece of knowledge, we run the risk that it will be forgotten. When we build a know-how, it will last forever.



should be different in some way and so encourages a new round of experimentation by everyone.

This makes everyone realise that there are new things they can do, because other people are clearly doing things which are different from them, and they become freer and more adventurous in their trials. As they try this and that, the teacher selects another student who is also more or less on the right track, and asks him to make his sound again.


It usually takes less than a minute for most people in the class to have homed in reasonably well on the sound. Anyone who hasn't, has nevertheless ventured outside the sounds he knows and is well-placed to work on this sound the next time it comes up. This is a cyclical process, and every difficult sound is worked on many times in different contexts. The teacher is not looking for immediate perfection, but for step by step movements towards this new motor skill. The class has time, and the students will improve after a night's sleep.

What the students are doing during this time is sensitising themselves to their mouths. They are also training their ears. These activities, rather than 'success', are the teacher's primary aims at this point. In fact, if a student hits the right sound too quickly, the teacher may decide not to respond in order to encourage further experimentation.


The teacher will be saying things like, "Put more energy in," or "It doesn't sound English," and using mime and gesture to give indications to the students of things to try.

Consonant sounds should usually be combined with a vowel, so the teacher points out the consonant rectangle followed by a vowel rectangle. Otherwise the process is the same.

During the time when the rectangle chart is first being worked on, longer and longer strings of sounds can be pointed out without any reference to the meaning of the utterance produced. In fact, this is a considerable advantage, as meaning is a distraction for the work being done at the moment. As soon as meaning is introduced, the focus of the course changes.



... if a student hits the right sound too quickly, the teacher may decide not to respond in order to encourage further experimentation.



How do you deal with students who can't hear the schwa sound?

Students who speak languages which don't have the schwa sound can find it very difficult to hear this sound at all. RY has found that students often have no idea how many syllables there are in English words which have more than two syllables.

To get students to realise that they are missing out syllables, she uses her fingers. She folds the index finger of her left hand at both joints and folds the other fingers down into her palm, so that the folded index finger is protruding. She uses her pointer to place one syllable on each section or length of the finger. For example, with a word like 'variety', which is a nightmare for many speakers, she touches the fingernail section of her finger for 'va' ; she associates 'ri' with the next section, 'e' is placed on the last section and 'ty' on the back of her hand. Then she shows that the second section has more energy than the others by tapping it a little harder, and the students start saying the word correctly.

Words like 'January' and 'February' can be treated in the way above, and they become quite easy. This is a case where precision helps enormously.

Once the word being examined is on her finger, she can get the students to make any of the syllables in isolation simply by touching the length of finger in question, and the class can thus take the word to bits very carefully. She remains silent all the time. she doesn't have to say anything. That way, she remains within her 'no model' system.

How can you use a chart to work on connected speech?

Pointing the sounds of an utterance on a well constructed chart allows the teacher and her students to deconstruct speech, while retaining the details needed for the students to reproduce it after they have worked on the problems. Since this involves understanding the phenomena involved rather than just mimicking strings of sounds, the learning readily transfers to new utterances.

Here are some examples.

- 1) Using the PronSci rectangle chart where the reduced vowels are separated out from the full ones allows students to unpick words like *variety*, *library*, *centimetre*, *January* and *February*, and then to reassemble them correctly with a clear understanding of the patterns of energy across their syllables.
- 2) Pointing on a chart and using hand gestures allows the teacher to show slow speech, fast speech and any speed in-between. Because the students can interact with the sounds of the chart themselves, trying out their ideas, this is a particularly good way for them to become aware of subtleties that they have no chance of picking out of normal speech.

(Unless, that is, the speech is distorted until the subtleties to be worked on cease to be subtle because they are now being produced unnaturally.)

For example, in a sentence like, “What did you do?” it is possible for students to get the feel in their mouths of the various ways of sticking “did” to “you”, all the way from /dɪd ju/ to /dʒə/. For students whose language does not possess a schwa, phrases like, “There are a lot” /ðə rə rə lɒt/, or “It’s a quarter to two” /ɪts ə kɔ:tə tə tu:/, are just a muddle of sound until the students themselves make each sound in the right order slowly enough to analyse the situation, and then learn to speed up and synthesize the whole.

