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Pointing on charts is a third way of working in the pronunciation classroom

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In the teaching of L2 pronunciation, speech and writing are the two principal ways to present content and correct errors. In our workshop, we described how their characteristics differ and the pedagogical significance of the differences. Speech is always ephemeral but sometimes too fast for learners to follow, whereas writing persists but is slow to produce. Both have their place, but sometimes in class neither is well suited to the particular demands of the moment. Pointing on charts is a third way of working which is fast to execute, visible like writing but ephemeral like speech. In our experience, pointing facilitates the creation of joint attention and learner involvement, and well-designed charts make it easy to work with precision. These and the other characteristics of pointing on charts show the value of this third way of working on L2 pronunciation.

Keywords: pointing, joint attention, phonemic chart, wall charts, Silent Way

1 Introduction

This article is about teachers using pointing on wall charts as a teaching tool in the foreign language classroom, a way of working developed by Gattegno (1963) in his Silent Way approach. We start by noting three ways in which pointing is central to the story of human development and how pointing relates to teaching through its capacity to create joint attention. We discuss how charts are best designed and how in the pronunciation classroom pointing can facilitate learner participation and engagement. Finally, before concluding, we compare pointing to speaking and writing as an effective, complementary way of presenting content and of correcting learners' mistakes.

2 Pointing as a way of creating joint attention

Morrison (2020a) identifies pointing as an essentially human activity which emerged several million years ago, and argues that it has been fundamental to human development. He proposes that pointing and a proto-language co-evolved at some time after the divergence of the chimpanzee and hominid lineages, about six million years ago. Chimpanzees did not develop pointing (although chimpanzees in captivity do learn this skill), whereas the hominids learned to use pointing to create joint attention. However, additional signals were sometimes useful to establish what the pointing gesture was meant to indicate, and the disambiguation of pointing provided a specific, concrete starting point for protolanguage (see also Morrison, 2020b).

Other researchers have developed the Cooperative Eye Hypothesis (Kano, 2022; Kobayashi & Kohshima, 2001) describing how in hominids a physical attribute evolved that enabled another form of pointing. As shown in Figure 1, humans have eyes with visible sclerae (the whites of their eyes), while the sclerae of animal eyes are not usually visible. As a result, the position of the human iris shows the direction of gaze and human eyes can effectively point and thus create joint attention. Animal eyes are made for seeing; human eyes are made both for seeing and for being seen.

Figure 1

Human Eyes and Animal Eyes

Human babies learn to both point and follow pointing by the end of their first year (Butterworth, 2003). Thus, pointing as a way of creating joint attention predates any use of speech or writing for this purpose ontogenetically as well as phylogenetically. Tomasello et al. (2007) describe the cognitive sophistication of infant pointing and claim that pointing is integral to what it means to be human.

3 Pointing in language teaching: The development of charts

By the time Homo erectus emerged about 2.3 million years ago, toolmaking had become so sophisticated that teaching was necessary to pass the skills required from generation to generation, according to Morrison (2020a). He defines human teaching as "a joint attentional activity in which a relative expert … goes out of her or his way to help a relative novice acquire some new and generally useful component of knowledge or skill" (p. 17). He observes that "directing attention is a core and indispensable tactic in any human teacher's repertoire" (p. 17). The link between pointing and teaching is thus clear:

> Physical pointing (and later, symbolic pointing, as I am doing here, by making the phrase 'physical pointing' my subject) is fundamental to teaching because it establishes, and refers to, an object of joint attention, without which teaching cannot take place" (Morrison, 2020a, p. 213).

