

Understanding difficulties with speech and language

Clare Morris explains how communication is affected by the specific speech and language difficulties people with dementia may experience, in this fifth of her series.

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In this article I will seek to explain the difficulties with speech and language, and therefore communication, that arise as a result of damage to the brain. I will however address them in the reverse order, to stress the point that facilitating communication is the aim, and what is important is that messages are exchanged and social interaction takes place.

Communication and social interaction is central to being human and being alive: there is plenty of evidence that if people are deprived in this way, they fail to develop and thrive. Verbal communication is just part of the picture, and much of what we say and do is not only automatic but influenced by the listener. When communication is impaired we may need to think more carefully about the process in order to communicate effectively.

Non-verbal communication plays a vital role in our everyday interactions, conveying much of the meaning behind our "messages". It needs to be brought more within our conscious awareness in order to facilitate communication with people who have neurological problems. Touch is used for alerting and comforting people, as well as being a sign of intimacy. This has an important role for people with dementia, particularly where visual and perceptual problems are present. But proceed with caution: people in the early stages of dementia may respond better to a formal approach (see part two of this series).

Gesture, facial expression, eye contact, tone of voice, rate of speaking, use of colour and style of dressing, posture and positioning, all convey meaning and can be modified when interacting with a person with dementia. We need to remember differences between cultures and sexes in the way we communicate non verbally, for example in the use of eye contact and social distance. A full discussion is beyond the scope of this article, but individual differences should always be taken into account when we are looking for ways to facilitate communication.

Verbal communication is achieved in stages. In the first place we need to be able to hear. To understand what is said we first need to distinguish between speech and

non speech sounds, between similar sounding words, and identify words and phrases (word perception); then we need to process these words for meaning. To express ourselves in language we need to be able to access and retrieve words, and then produce them. *The production of language is independent of speech.* Language can be expressed in a variety of ways (known as modalities) – for example through writing or sign language as well as through speech. Written language can be achieved, with the help of technology, by people whose only controlled movement is an eye blink.

Neurological impairments of verbal communication

Hearing and hearing impairment

Hearing deteriorates with age and this can exacerbate other difficulties with understanding language that may arise in the dementias. Sound is transmitted mechanically via the ear drum and three tiny bones in the middle ear to the inner ear. The inner ear converts these vibrations into nerve impulses which can be interpreted by the brain. Ear wax and colds can interfere with efficient working of the ear, and thereby impair hearing in people of all ages. The workings of the inner ear, or cochlea, however, deteriorate with age, causing a progressive hearing loss called presbycusis.

Hearing aids deserve a special mention. How often have you found the hearing aid of someone in your care in the toilet or glass of water? Perhaps stuffed underneath the mattress, or merely carried in a handbag but never used? Many people with hearing loss refuse to wear hearing aids. This may be for cosmetic reasons, but also possibly because the person has not learned to “drive” it, or has not been introduced to it gradually. Despite the advanced state of today’s technology, the average NHS hearing aid amplifies all sound, not just speech or music or telephones. So the sounds that we would normally filter out, such as rustling paper, the noise when you put your cup down, the traffic outside, and so on, are all made louder too. This is difficult for anyone. Add

Strategies for good communication

- ensure adequate lighting
- ensure eye contact before you speak
- position yourself with the light on your face. Standing in front of a window casts your face in shadow and many of the supporting cues to understanding will be lost
- reduce background noise
- be careful not to raise your voice: shouting distorts lip patterns and therefore reduces important clues. Talking slowly and loudly may also sound patronising
- supply information during your communications, eg “Hello it’s Clare from... it is time for...”
- give instructions in small chunks: co-existing memory difficulties mean the order in which to do things might be forgotten; long instructions might be forgotten; or the person might forget the reason for doing something. Most importantly it reduces the load on processing: memory and language may both be impaired and for someone with dementia this will be like doing two difficult things at once
- if you need to repeat things, instead of simply repeating what you said, try saying it in a different way, try cueing the person into the topic or general gist of what you want to convey. The more information you give, the more help in boosting comprehension you will achieve.
- make use of non-verbal cues. Show the person what you mean
- if the person loses the thread of their conversation, try reflecting what you have understood so far
- conversation on a one-to-one basis is easier than trying to follow conversations in a group. In a group setting, communication impaired people will benefit from having the main points of the conversation conveyed to them, and so invited to contribute. For example, “Did you hear that, Margaret? George thinks... Would you agree with that?”
- allow plenty of time to respond. You may find that a person with dementia appears to answer a question once the conversation has moved on; if so, pick up on it and relate it back to the original question.
- provide alternatives for the word sought rather than speaking for the person.
- think about alternative “modalities” for communicating
- focus on the “message” rather than accuracy
- be aware the person may say “yes” and shake their head. Gestures are often more reliable than what is said.

