The Inner Voice

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ABSTRACT

The inner voice- we all know what it is because we all have it and use it when we are thinking or reading, for example. Little work has been done on it in our field, with the notable exception of Brian Tomlinson, but presumably it must be a cognitive phenomenon which is of great importance in thinking, language learning, and reading in a foreign language.

The inner voice will be discussed as a cognitive psychological phenomenon associated with short-term memory, and distinguished from the inner ear. The process of speech recoding will be examined (the process of converting written language into the inner voice) and the importance of developing the inner voice, as a means of both facilitating the production of a new language and enhancing the comprehension of a text in a foreign language, will be emphasized.

Finally, ways of developing the inner voice in beginning and intermediate readers of a foreign language will be explored and recommended.

KEYWORDS: Inner voice, inner ear, inner speech, L2 reading, working memory, phonological loop

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I. THE INNER VOICE IN OUR NATIVE LANGUAGE

We are all familiar with the inner voice, as it accompanies our thinking, but although it is perhaps our most familiar companion, it is very difficult to specify exactly what it is. It is perhaps most often identified with the voice of the spirit or the conscience (the 'still small voice' of the Bible), or in a related sense, the voice of the 'real you'; indeed, Vygotsky (1986 [1934]) argues that inner speech (we will be using the terms 'inner voice' and 'inner speech' interchangeably here, although the latter may imply a Vygotskian point of view) helps the individual to constitute his or her very inner life. In this sense, the inner voice is often the voice of integrity that reminds us of our principles.

The inner voice is also what we think with, this language-productive module in our heads that works so unceasingly that we sometimes may wonder whether it is possible to shut it up! This irrepressibility makes us ask ourselves sometimes whether it is possible to think without language. At times the inner voice seems to be faint, as language impinges only slightly on our thoughts, while other modularities such as the visual take over. At other times it echoes in our heads as we perform complex operations such as mental arithmetic. We can even see it at work in other people as their speech organs form the shapes of words that we do not hear. But it rarely, if ever, seems to go away completely. From the time that it develops in tandem with our faltering efforts to express ourselves in early childhood, it remains with us for the rest of our lives. Some types of meditation are techniques to stop, even if only temporarily, the continual twitter of the inner voice, so that we may contemplate our existence without its constant interpolation. In psychotic interludes the inner voice may appear to take on an external reality of its own, and to take on a number of different identities, so that people possessed may speak of their 'voices'. Indeed, we all may have different voices or perspectives on our inner voice. We may, for example, address ourselves as 'I', 'you', or 'we', depending on the situation (willingly imposed or unwillingly imposed obligation, for example). While we are reading, we may also hear different voices from different characters, particularly where the language and orthography indicate a particular dialect. It is hard to imagine hearing the voice of Huckleberry Finn in an English accent while reading the book.

I.1.Working Memory and the Phonological Loop

Working memory, which may in general be identified with short-term memory (simply a more general term), is described by Baddeley (2003a: 6) as "a temporary storage system

which underpins our capacity for thinking". The most widely accepted model (Baddeley & Hitch, 1974, Baddeley, 2001) consists of four components, as illustrated in Fig. 1.