This kind of work is especially popular with non-beginners, who finally understand what is going on in phrases that they hear repeatedly but have never really grasped.

3) Working this way enables students to learn to run up and down the registers of speech giving the exact changes expected for each level. How do you say even something simple in a way that is appropriate for your boss’s boss, and then say the same thing to your best friend? This can be worked on very early – within the first twenty hours of a beginners’ course and certainly from the start of any course with more advanced learners.

The fact that work on register is always so well received points to the fact that humans understand human relationships and want to be able to express their understanding of them correctly.

Do you only use this approach in specialist pronunciation classes?

No. It’s ideal for a pronunciation course, but generally the approach is used in normal classroom situations where all aspects of English are being taught. After some initial work which is purely on sounds and combinations of sounds, the rest of the work on pronunciation comes as micro lessons whenever something worth working on comes up in the class. Having the rectangle, word and fidel charts up on the wall to refer to helps the teacher to deal with any pronunciation problem efficiently.

Can non-native speakers use this approach?

Both native and non-native speakers can use it successfully. A non-native speaker certainly has criteria for pronunciation, even if she doesn't always pronounce perfectly herself. She can bring these criteria to life in her students without having to speak. In fact, whether native speaker or not, the teacher is more helpful if she doesn’t distract her students with her own pronunciation.

RY speaks less when she teaches French than when she teaches English. Although her French is very good, she wants to give her students the chance of developing a better accent than hers.

What is the maximum size of class for using the PronSci approach?


Our experience is that there are no problems up to 50 or 60, but we've never tried bigger classes than that.

This is because the teacher doesn't have to correct everyone. She has to move around the room, listening to what is being said while the students are working, and finding people who can do one of two things.


Either she looks for someone who is making good progress and gets this person to stand up and say his version of the sound or sentence for the others. This has at least two effects: (1) the other students see that it can be done, and (2) now that they have tried different things themselves, they can benefit from hearing something different and further develop their criteria for what is correct. Both these things inspire them to keep working.

Or the teacher finds someone who is making a mistake which it would be helpful for everyone to work on at this stage. She gets the student to come out to the front and works with him until he can self-correct. By working 'in public' like this, she is also working for every other person who was making the same mistake and some others too. Learning takes place by proxy.

We prefer big classes. If you see all your students as a resource for everybody, then the more students you have, the richer the class.



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What ages can this approach be used with?

The 'students' we teach might be six or sixty. The important point is that we are always working with their awareness and on their awarenesses whoever they may be.

However, the atmosphere in the class will certainly be different depending on the ages of the students. With young children it would be quite playful and the time spent should be short; with adolescents, given their usual reticence to speak, the teacher would be much more directive. With adults there are two distinct phases: the first when they discover that THEY are going to have to learn to actually SPEAK the language rather than learning about

how to speak it (this comes as a surprise to many), and a second phase where they loosen up and can profit from the freedom the teacher gives them to experiment.

How much metalanguage is necessary?

We are suggesting is that it is more efficient to stop using metalanguage and discussions altogether, and to work directly on students' articulation instead.

6. English phonetics: what's useful for teachers and how to use it

A Speech breathing

What do teachers need to know about speech breathing?

What you do with your respiratory system during speech is called speech breathing (SB), although the name is a bit imprecise: for speech, we're only really concerned with the control of breathing out (expiratory ventilation) rather than with breathing as a whole.

When we speak under normal conditions, we breathe in by tensing the diaphragm, which flattens it downwards, and by expanding the ribcage. These actions open up our lungs and air flows in to fill the space. The inspiratory muscular activity stretches the tissue in our chest walls but as the voluntary inspiratory effort we make decreases, the recoil of the stretched tissue creates pressure inside us. The situation is not dissimilar to that of an inflated balloon, where the elastic skin compresses the air inside.

The pressure this creates is more or less sufficient to drive the vocal folds and create other sound sources in the mouth (explosions for /p/ and /t/ etc). As we 'deflate' we add a bit of pressure through voluntary expiratory muscular activity, but for normal speech we really don't need to do much that is active with our respiratory systems. There's a constant pressure under our vocal folds, and all the interesting things in speech appear to happen from the vocal folds upwards.