language, memory and orientation problems, and you might begin to wonder why anyone with dementia wears one. The other common problems with hearing aids are that batteries run down and may get put in the wrong way round, or the aid may get turned off. A hearing aid is an elaborate earplug when it is not working!

Issues to consider when talking to someone with a communication impairment are listed in the table above.

Disorders of language

Dysphasia or aphasia

These terms refer to the disorders of language arising from brain damage (they are often used interchangeably, but dysphasia strictly means difficulties with language, and aphasia means absence of language). Dysphasia can cause difficulties with understanding and/or producing spoken or written language. The main steps in understanding and producing spoken language are described below, and each step can break down selectively, or in combination, in dysphasia (McCarthy & Warrington 1990).

Sound and word perception

The first step to understanding involves the acoustic analysis of speech sounds from background noise, recognising a word as a word, and distinguishing between words that sound similar. We “sort” and “filter” what we hear and choose to attend to that which is of interest and ignore what is unimportant at the time. We know when a word is an English word or a real word, even often when we don’t know the meaning of it. There are many words, for example fit/sit, which may easily be confused on the telephone, but lip patterns or the rest of the utterance would help to identify the word.

People who have difficulty with the auditory perception of speech will be hampered in their ability to understand what is said; however, lip patterns and an understanding of the situation may well boost the system. It is often not an all-or-nothing affair. The extreme form of auditory perceptual impairment is known as word deafness, which does cause severe problems with understanding what it is said, although the person may still be able to talk relatively well.

Word comprehension

Once the perceptual analysis is complete the word is processed for meaning. We become aware of this procedure when we know the rough meaning of a word, but cannot give it a precise definition. Some people with dysphasia are able to perceive words and yet cannot access, or have no idea of the meaning. The store of meanings of words is degraded or lost, in a similar way to the loss of visual meanings

in visual agnosia (see article 3). Sometimes specific areas of meaning are affected, such as animals, whereas other words are not.

Word retrieval

An enormous store of words and their meanings is therefore available for use in speech. As a rule these are retrieved fluently and automatically, but everyone experiences word finding problems from time to time, or "tip of the tongue" phenomenon. We may be able to describe what we mean, even suggest what the word we are looking for begins with, or come up with words that approximate the target. These observations are matched by the errors people with dysphasia make. There may be frequent pauses when speaking. A word may be replaced by a "filler" such as *thing*; by circumlocution, such as *the thing you tell the time with* for a clock; or by a word that is similar in meaning, eg *boots* become *shoes* (semantic paraphasia). Word retrieval problems may result in speech that sounds fluent, but is hard to follow, and is often "empty" of meaning.

Word production

Word production involves two stages:

- a) assembling the right speech sounds (phonemes) in the right order, without missing any out; and
- b) co-ordinating and sequencing the positions of the large number of speech muscles (articulatory programming).

We see evidence of this process the everyday errors such as *par cark* for car park. All the right sounds have been retrieved but they have been misplaced in actually producing the words. In dysphasic errors at this level of processing *lemon* might become *demmun* (a phonemic paraphasia); or the word produced might be completely unrecognisable, such as *orange* becoming *astkoss* (a neologism). Errors are inconsistent, making it very difficult, if not impossible, to understand what the person is trying to say. The person may be unaware of their unintelligible speech, and the problem may be specific to certain tasks (for example sometimes it might be possible to read aloud or repeat without error, whereas spontaneous speech might be full of paraphasias and neologisms, or vice versa).