The best-known use of pointing on charts in language teaching is found in Gattegno's Silent Way work. His first wall charts published in 1962 evolved out of the Words in Colour charts he had developed for teaching reading and writing. He laid out the function words of L2 (originally for English, French, and Spanish), colour coded for their pronunciation, on a set of word charts. He also showed all the sound-spelling correspondences of each language on a chart that he called a Fidel, borrowing the Amharic word for a syllabary. Teachers and learners can interact with these charts, typically using telescopic pointers, to create sequences of sounds/spellings that generate words, and sequences of words that generate sentences (Figure 2[1]). With the Silent Way charts, therefore, anything that can be said in the L2 can be pointed to on the charts and the pronunciation (and its relationship to the spelling of the words) can be worked on.[2]

[1] Screen capture from https://www.youtube.com/watch?v=0YAqt-gtWcI
[2] Examples of pointing on charts by teachers and learners can also be seen in the video "Pointing on charts: A technique from the Silent Way" at https://www.youtube.com/watch?v=_3BQJcXx7S0

Figure 2

Learners Interacting with Charts and with Each Other, Independently of a Teacher

Note. The set of PronSci English charts shown contains Word charts (left and centre-right), a Rectangle (phonemic) chart (centre-left) and Spelling chart (Fidel) (right).

Creating joint attention within a whole class was one significant benefit of working this way. Other benefits for classroom dynamics[3] include:

- Heads are up and everyone is 'speech-ready'. This creates a likelihood of participation and a potential for spontaneous interaction between the learners once the pointing has finished.
- The teacher can see the learners' faces and what they reveal about each person's learning.

In 1978, Gattegno abstracted the sounds of L2 and their colours from his American English Fidel to create a phonemic chart. Using this, words could be generated without involving spelling. Since then, many people have developed phonemic charts, usually in 'pigeonhole' designs with each cell labelled with an IPA symbol. These can be used as pointing materials in the same way as Gattegno's chart. Gattegno's Word charts, intended for beginners, have been supplemented by charts designed for more advanced learners. Other types of charts have been developed to address, for example, verb conjugation and grammar in French.

In the case of pronunciation, pointing might involve a phonemic chart, but the teacher could also use a midsagittal section of the head for the placement of the tongue or a physical model designed to help learners develop the articulatory setting of L2. Each of these materials provide information that goes beyond the simple lists of sounds found in many language textbooks. Such lists indicate what sounds are used in a language, but they do not provide information about how to articulate the sounds or the relationships between them. Similarly, a list of city

[3] For more detailed explanations, see Messum (2018).

metro stations is not as useful as a map of the metro system; the former indicates that a destination exists, but the latter helps a traveller to see how to get there.

Phonemic charts have the potential to do the same for the learning of sounds, although in our view most designs fall short of what is possible (see §4). For example, charts such as the one proposed by the British Council (see Figure 3) are somewhere between an inventory and a map, in that they do make a start at showing relationships between sounds but only in a basic way. To explore chart design and rationale in more detail, the next section will compare the British Council (BC) chart with the PronSci chart (Figure 4).

Figure 3

British Council Phonemic Chart for British English[4]*, with Sounds Organised in Pigeonholes*

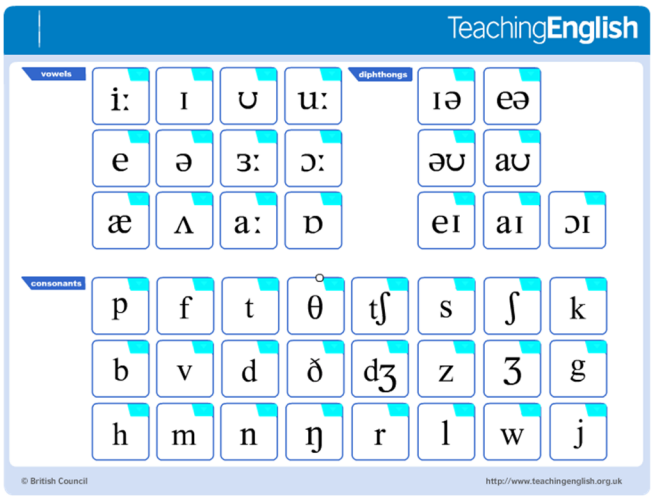
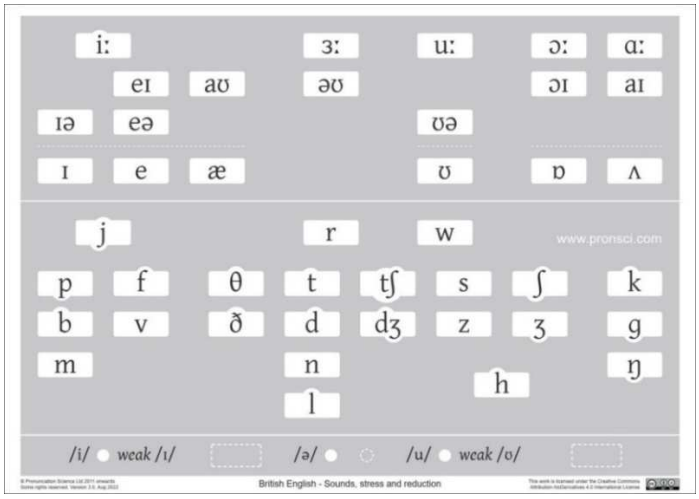