This changes under extreme conditions, or when we don't speak normally. If you try to say a train of /s/ sounds at different rates, you will probably find that at 4 per second your speech breathing is as it is during normal speech. But at 1 per second, you are actively compressing yourself for each sound, and relaxing between sounds. This is a 'pulsatile' style of SB, since you are breathing out in pulses.

Clearly your SB can be either 'smooth' or 'pulsatile', even if it is normally smooth.

B Stress

Introduction

Unless specially noted, we use 'stress' to mean sentence stress (actual prominence of syllables in speech) rather than lexical stress (the identification of syllables in words which may potentially be accented).

English, German and Dutch are part of the West Germanic group of languages. They are unusual among the languages of the world in that routine sentence stress involves syllables being louder as well as longer. This is called, 'stress-accent'. In most languages, prominent syllables are longer than others, but not louder (unless they are emphatically stressed).

It's hard for most learners to integrate the West Germanic model of stress into their speech, as teachers know. We believe we have a solution for this, but that the problem has implications that go beyond stress; the distinctive timing features of West Germanic languages (including their 'rhythm') are probably connected to the distinctive way that their speakers create sentence stress. In children, and possibly also in adults, this is done by using the respiratory system in the distinctive way described in the questions and answers that follow.

How do speakers create routine (rather than emphatic) stress in English?

Among phoneticians, there's disagreement about the nature of stress in English and there's also disagreement in the data. Phoneticians of the 19th and early 20th centuries said that speakers put more effort into stressed syllables by increasing their respiratory drive (the muscular activity of the respiratory system). Some data from the 1970's challenged this, and now there are people who believe that routine sentence stress is largely created by a vocal fold adjustment (more tension means a louder signal) plus lengthening of the syllable. Others think that stress is created by speech breathing pulsatility which leads to greater loudness and length automatically (harking back to the view of older phoneticians).

There is a complicating factor in this, that pitch movements occur on stressed syllables, leading to some confusion about whether these are correlates of stress. 50 years ago, Fry did some experiments which he and others interpreted to mean that pitch movement was the most important aspect of stress, and that length and loudness changes were much less important.

However, most phoneticians now regard the stress system and the intonation system as conceptually separate, except that significant pitch movements can only be realised on stressed syllables. (We believe it was Robert Ladd who described this as a 'docking' process.) This would mean that a pitch movement reveals a syllable as being stressed, but

the pitch movement is not the result of the stressing *per se*. (In technical terms, it's a cue to stress, but not a correlate of it.)

In the last few years, Greg Kochanski has published a number of studies which re-establish loudness as the most important correlate of stress. As Sluijter and Van Heuven pointed out in the 1990's, Fry had been manipulating volume, not loudness, in his experiments, which was a mistake. (Volume is a physical property of sound, while loudness is its psychophysical counterpart. We experience loudness, not volume.)

Catford (1988:167) was unequivocal about on this issue:

"[T]hough pitch phenomena and stress are often related to each other in the pronunciation of a language, they are, in fact, distinct and isolatable features which are independently controllable. The fact that in many languages, of which English is one, stress is associated with pitch and duration has led to some confusion. 'Is stress really pitch, or duration, or energy, or what?' is the kind of muddled question that has often been asked. The answer is that, from a general phonetic point of view, stress is initiator power, as we have defined it here."

The 'initiator' was his name for whatever created air flow and pressure; usually the respiratory system, of course.

Resolving the debate: stress in children

The information which, we think, resolves the debate about stress is something that phoneticians have paid no attention to: the speech breathing of English-speaking children during the period when they learn to stress syllables.

Children have floppy (compliant) tissue in their chest walls, not the stiffer tissue of adults. So when children breathe in and stretch this tissue, there is very little pressure created subsequently by its weak tendency to recoil. If an adult's lungs are like an inflated balloon at the end of inspiration, a child's lungs are more like an inflated paper bag: full of air, but not pressurised.

So children have to actively pressurise themselves to make sounds. In the early stages of learning to speak, this probably involves pressurising themselves for every syllable, much as an adult has to compress his lungs for each syllable when saying a train of /s/ sounds at a slow rate (see the earlier discussion on speech breathing). A child's speech breathing is pulsatile.

Also, young children can't make syllables louder just by tweaking their vocal folds in the way that adults can, because the tissue is still immature and the skill takes time to develop. They can only produce greater loudness by increasing their respiratory drive.