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                        │  central executive  │
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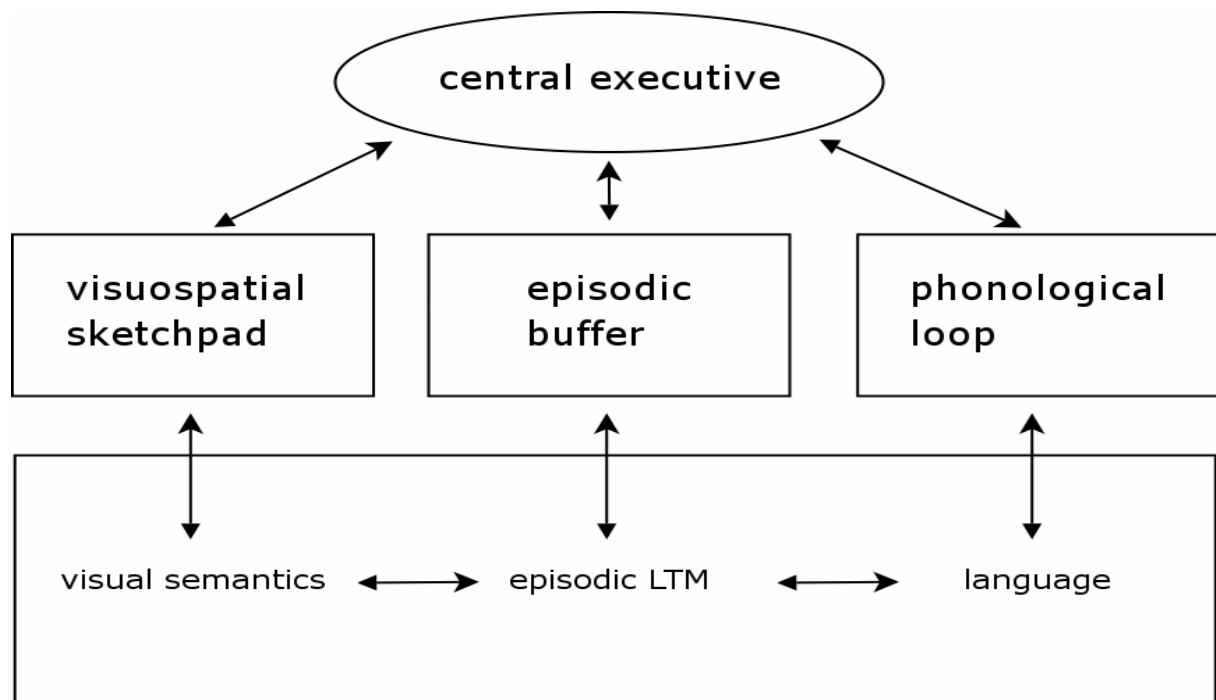
Figure 1: Working Memory, from Baddeley 2003b

The central executive is akin to attention, the visuo-spatial scratchpad deals in the short term with visual images, the phonological loop with auditory information, and the episodic buffer temporarily combines the information from the senses to create a multisensory impression of what is happening. The timescale of working memory is in the region of 1-2 seconds, as long as it takes, say, to put a proposition together as a thought, and in this sense it is useful to think of it as the cognitive 'present', constantly changing with our thoughts and impressions. Indeed, since William James (1890) there have been thinkers who identify close-knit relationships between short-term memory and consciousness (e.g. Baars, 1997, Crick & Koch, 1998).

I.2. Inner Ear and Inner Voice

The phonological loop can be divided into two parts- a short-term phonological store (inner ear), which retains the traces of speech attended to, and an articulatory rehearsal mechanism (inner voice), which assembles speech in preparation for its delivery. It is not clear to what extent these two elements are separate or aspects of the same thing, but there is evidence that they are associated with different areas of the brain- Brodmann's area 44 and Broca's area respectively (Baddeley 2003a: 1.1). It can also be demonstrated that the inner ear can still operate while articulation is repressed. Rayner and Pollatsek (1989), cited in Eysenck & Keane (1995, p. 312) point out: "…it is possible to have phonological coding without the appropriate subvocal articulation- if you read a text while saying 'the the the' over and over again, it is still possible to hear your own voice." This points to the existence of both an inner voice and an inner ear as separate, if related, phenomena.