To articulate the sounds and sequence them requires the co-ordination of very precise movements of speech muscles in the face, mouth and throat. Each sound changes slightly depending on which sound comes before and after. Try *crate* versus *Kate* and *frog* versus *fig*, and feel the difference in the positions of your tongue and lips in each. Impairments at this level will cause a distortion of speech sounds. Speech may sound childish, foreign, or distinctly abnormal, and is likely to be slow,

Fear that words are slipping away

Martin is diagnosed with Pick's disease, and has a severe dysphasia where he cannot retrieve the names of things (anomia). He would spend five hours every day going through a picture book to learn the names. He kept a notebook of his work, and often referred to it when conversing. He felt strongly that if he didn't spend all this time working on learning the names for things, all his words would "slip away" and he would not be able to say anything at all.

Although the use of written words to communicate is something to encourage, it seems to be generally true that time spent learning words is not of benefit. For Martin, however, this was a life or death issue; it therefore deserved the utmost respect. While obsessive behaviour is often part of the syndrome, something of the experience of the progressive loss of language can be appreciated from his behaviour.

effortful, with disruption to the "melody" of speaking (known as stress and intonation). Problems at this level of speech production may be described as dyspraxia of speech.

Sentences and conversation

So far we have considered only single words, but communication takes place in longer utterances. We need to make use of the rules of grammar or syntax to make sense of some sentences. Word order is important in "John hit Mary" as opposed to "Mary hit John". Knowledge about phrases and their position in a sentence is necessary to understand who is eating whom in "the cat ate the mouse", "the dog that chased the cat ate the mouse", and "the cat who was chased by the dog ate the mouse". We also have rules for changing words: "the boy walks/walked" and "the boy walks/the boys walk". Other grammatical or "function" words such as *but, if, the, who*, are important in the structure of a sentence.

A person whose dysphasia causes difficulty understanding sentence construction may show little difficulty in everyday conversation as it is possible to work out the gist of what someone is saying from other "clues". Difficulty in constructing sentences alone might result in dysfluent speech like "first morning, drink coffee, go work".

Motor speech disorders

Dysarthria

Dysarthria is where muscle control is affected by paralysis, weakness, or involuntary movements. Speed, accuracy,

strength, and co-ordination of speech movements are affected, rather than language. Other functions such as eating and swallowing may be difficult. Errors will tend to be consistent, and so with familiarity you may find that you can understand dysarthric speech more easily.

Be sensitive to feelings

In previous articles, I have referred to the need to maintain dignity. People with dementia may put considerable effort into achieving this. People who have difficulties with understanding may nod, frown, and shake their head appropriately, but may be responding to your gestures and expressions rather than what you say. How often do we admit that we haven't followed the conversation? How does it feel when someone picks you up on the word you mispronounced or used inappropriately?

We need to be aware of our feelings when talking to people who are incomprehensible or leave long pauses while they search for a word or try to formulate what they want to say. There are very negative associations with silence (ignoring you, angry with you etc) and incomprehensible speech (drunkenness and incompetence). The person with speech and language disorders will be very sensitive to these issues. Try to boost understanding and inquire after meaning using the strategies suggested in the panel (previous page) without drawing attention to "mistakes". Sometimes the person might welcome talking about their feelings.

A speech and language therapist can provide a language assessment, and in some circumstances rehabilitation. As suggested in other articles, the more we understand of a person's difficulties, the more information we have for finding ways to compensate. For many people with dementia, not only are there other cognitive problems but their language problem is deteriorating, making relearning of skills impractical. In some "focal" dementias, such as primary progressive aphasia, where symptoms are largely confined to language, communication aids and strategies to make use of other modalities (writing, sign language, electronic aids or special communication books) may be of benefit.

Reference

McCarthy RA, Warrington EK (1990) *Cognitive Neuropsychology: A Clinical Introduction*. Academic Press, London.

The next article in this series will cover the nature of memory impairment in the dementias.