So, for children learning English, stress has to be the result of extra effort applied on every stressed syllable on top of speech breathing activity that already starts pulsatile. Stress is something children create with their respiratory system and larynx in combination, not just an acoustic effect they copy from adults by making an adjustment of their vocal folds.

Whatever adults do in practice to create sentence stress, the developmental path is for stressed syllables to be created by increased respiratory drive.

How should we go about teaching stress?

Before the physiology of speech breathing in children was understood, it might have been assumed that stress-accent in English is replicated by children by auditory matching. That is, that they hear loudness, spectral change and lengthening on certain syllables in the language around them and try to copy all of these effects.

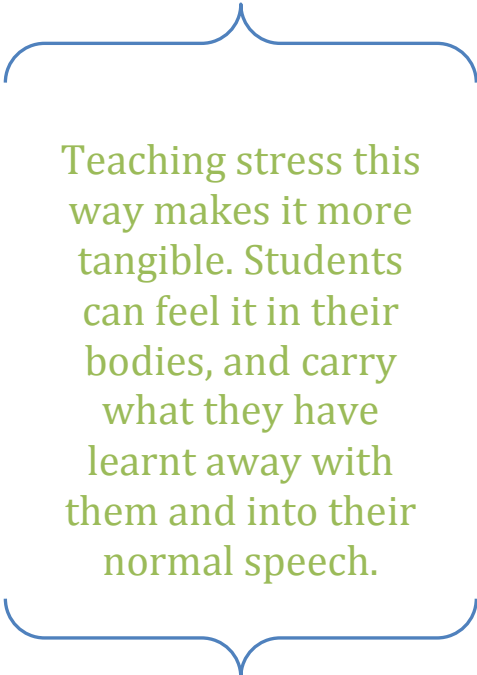
Now, it seems hugely more plausible to imagine that children start by noticing that other speakers make some syllables louder than others. They copy this, by making a bit more effort on the stressed syllables, and the other cues of prominence – spectral change and lengthening – come along as by-products of this.

In this case, the underlying specification for 'stress' in English is a motor activity. More effort is made by the respiratory system.

It seems clear that we should teach this directly, and older learners will most effectively learn to do it as they learn all other motor skills: by paying attention to what they do and what the results are.

Teaching stress this way makes it more tangible. Students can feel it in their bodies, and carry what they have learnt away with them and into their normal speech.

Concurrent activities like using some other part of the body in synchrony with the stressing may be helpful, but the core of the matter is to help students to make stress in as 'natural' a way as possible: with their respiratory systems, as phoneticians in the past always used to recommend.



Teaching stress this way makes it more tangible. Students can feel it in their bodies, and carry what they have learnt away with them and into their normal speech.

C Vowel reduction

Introduction

Vowel reduction is the name given to the systematic change of sounds which definitely appear in their historical originals (French words, for examples) and/or apparently appear in the spelling of words (it would seem, for example, that “pronunciation” has 6 vowel sounds in it). The change is from fully articulated, distinctive vowels to schwa sounds or, in some varieties of English, to schwi and schwu sounds (the happy vowel - /i/ - and weak /ɪ/, and the two analogous [u]-type sounds).

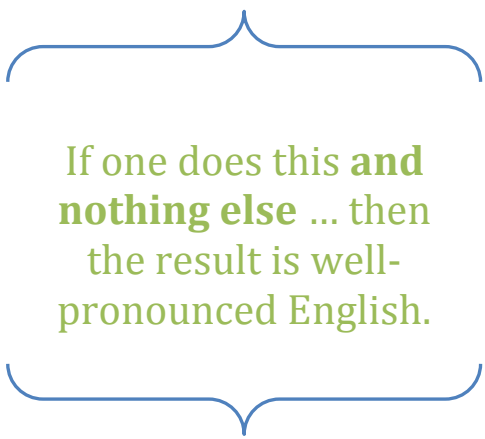
Reduced vowels are sometimes also called weak vowels. They contrast with full, strong vowels. In the PronSci rectangle charts, full vowels are found at the top of the chart, reduced vowels appear as dots at the bottom.