II.3 Sociocultural theory

In sociocultural theory (Vygotsky 1978), developing learners move from an 'intermental' (social) to an 'intramental' (psychological) state. Learners acquire language through co-operative activity (as in task-based learning), directed interactive behavior (as in 'scaffolding'), and internalisation of speech patterns ('inner speech') (Mitchell & Myles 1998). Children playing, for example, will talk to themselves (private speech), but later this becomes internalised as inner speech. An important element of Vygotsky's theory is mediation, where language is seen as a tool mediating between us and the outside world in the same way as a pencil and paper help us to do an arithmetic problem. Once speech has been internalised, it may return into the public domain under the pressure of an unexpected event, or a particularly knotty problem. Mental arithmetic is an example of a situation where the inner voice may become externalised. Vygotsky (1986: 249, cited in McCafferty & Ahmed, 2000: 201) characterises inner speech thus:

> In inner speech words die as they bring forth thought. Inner speech is to a large extent thinking in pure meanings. It is a dynamic, shifting, unstable thing, fluttering between word and thought, the two more or less stable, more or less firmly delineated components of verbal thought.

Vygotsky also differentiated inner speech from interactive speech in two ways. Firstly, the syntax is reduced. The example he gives is of someone waiting for a bus. When the bus arrives, the inner speech mechanism would not say something like "The bus for which I was waiting has arrived.", but something more like "Coming". Secondly, inner speech is different semantically, words having private meanings which amount to the sum total of one's experience with them, rather than their public currency (McCafferty & Ahmed, 2000, 201).

II. INNER VOICE AND EAR IN FIRST-LANGUAGE READING

Huey (1908), in the first classic study of reading, expresses the viewpoint (primary memory being James's (1890) precursor of short-term memory):

> The carrying range of inner speech is considerably larger than that of vision… The inner subvocalisation seems to hold the word in consciousness until enough others are given to combine with it in touching off the unitary utterance of the sentence which they form… It is of the greatest service to the reader or listener that at each moment a considerable amount of what is being read should hang suspended in the primary memory of the inner speech.
>
> Huey, 1908, cited in Eysenck & Keane, 1995: 312

It appears that both inner ear and inner voice may be used in reading, though not necessarily so (in speed reading, for example, it may be actively discouraged, as it may slow down the pace). The evidence reviewed in Eysenck & Keane (1995: 312-4) indicates that "inner speech plays a useful role in comprehension unless the text is very easy." (314). The most obvious function of inner speech in reading comprehension in probably "…that of holding information about words and about word order in working memory so as to reduce the memory load in comprehension." (315). Another possible function is "…that it may provide the prosodic structure (e.g. rhythm, intonation, stress) that is lacking in written text but present in spoken language." (315).

II.1 Phonological recoding

In the previous section we discussed inner speech as a spontaneously occurring cognitive phenomenon- a vehicle for thought. In reading there are two significant differences. In thought, the elements of inner speech are instantly available; in reading, access to the inner

voice or ear is indirect- signals enter the brain by the visual route, and then may be encoded into phonological form. Secondly, thought is a productive activity, generally accompanied by subvocalisation. Reading, whilst it is not passive, is receptive, and therefore the inner ear, as well as the inner voice, is involved. We have already seen that articulatory suppression does not suppress the auditory store, so it is likely in reading that when the articulatory component of the phonological loop is engaged, the auditory component is working too.

The short-term phonological store (inner ear) receives inputs from the phonological modality of the reading process, and is used perhaps to monitor more affective and interpersonal aspects of language, especially where the text has resemblances to speech. It would therefore be of more importance in reading poetry and drama. It also appears to direct us to meaning by endowing the (hitherto) written word with the prosody of speech. The articulatory rehearsal mechanism is used by the fluent reader only when reading difficult texts, in a quest for meaning. The probable reason for this is that the working memory as a whole is overloaded, and needs the extra capacity as back-up (Eysenck, 1986: 84). There is evidence that when subjects are trained to suppress the laryngeal muscle activity which is associated with subvocalisation during reading, there is no effect on comprehension while reading easy passages, but comprehension of complex prose suffers (Hardyck & Petrinovich, 1970).

It is well known that the progression from beginning to fluent reading is accompanied by a process of automatisation (Laberge & Samuels 1974; McLeod & McLaughlin, 1986; Schneider & Schiffrin, 1977). Thus early efforts to 'sound out' words from orthographic cues by means of phonological recoding gradually become automatised with repetition- the sight of a word becomes automatically associated with its sound via the phonological route.