Figure 4

PronSci Phonemic Chart for British English[5] *with Sounds Arranged to Create a Stylised Map*



[4] The British Council chart is available as a free download at https://www.teachingenglish.org.uk/teaching-resources/teaching-secondary/teaching-tools/phonemic-chart

[5] The PronSci phonemic chart is available as a free download at https://www.pronunciationscience.com/guides/

4 Comparison of phonemic charts

A phonemic chart has a role to play in the learning of sounds for both production and perception, in the presentation of new material (the pronunciation of new words and phrases) and in the diagnosis and correction of mistakes. So when we refer to learning new L2 speech sounds, we are referring to the learner producing new sounds in isolation but also within sequences of sounds. For the presentation of whole words and of sequences of sounds in sentences, more is involved, as English has both free lexical stress and free sentence stress. The teacher has to integrate prosody into the presentation of the bare sequence of sounds.

The British Council (BC) chart is a typical example of a phonemic chart intended for use in a classroom. For reasons of brevity, we will only compare the Pronunciation Science (PronSci) chart to this one, and only do so in three respects.

First, the layout of the BC chart provides an inventory of the sounds of southern British English (SBE) in a set of pigeonholes and has a high informational density. The sounds are presented in two dimensions rather than as a list, which makes it easier to apprehend as a whole. The second dimension allows for some relationships and characteristics of the sound system to be indicated. Such information is carried by adjacency: someone who already knows about the phonology of SBE can quickly see the logic behind the arrangement, with evident relations between some horizontal and vertical neighbours. But a pigeonhole design also ends up forcing sounds that have no relation into adjacency: e.g., while /ŋ/ has a relationship of nasality with /n/, it has nothing in common with /ð/ or /r/; /h/ has nothing in common with /b/ or /m/. For a novice learner, therefore, adjacency is not a reliable guide to relationships on this chart. In contrast, the PronSci chart shows /ŋ/ in a relation with the other nasals, and with /k/ and /g/. The relative isolation of /h/, a breathy onset to a vowel, indicates that it has no relation to any other consonant in English. On the PronSci chart, adjacency is a reliable indicator of significance for learners, because the chart uses space to separate sound cells meaningfully[6].

Second, the treatment of schwa in both charts is significant, given its role in spoken English. In the BC chart, schwa is treated as just another vowel, whereas the PronSci chart gives schwa a distinct place within the inventory, highlighting its importance to the prosodic system of English. It is shown as a reduced vowel at the bottom of the chart (separate and different, therefore, from full vowels), and joined there by weak [i] and [u] sounds, as found in advanced learner's dictionaries (e.g., Deuter et al., 2015). Furthermore, schwa is located in a part of the chart that only shows unstressed vowels. Splitting vowels into those that can form the nucleus of a stressed syllable (pointed in the upper part of the chart), and those that can form the nucleus of an unstressed syllable (pointed in the lower part), introduces the stress pattern of any word that is pointed. In a language with free word stress, its prosody is as characteristic of a word as its segmental composition. When a new word is pointed on the PronSci chart, both its pronunciation and its stress pattern are simultaneously shown. Thus, in pointing to polysyllabic words, the action of pointing schwa in the bottom line of the chart is visually striking and highlights its distinctive quality as a reduced, low energy sound (see also Young & Messum, 2022).[7]

Our third criticism of the BC-type design relates to the organisation of the vowels. The BC chart arranges the pure vowels of SBE in a way that approximates to their positions on the IPA quadrilateral. These positions, in turn, approximate to the highest point of the tongue in the mouth, which correlates with the acoustically significant point of maximum constriction in the mouth for most, but not all, vowels. However, L2 learners are not phoneticians; they have no sense of formants as components of a vowel sound (first formant for vowel height, second