Vowel reduction is usually described in terms of its auditory effect – what the listener hears. However, Catford (e.g. Catford 1985; 1988:111-116) asked about the production of reduced vowels and formulated a more useful approach to the phenomena for the purpose of teaching pronunciation.

He distinguishes reduced vowels as found at the ends of words or before vowels (for example, the [ɪ] type sounds in “happy” and “radiation”) from reduced vowels found at the start of words or flanked by two consonants (for example, the schwa sounds in “about” and “polite”.) The first of these are articulated as full vowels, but with reduced energy. The second group, which is the more common type of reduced vowel in English, he described as an ‘open transition’ from the first consonant (if there is one) to the syllable-final one.

Open transitions can be contrasted with ‘close transitions’, when one moves from one consonant to another one without any break (with the articulations overlapping); for example the close transitions in the initial consonant clusters in “plight”, “train” and “claps”. Open transitions are characterised by (1) being very short in duration, (2) involving minimal opening of the vocal tract, and (3) being either fully voiced, partly voiced or unvoiced (in contrast to full vowels which are usually voiced). Examples of open transitions are found in the first syllables of “polite”, “terrain” and “collapse”.

The practice of writing words with a dot/full stop/period replacing some vowels captures very well how it feels to produce open transitions. The dot shows that the articulation of the preceding consonant is complete before the speaker goes on. If one does this **and nothing else**, i.e.



If one does this **and nothing else** ... then the result is well-pronounced English.

one does not attempt to make a vowel sound but just moves on to producing the next consonant, then the result is well-pronounced English: p.lite, t.rrain, c.llapse.

How can we teach vowel reduction?

For classes in general English, where pronunciation is only one part of the course and time is limited, it is helpful to consider all open transitions as schwa-like for pedagogical purposes. (I.e., it is helpful not to distinguish (John) “Lennon” from V.I. “Lenin”, or the second syllables of “rabbit” and “abbott”.) This is because as soon as the teacher asks the students to distinguish open transitions among themselves, the students will actively articulate them to hear the distinctions better and lose the quality of an open transition, thus defeating the main purpose. As the students pick up the system that underlies English pronunciation and gain in confidence in the rest of the language, the open transition sounds will sort themselves out (and even if not, the student will have a perfect Australian accent in this regard even if not perfect RP).

Note that the advice above applies to open transitions but not to all reduced vowels. For example, where two reduced vowels occur side by side or a reduced vowel before a full vowel, the distinction between them must be made, e.g. the sounds at the end of “happier”, in the middle of “influence” or between words as in “to Italy”.

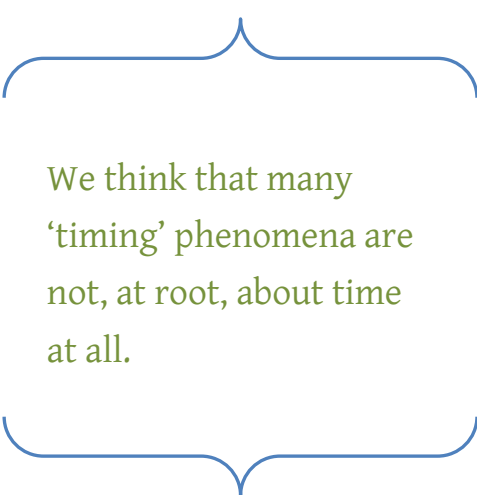
On the PronSci charts, reduced vowels are separated away from normal vowels by putting them in a separate area underneath the consonants, to make it clear that something different is done to produce them.

D Timing: rhythm, vowel lengths, etc

Introduction

The most important aspect of timing is the so-called ‘rhythm’ of English, but timing also includes the way that tense and lax vowels are different lengths (*heat* and *hit*), and all vowels are different lengths when they appear in certain contexts (e.g. *cat* and *cad*). There are other phenomena like this, but these become increasingly irrelevant for pronunciation teaching even if they do interest phoneticians.

The so-called ‘stress timed’ rhythm of English is very problematic. There aren't equal time intervals between stressed syllables in normal speech, yet the organisation of prominent syllables does feel different from the organisation of prominent syllables in French, Japanese,



We think that many ‘timing’ phenomena are not, at root, about time at all.

etc. It's a mystery to phoneticians.