III. THE INNER VOICE IN A FOREIGN LANGUAGE

There is evidence that a good short-term memory (measured by span, for example, how long a telephone number can you repeat back to me?) is a significant predictor of foreign language learning proficiency:

> …Service (1992) … studied the acquisition of English as a second language by young Finnish children, finding that children with good immediate verbal memory proved to be better at language learning than those with short spans, not only when measured by vocabulary, but also by acquisition of syntax. Similar results have been found for adult learners of a second language, in the case of both vocabulary and syntax by both

adults (Atkins & Baddeley, 1998; Gathercole, Service, Hitch, Adams, & Martin, 1999) and children (Service, 1992).

(Baddeley, 2003a: 1.2)

In addition, Baddeley, Pappagno & Vallar (1988) found that a patient with short-term memory deficit failed to learn anything whatever in a foreign language but performed equally with others in learning word-pair associations in her native language. Pappagno, Valentine & Baddeley (1991) found that articulatory suppression (for example repeating "the the the" continually) inhibited learning in a foreign language, but not in the native language (cited in Baddeley 2003a: 1.2).

Vocal, or internally subvocalised, rehearsal seems, then, to be a significant factor in learning a new language, and a good short-term memory lends its possessor an advantage in foreign language acquisition.

At this point the research seems to run out and one is thrown back onto introspection and hearsay. Whenever I have learnt a new language, there comes a stage where an inner voice in the new language begins to come into its own. I regard this as something of a breakthrough- a breakthrough period, not a breakthrough point. There are some features of this worth remarking on:

1. There is definitely a motivational factor. If one does not like the target language, then there is no reason to think in it. For this reason among others many people do not progress very far in a language they are learning for reasons that do not include their own enthusiasm for the process.

2. Thinking in a language provides practice which is arguably as good as speaking it. Processes as important as automatisation continue to operate and one's proficiency continues to develop.

3. When one is out of the environment in which the language is spoken, thinking in it keeps the language alive and prevents one from going 'rusty'.

4. When one is thinking in a different language, one takes on a slightly different personality. This may be partly because, in a Vygotskian sense, we associate the language with a different series of gestures and actions, and partly because a language in itself carries different assumptions and connotations with it and prevents us from expressing ourselves in exactly the same way as we would in our native language.

Also, there seems to be a folk belief that once you think in a language you can really speak it. People when asking one how well one can speak a language may well ask if one thinks in it, or is able to think in it, as if this provides confirmation of proficiency. This takes us right back to the idea of the inner voice being the voice of the true self or the spirit- Vygotsky's 'inner life', and it is not uncommon for people to feel threatened by the encroachment on their identity of a foreign voice, as I have found from informal discussions with students.

IV.   INNER VOICE AND EAR IN FOREIGN LANGUAGE READING

A significant difference between learning to read in a foreign language and learning to read in one's native language is that in a foreign language one will generally have little familiarity with the phonology or prosody of the target language which one is learning to read. Setting aside the case of ideographic writing systems, which would need a study of their own, one generally proceeds along a scale from an interlanguage based on one's sounding-out of the new language according to one's preconceptions (likely to be based on L1) through progressively more accurate forms of interlanguage until one reaches the limit of one's proficiency or inclination to learn. In first-language reading the reader already has a phonological store with which to associate written words. The development of inner voice and ear while reading in a foreign language, however, depends on the development of an automatised phonological store in the target language, which comes about through a process resembling that described above.

We have seen that inner ear and voice come into play increasingly as the text becomes more challenging to the reader. Subjectively I am aware of a far more intense and laborious sounding of the words taking place in the mind's ear when reading in a foreign language than in my native language- even when, as in the case of Latin, it is a language I have never heard. The difficulty of the task places a heavy load on working memory, which marshals to its aid all the capacity it can find. Inner ear and inner voice are much more likely to be present in foreign language reading because of the cognitive load entailed.