[6] For a full description of the relationships portrayed, see Messum and Young (2014).
[7] The PronSci chart also resolves the issue of pointing full but unstressed vowels (see Messum & Young, 2017).

formant for degree of vowel backness), and relative tongue heights are not proprioceptively available to them. It is not easy to become sensitive to either. If there were no alternative ways of organising vowels, then a pedagogical chart might as well follow a tool designed for phonetic analysis, but a more useful approach is for an arrangement to represent articulatory gestures to which learners can become sensitive.

The PronSci chart therefore reflects Esling's (2005) organisation of vowels into front, central, raised, and retracted regions that reflect natural actions of the tongue given its muscle physiology. Thus, vowels are shown in four groups, left to right. The vertical dimension of a non-pigeonhole design is then exploited to separate tense and lax vowels, a distinction which is of pedagogical significance for all the characteristics which this distinguishes in English: phonotactics (vowels in free and checked syllables), length (in stressed syllables), and degree of constriction (tense vowels requiring lingual gestures that move the tongue closer to the wall of the vocal tract than for lax vowels).

As we have found in our teaching and teacher training experience, the PronSci design also has two practical advantages for classrooms where pointing is going to be used extensively, First, the less regular layout makes it easier for teachers and learners to become familiar with the place of each sound. And second, the gaps between the cells can be helpful; when learners have to follow a pointer, it needs to be clear exactly which sound is being pointed at; pointing near a boundary in a pigeonhole design can be confusing for those at the back of the class.

In general, even a chart with a pigeonhole design has four important benefits if it is on the classroom wall in constant view and, most importantly, in use. First, the learners can see the task ahead of them: to master the production of all these sounds. They cannot fail to notice the existence of each of the sounds in the language, including sounds they cannot yet distinguish. Second, they can start sorting the multitude of sounds they hear in speech into a limited number of phonemes. Third, they know on a continuing basis which sounds they have mastered and which they still have to work on. Finally, when learners are pointing to the sounds in a word, they see all the possibilities in front of them and have to decide which one they can or must choose. This sharpens their awareness of sounds.

Nonetheless, a pigeonhole design limits the number of relationships that can be portrayed. We have found that when sounds are presented on a chart which shows as many of the significant relationships between them as possible, learners are more likely to be intelligent in the approach they take to learning sounds. It generates interest in the task and commitment to it. The Pronunciation Science (PronSci) phonemic charts[8] for British English, American English, French, Spanish, and other languages abandon the pigeonhole convention and make use of space to delimit groups of sounds with similar features and other relationships.

5 Pointing's potential impact on learner participation and engagement

Learners can be invited to point on a phonemic chart very early in a course, sending a positive signal about participation and taking responsibility for one's own learning. When a learner is pointing, the atmosphere in the class often becomes more collegial and some anxious learners (Horwitz et al., 1986) feel free to participate more. For the teacher, learners' pointing and speaking is revealing of their present competence. Learners can be invited to point after just six or seven sounds have been introduced, when they might begin to feel a pressure to memorise the relationship between the colours or symbols on the chart and the sounds they represent. Work that promotes familiarity rather than memorisation is helpful at this point. The aim, after all, is not to learn the chart, but to learn to pronounce the sounds.

[8] The Pronunciation Science charts have been developed by the authors (Messum & Young, 2014).

Once learners understand how a chart presents the spoken language, they can use it to ask questions by initiating pointing activities themselves:

- They check their pronunciation with the teacher.
- They explore alternatives to a given sequence which are often generated by different registers or rates of speech, e.g., 'February' pronounced in 4, 3, or 2 syllables.
- They ask questions about things they have heard in natural speech which puzzle them (e.g., contractions, the use of weak forms, liaisons, etc.). Pointing on a chart allows the teacher or the learners to show visually what is actually said in connected speech, for instance, how contractions change sounds, how stress influences reduction, how rate of speech modifies strings of sounds, and other phenomena.