We think that many 'timing' phenomena are not, at root, about time at all. They are a direct result of the way we control our breath for speech, emerging in the course of a child learning to do this. So they are 'real', and measurable, but we miss the point if we think that a child is trying to copy the timing of his parents' speech in his own.

As an analogy, we know that most people walk with a similar 'rhythm'. But do they do this because they have copied everyone else's timing? No, of course not. It's because they have similar bodies, and the biodynamics of bodies favour walking at particular rates, rhythms and styles.

In the case of English, the 'something else' that a child is doing, which leads to him adjusting the timing of his speech, is to reconcile his distinctive, pulsatile style of speech breathing with other aspects of speech production. If you would like more information about this proposal, it is explained as part of a Speak Out article ("What if children ...") that PM wrote in 2008, available to download at <http://www.pronsci.com/pronsci-approach/downloads/>.

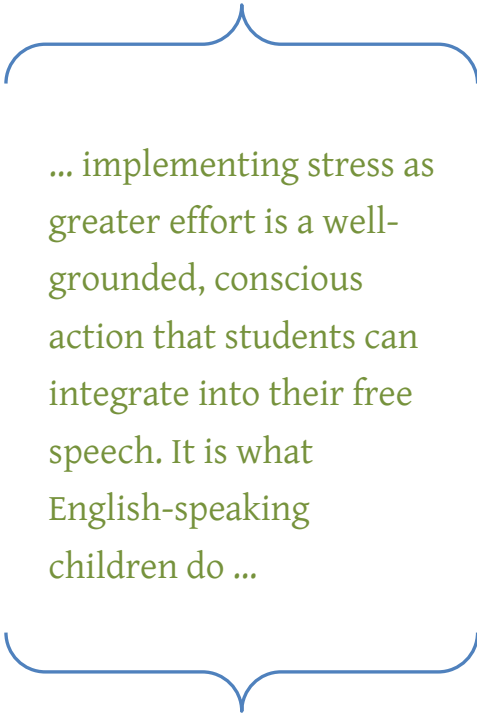
How should we teach the timing phenomena of English?

If you've got a way of teaching English 'rhythm' that really works – so your students start speaking with a natural rhythm in their free speech, not just when they're doing exercises – well, stick with it, and please tell us about it!

If not, we would suggest that teaching stress as greater respiratory system activity will lead to a natural 'rhythm' for your students as it does for native speaker children.

When stress is taught by asking students to copy a model, then something that 'sounds right' can be achieved by a laryngeal adjustment that makes a stressed syllable louder. However this is not felt as an action; the process is largely unconscious and is the result of the student only concentrating on making the syllable louder. This is not something that he will be able to take into normal, automatic speech.

On the other hand, implementing stress as greater effort is a well-grounded, conscious action that students can integrate into their free speech. It is what English-speaking children do, and seems to be the cause of the



... implementing stress as greater effort is a well-grounded, conscious action that students can integrate into their free speech. It is what English-speaking children do ...

distinctively English ‘timing’ phenomena. Foreign learners struggle to master when they are taught using Listen & Repeat; it makes more sense to us to follow the route of natural acquisition and to have them arise as a result of our students creating stress by making more effort with their respiratory systems.

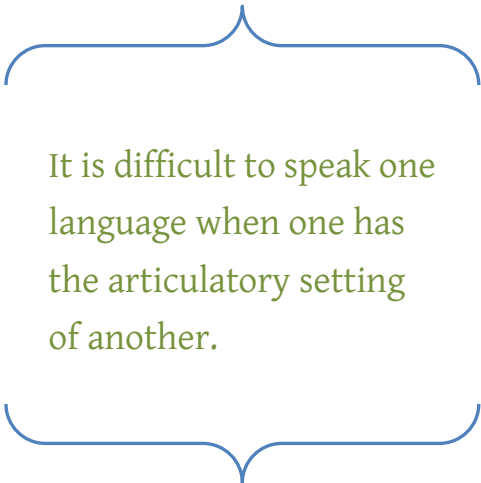
E Articulatory settings

Introduction

Every language – and even every dialect of every language – has a default position for the speech organs (the mouth, cheeks, throat, jaw and, most importantly, the tongue) which is developed by native speakers as they learn the language. This configuration is called the articulatory setting, or ‘postura’, for the language.