Harris and Coltheart (1986) identify four phases in the process of learning to read for native speakers. The third and fourth of these are:

(c) The phonological recoding phase, where children are able to successfully identify nonsensical pseudo-sentences (for example "Tell me blue he went") as nonsense, but

unable to do so where they contain homophones (for example "Tell me wear he went") (Doctor & Coltheart, 1980).

(d) The orthographic phase, by which time children are able to identify sentences containing homophones, such as "Tell me wear he went" as nonsensical. (Doctor & Coltheart, 1980).

The orthographic phase is necessary in English because of spelling irregularities and homophones, and in any language with regular phoneme-grapheme correspondence, such as Turkish or Spanish, this problem will not exist, there will be no homophones, and the orthographic phase will be unnecessary, except in as far as the reader's dialect differs from the standard.

V. PEDAGOGIC IMPLICATIONS

Not only in reading, but in language learning as a whole, the development of inner voice and ear in that language is of importance. In reading in a foreign language, inner voice and ear are most likely to be brought into service to deal with the cognitive load the activity demands in a quest for meaning. So how can we develop inner voice and ear in language learners?

Speech is primary, and in native language acquisition of course we are all very familiar with the spoken language before we start to read. In a foreign language we need to avoid introducing difficult reading texts too early. In general the approaches used in English language textbooks for children are good: at an early stage do plenty of oral work with contextualised language, and only place upon the learner a light reading load.

At lower levels, always introduce the written form of the word after the spoken form, and don't introduce unfamiliar language in reading texts.

To develop the inner ear, do lots of work at lower levels that emphasises the prosody of the language. Rhymes, chants (e.g. jazz chants) and games like "Who stole the cookie?" are good for this.

Rehearsal for the use of the public voice should be good training for the inner voice, and as long as it is not done prematurely, and is based on language that has been carefully listened to as well as read, so learning poems or parts in plays should be useful. At lower levels, reading aloud by learners is not a good idea unless it has been prepared, and a spoken version of the text can be referred to. There is one exception to this: unprepared

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reading aloud by students can be used as a powerful diagnostic tool by teachers (Goodman, 1982a, b; Wallace, 1989). The level of a reader's comprehension, for example, can often be surmised by listening to their stress, intonation, and the way they divide the text into chunks.

Not only do we need to develop the inner voice and ear, but we also want to make sure that they are as close to the target language as possible. Because of irregularities of spelling in English, we need to make sure that learners go through the equivalent of Harris and Coltheart's "orthographic phase" (1986). In order to do this, the following are useful:

Again at lower levels, have learners see the written form and hear the spoken form at the same time. The teacher can read the text aloud while students follow silently. Dhaif (1990) found that reading aloud to a class of FL learners while they followed the ext enhanced comprehension when compared to silent reading. This confirms L1 research (Elley, 1989, Hillman, 1975; McCormick, 1981) and was favoured by the students themselves. Listening to the rhythm and intonation of a teacher or recording gives the listener/reader valuable information about the way a skilled reader chunks text into telling information units. The importance that intonation may have is emphasised by Goodman: "The ability to read with natural information is related to comprehension" (1964: 1). Training in phoneme-grapheme correspondences is an important area and more work on homophones needs to be included in the syllabus.

The exercise of dictation, with the demands it makes on the phonological loop and the chunking mechanism, may be useful in the development of working memory capacity in the foreign language, as well as raising awareness of phoneme-grapheme correspondences. Another useful exercise which, unlike dictation, actually involves the skill of reading, would be 'reading dictation', where the chunks of a text for dictation are presented on flashcards for a very short period of time, say one second, and the learners have to read, encode (probably phonologically) in short-term memory, and write down what they have read.