To work on these questions efficiently without a chart, learners would have to know how to write phonemic symbols, whereas just pointing to these symbols on a chart is easier. This may lower the barrier to asking about, for example, a particular sound or word, or connected speech phenomena.

Pointing reflects the ephemeral quality of spoken language. It requires the learners to remain attentive: they have to actively notice what is taking place because as soon as the pointer leaves a cell, no trace of its passage remains. Rather than reading a word written in full on the board, they have to mentally note which sounds are being touched and in what order by sub-vocalising as the pointing takes place. This has the effect of enhancing retention. If they can't remember what was pointed, they cannot say it. The teacher knows this immediately, and can give some small hints, or choose to do the work again if this seems to be necessary.

Teachers need certain skills to point effectively: choosing a suitable pointer, where to stand, how to point as the teacher, introducing sounds and building sound sequences, getting learners to point, etc. (see Young, 2018). When learners are pointing they have to engage deeply with pronunciation. As an activity where performance is required, pointing forces learners to develop criteria for correctness. Standing at the chart, pointer in hand, they have to consider the choices available to them (selection of sounds, pattern of stress and reduction, etc.). The other learners in the class work on the same problem at the same time, and will make it obvious if they think the learner who is pointing has made a mistake or if they do not understand the learner's choices.

6 Pointing vs. speaking and writing

To work on a pronunciation problem, learners must examine what has been said. Language classes generally work on problems in two ways: spoken discussion and/or writing on the board. Both have their place, but neither is entirely satisfactory. Speech allows for a quick intervention, but is often too ephemeral to allow students to examine the language. The permanence of writing allows errors to be reflected upon, but writing is cumbersome and it reduces a speaking task to a reading one. For both of these reasons, the work loses intensity and learners tend to become distracted. Pointing to a sequence of sounds or words on a chart, whether done by the teacher or the learners, provides a third way of working on errors or presenting content, midway between speech and writing. First, pointing takes place more slowly than speech for those times when speech is too fleeting for its details to be followed, but it is faster than writing, saving time because sounds need only be 'touched' or tapped. Second, pointing is less ephemeral than speech because the learners do 'see' the sounds. However, pointing is not as permanent as writing because each sound is left behind when the pointer moves on.

Speaking in order to correct has two further disadvantages that pointing overcomes:

- An oral correction is usually addressed to the learner who has the problem and other learners in the class may not feel involved. Pointing on a chart turns a private problem into a class-wide lesson by creating joint attention on the issue.
- It is well known that listeners hear a foreign language through the filters of their L1. The teacher cannot be sure that the learners have heard the spoken correction as it was intended. In contrast, pointing is unambiguous.

Writing also has two key disadvantages that pointing avoids:

- To know the pronunciation of a word in L2, a learner has to know exactly what speech sounds it is made up of. Presenting a transcription of the word in a textbook or written on the board does not make sufficient demand on many learners. It relieves them of the need to create an image of the word in their minds. They only need to read the transcription to the point of basic recognition. However, in order to make progress, they need to be mentally active, moving their articulators while they read, vocalising the phonetic symbols or sub-vocalising them. When reading a word on the board, many learners do not make the effort this requires. In contrast, the ephemerality of pointing requires learners to do this work.
- Writing breaks the flow of the lesson: the teacher is (usually) not looking out at the class, and they can only hope that the class remains attentive, but they are unable to control this. If the teacher is pointing, they are facing their learners and can see whether or not the learners are involved.

Thus, pointing on a chart can be better adapted than either of the other two ways of working. On the one hand, it gives speech enough permanence to be examined in detail; on the other hand, it gives the learners a visible version of a spoken sentence without the permanence of writing.

7 Conclusion

When pronunciation is being dealt with, pointing on charts is an effective way of working in the classroom. Using even the simplest phonemic chart has its benefits, but a well-designed chart coupled with spelling and word charts is a comprehensive toolkit for addressing a range of pronunciation issues.

In our own teaching, we have found that learners like the various challenges of working with charts: they enjoy following the teacher pointing, they enjoy pointing themselves, and they vicariously enjoy pointing when fellow learners are working with a chart. Many classroom interventions relating to pronunciation, whether initiated by the teacher or the learners, may be improved by pointing.

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