French speakers, for example, naturally leave the tip of their tongues just behind their lower teeth. From this position, the body of the tongue can easily reach all the positions required for the French vowel sounds and the blade of the tongue, for example, can easily touch the alveolar ridge to produce consonants like /t/ or /d/.

It is difficult to speak one language when one has the articulatory setting of another. An English speaker may be able to pronounce a French /y/ (as in 'mur') in isolation, but he won't be able to use the sound comfortably in words and phrases if his mouth and tongue are set for English sounds the rest of the time. The mouth won't easily form the sound if it starts from a resting position that is not adapted for it.



It is difficult to speak one language when one has the articulatory setting of another.

What is the articulatory setting for English?

The majority of English consonants are produced with reference to the alveolar ridge, the concave ‘bump’ which is located a little behind the front upper teeth. Native speakers of English keep the tip of their tongue close to the alveolar ridge when they speak. This involves pulling the tongue up and back, and the sides of the back of the tongue come into contact with the upper molars. Some authors have described this by saying that the tongue is ‘tethered’ along the molars. From this position, the tongue tip can easily flick onto the alveolar ridge or lengthen towards the upper teeth, and touch either with minimal effort.

Usually an English speaker's tongue is quite relaxed. When the tip is touching the ridge, a light puff of air is enough to blow it away. This causes /t/ to be aspirated, and similar aspects of the English articulatory setting lead to aspirated /p/ and /k/.

The division of the consonants into three families (left to right) on the PronSci rectangle chart reflects the articulatory settings of English. Those in the centre are created with the tongue tip in its special relationship with the alveolar ridge.

For more information about the English articulatory setting, read PM's article that can be downloaded from <http://www.pronsci.com/pronsci-approach/downloads/>

How do you work on the articulatory setting for English?

When the students have worked on most of the consonants, RY gets them to adopt the tongue position described in the previous answer and to make sounds like /ta:/, /sa:/, /na:/ or /da:/, /za:/ and all sorts of combinations like /i:nz/, /i:ts/ or /i:nθ/, concentrating on the consonants. As they speak, she asks them to feel exactly what they are doing with their tongue in relation to their teeth and to the alveolar ridge. She might draw a diagram of the mouth and ask the students to show her where their tongue is. She might use one hand to represent the tongue and the other to represent the roof of the mouth, with her nails representing the teeth. Her other hand can then indicate what the tongue is doing. During speech we can rarely see what happens inside the mouth, so it is the students' job to feel what happens. She repeatedly asks that the students focus their attention on their mouth and tongue, and become more aware of their movements.

If she speaks my students' language, a dialogue containing questions like this could take place:

Where is your tongue when you speak your language? How does it move?

Feel it! ... Feel where it is.

When you stop speaking, where does it come to rest? Where is the tip now?

Make an /s/. (She would of course point to the rectangle, she wouldn't say the sound.)

Can you feel a little turbulence just behind your lips?

For me, the turbulence hits my lower lip very close to the front of my mouth, just where the inner part of the lip joins the outer part.

Now, make a /ʃ/ (a "sh" sound).

Can you feel the turbulence? Does it feel the same for /ʃ/ as for /s/? Is the turbulence in the same place?

Now make a /θ/. Where is the turbulence?

She gets them to compare the turbulence for all these different sounds because this helps them to detect and become more sensitive to the airstream across the tongue and behind the lower lip.

Now make a /ʃ/ again.

Move your tongue back a little so there is no turbulence, and now lower your jaw a little. Leave room for the air to escape, and make a sound. What sound are you making?

It will be an /r/ for some students, an /l/ for others, a /θ/ for still others, and I will use one of them as a model, then another and another ... to obtain these sounds from most of the students, then from all. The emphasis will always be on what can be felt.

Now put an /ɑ:/ behind this sound. What do you get?

And behind this one.

And this one? What can you feel? Can you feel the difference?

I get them to compare the sensations they feel with /θɑ:/ and /rɑ:/ then with combinations of all the consonants and vowels they have up to now. I guide them through these exercises to rekindle their sensitivity to this part of their anatomy, which has functioned automatically since their early childhood. They have to feel the sensations, the 'textures' of the sounds, the levels of muscular energy, the degrees of flexibility, etc. Such exercises will help them to acquire more precise pronunciation.