Tomlinson (2001) makes a number of useful suggestions in this area. He begins by noting:

> In L1 the inner voice develops naturally at the same time as (or possibly even before) the external voice. In L2 the external voice is given primacy from the very beginning, and it is imposed on and inhibits the inner voice, thus slowing down thought and retarding creativity. Instead of demanding public performance in the L2 from the very beginning, we should encourage learners to talk to themselves in private, egocentric speech. But even before that we should allow them the privacy and silence to develop an inner voice by

providing them with opportunities to listen to the L2. They can respond mentally, physically or even in the L1; but they must be given time to think, and they must not be forced to perform in a public voice without having an inner voice available to help them to prepare.

This is an argument for a silent period, and indeed, the first stage in developing inner voice and ear is necessarily through listening. There is also a psychological argument that students should not be forced to use public speech before they are ready.

His suggestions for the development of the inner voice come under the following headings (in italics with my comments following):

Listen and don't repeat. This again is an argument for a silent period. But there is repeating and repeating. When one observes children using songs and rhymes in their L1 development it seems clear that they enjoy repeating and this rote-learning of aspects of the sound system of their language is beneficial to them and develops their phonological awareness.

Expose students to colloquial unplanned speech. It has already been pointed out that the inner voice uses a reduced syntax. Much formal writing uses an artificially complex register in accordance with socially (that is public voice rather than inner voice) accepted norms. Some written language, for example legal language, is not really designed to be rehearsed by the inner voice at all. Initially, then, exposure to colloquial, unplanned speech will be beneficial, but one should also bear in mind the role of the inner voice as an *aide-memoire* in reading difficult, complex texts. At a more advanced level, then, one reads whatever one has to read and uses inner ear and voice to help out with the cognitive load.

Limit the use of drills. Again, there are drills and drills. Many of the songs and rhymes which children love are drill-like, whether they be of the "One man went to mow…" or the "Partridge in a pear tree" variety. There are also meaningful activities which are drill-like in the sense that they intensively repeat the same language. Many guessing games are like this, and can be meaningful and fun.

Avoid premature reading activities. Yes, in particular avoid introducing texts which are too difficult or, at lower levels, which introduce language which has not yet been met in the spoken form.

Avoid bland and neutral ESL readers. Yes, but there are plenty of good readers out there to help the learners develop their reading skills. Once a learner can read for pleasure, the

battle to develop inner ear and voice has already been half won. Reading for pleasure in a foreign language almost inevitably involves the participation of the inner ear, and most probably the inner voice as well. If learners are in an environment where they can find texts they are motivated to read at a level which is suitable for them, then this will greatly help the development of inner voice and ear as long as the voice/ear resembles the target language sufficiently closely.

Encourage L1 in L2 classes. 'Encourage' is perhaps too strong a word. In my experience students don' need any encouragement! However this may not be as true in the Far East, where Tomlinson was teaching. In an ideal situation L1 is used optimally where appropriate to assist with scaffolding, strategic translations, and so on. Then it can certainly be a help.

VI. CONCLUSION

The inner voice and the inner ear (the phonological loop) are familiar constant companions, and vital components of short-term memory, which is itself what underpins our thinking, and therefore much of our learning. Although they have been relatively neglected in the literature until recently, there is now evidence that they play an important part in foreign language learning and comprehension. They appear to do this by:

- aiding the memory as the reader progresses through a text
- Providing extra cognitive space for the processing of difficult texts
- Possibly facilitating semantic access by providing prosodic clues
- Possibly monitoring affective and interpersonal aspects of language

At a certain stage of language proficiency, around intermediate level, the inner voice emerges gradually as a spontaneous and autonomous phenomenon- thinking in the language, which is popularly regarded as a sign of proficiency in it. Before this stage inner ear and inner voice may be developed in the following ways:

- Introducing the spoken form of words before the written form at lower levels.
- Using rhymes, chants and games which emphasise the prosody of the language.
- Learning poems and parts in plays.
- Reading texts aloud by the teacher while learners follow the written text.
- Training learners in phoneme-grapheme correspondences.
- Dictation.

- Avoiding texts whose level of difficulty is beyond the learners.

- Exposing learners to colloquial unplanned speech.

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