E Intonation

Teaching intonation was not covered in the Fielded Discussion, however we plan to write up our approach and add it to this document around Easter 2012.

7. Getting started

What can I read to better understand the PronSci approach?

- a) If you haven't already read Catford's 'A Practical Introduction to Phonetics' then this is the best introduction to the style of work that teachers and students need to do. That said, it's about phonetics in general – ALL the sound generating potential of human beings – so some of it is not relevant for English, though great fun to try out.
- b) Adrian Underhill's book, 'Sound Foundations', is full of self awareness exercises for students (and teachers, of course) but it's based on a conventional phonetic analysis of English. We think our conceptual approach is more helpful from a pedagogical point of view.

c) PM has written a number of articles for *Speak Out!* which are available on the PronSci website at <http://www.pronsci.com/pronsci-approach/downloads/>

. These include:

- Learning and teaching vowels. *Speak Out!* (2002) 29:9-27
- Autonomy, as soon as possible. *Speak Out!* (2004) 32:12-23
- What if children don't learn to pronounce by imitation? How should we teach older learners? *Speak Out!* (2008) 39:16-21
- Grounding stress in expiratory activity. *Speak Out!* (2009) 41:12-16
- Understanding and teaching the English articulatory setting. *Speak Out!* (2010) 43:20-24

Articles about how children learn to pronounce can be found on his website:

<http://sites.google.com/site/pmessum/home>

d) RY has published a book in French on teaching English by the Silent Way, and the English version should be available during 2012. The book is entitled, *L'anglais avec l'approche Silent Way* (2011) Paris: Eyrolles, and is available from Amazon.

Can I get a taste of the PronSci approach before I buy the materials?

We do suggest using the materials available from PronSci. They support the PronSci approach to teaching pronunciation and you will get a better result with them than without.

However, if you don't feel ready to invest in them yet, you can print out our design for either the American or British English sound system but using IPA symbols rather than colours. (You will find these charts on the first and last pages of the notes at <http://www.pronsci.com/products-and-training/gallery/>

Read our notes on how to point English words on a chart (available on the PronSci website) and then start teaching 'silently', pointing out sounds and words and giving your students feedback on how they are doing. You won't get the convenience of having the function words of English in colour that you do with the PronSci charts or the spelling combinations on the fidel, but already you and your students will enjoy working on pronunciation more.

What are the practicalities of pointing on the PronSci charts?

It's best to use extendible pointers for work with charts, and you need 4 or 5 because there are going to be occasions when you have that number of students clustered around the charts working on some issue or other. Choose pointers which are lightweight and which have a silver or white tip rather than a black one.

Establish the ground rules for pointing the first time students come up to the charts:

- The person who is pointing has to stand to one side so that everyone can see. (It's especially important that the teacher sets a good example!)
- Pointing should be very precise. The tip has to touch the rectangle or word that is intended and between each touch the pointer should be lifted off the chart. (The teacher can indicate messy pointing by letting her body and arm go limp and slapping and slipping the pointer all over the chart, while rolling her eyes - in fun, of course.)
- Between touches, the pointer shouldn't be waved around. (The teacher can indicate this by moving her head around with the movement of the pointer, looking seasick; everyone quickly gets the message.)
- If there is too much time spent pointing the different rectangles of a word, then the whole sequence should be pointed again, until it is smooth.
- If necessary, stress can be indicated by touching the vowel of a syllable more firmly.
- Don't let students play with the pointers. They're expensive and easy to bend out of true.

Once the teacher has put something into circulation, she should expect someone in the class to be able to find it again and if there is a problem with this she should always wait a few seconds or even longer to make sure that she really has to put it out again. More often than not, someone - sometimes someone unexpected - will find the solution to whatever the problem is.

The class should be oriented towards discovery as much as possible. So students should be encouraged to propose alternative pointings, and other students invited to participate in working out pointing problems.

The atmosphere of the class should be kept light.

Will watching the YouTube videos on Silent Way help me?

We know that we need to make PronSci videos, but before we do, yes, it is helpful to see good Silent Way teachers at work. But, one word of warning. There are some truly awful video demonstrations on YouTube that claim to be examples of the Silent Way approach but have absolutely nothing to do with it. You can rely on anything done by Don Cherry or Glenys Hanson, and there will be other good people as well, but do be very cautious.

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