Basics of Lipreading

The main professional body for Teachers of Lipreading in the UK is ATLA (Association for Teachers of Lipreading to Adults). You will also come across the term "speech reading" – an alternative title. The term speech reading tends to be used more in the US and lipreading in the UK. They are in fact interchangeable.

For some, speech reading is a more meaningful term in so much as it is less than 40% of all spoken words are clearly visible on the lips.

As an Audiology practitioner, you need to be aware of the basic principles of lipreading for 2 main reasons:

- In order to optimise your own lipreadability to ease communication for your hearing impaired patients
- To gain insight and understanding of the communication difficulties experienced by patients and their families and friends
- Lipreading enhances the benefit gained by the patient from amplification devices

The Right Environment for Lipreading

This is essential for lipreading to take place satisfactorily. The lipreader must be able to see the speaker's facial features clearly. Therefore, beards and moustaches are not good for lipreadability.

- The speaker's face should be well lit, never in shadow. Hence, a speaker is best facing good light e.g. a window, so that the face can be seen clearly
- The lipreader needs to be able to see the speaker, so in addition to the speaker's face being well lit, the lipreader is best positioned with light behind them
- An ideal distance between lipreader and speaker is between 4-6 feet
- Lipreading takes a lot of concentration, so there should be minimum distraction e.g.
    - background noise reduced as much as possible
    - speakers head and body comfortably still
    - limited movement of speakers arms and hands
    - speakers face never covered by hands
    - visual distractions reduced as far as possible in environment
- Lipreading includes reading facial expressions and speech patterns, therefore the speaker needs to use:
    - natural speech rhythm (not staccato)
    - sufficiently slow to enable fully enunciated phonemes of each spoken word
    - clear lip shapes but no over-mouthing
    - natural speech pattern including natural intonation and phrasing
    - natural facial expression that does not distort speech shapes, but does offer expressive clues (do not use dead-pan facial expression)

Speech Shapes

When talking in terms of lipreading or speech reading, it's essential to think in terms of "phonetics" and "sound" rather than "spelling" of words/sentences etc. When our patients are dependant upon visual clues from a speaker's face, it is not the way that words are spelled that matters – it is the shapes formed by and around the mouth and face that give clues to what the "sounds" are.

These "shapes" are called speech shapes, and some are more visible than others.

Visible Consonants
Although we are using the terms "consonants" and "vowels" to describe different elements of speech, from the start try to refrain from thinking of "spelling" – try to think in terms of "sound". This will help you to help your patients understand why they so often appear to make such apparently fundamental errors – in many cases the errors are in fact unsurprising because of the similarities between different speech sounds/shapes.

There are several speech sounds that have clearly visible lip shapes. One of the clearest is "**b**" (**do not enunciate this as "bee"; it is simply "b"**)

The reason that this speech sound can be seen so clearly on the lips is because it is recognisable by closed lips opening (in this case, sound is produced as a voiced bilabial plosive consonant)

Another clearly visible consonant sound is "**f**" – **again, do not enunciate as "eff"** as describing the letter "eff"; simply the sound "**f**"

Two further clearly visible consonant sounds are "**sh**" and "**w**"

Unfortunately for people dependant upon the skill of lipreading, it is not as simple as that. If only each speech sound were as clearly different as each of these four! In fact, each of the four consonants above have "partners" – different speech sounds but they look alike:

Speech sound	Lip shape	Example words
b p m	lips closed together	bat pat mat
f v	top teeth on bottom lip	fine vine
sh ch dz(j)	lips pushed forward	shop chop job
w kw(q)	lips puckered	white quite

Less visible consonants and groups

r
l
d t n
s z ks(x)
n ng
y
h

These consonant speech sounds become less visible to the lipreader as the list descends. There is also a marked difference between "r" sounds depending upon dialect or accent. The "l" can often be identified by a visible but short flick of the tongue – visibility usually depends upon the proceeding vowel i.e. visible with proceeding open vowel as in "last"; less visible in "look"

Vowel Sounds
We have all been brought up to think of vowels in the English language as the five short vowels: a e i o u

In terms of lipreading, these five short vowels are included but are by no means an exclusive set of vowels sounds. There are three categories: short vowels, long vowels and diphthongs; each of these categories comprise sets of open and closed/lateral vowels in terms of lipreadability.

Short	Open/Closed / Lateral	Long	Open/Closed / Lateral	Diphthong	Open/Closed / Lateral
a	O	ah (bar)	O	ai (day)	L
e	L	*air (Mary)	O	ie (dye)	O
i	L	ee (bee)	L	eea (dear)	L
o	O	aw (born)	C	ow (down)	O
U (as in putt)	C	oo (boot)	C	oor (sure)	C
U (as in put)	C			*air (share)	O
				oh (boat)	O
				oi (boy)	C/L

The Skill of Lipreading
Lipreading is a skill and it is one that is developed to varying degrees of success by individuals. For some people, they "acquire" lipreading skills through necessity and constant practice because otherwise they are unable to participate in conversation. You will very often find that individuals will tell you that they don't lipread, or that they cannot lipread, when in fact they are lipreading and indeed have been doing so for some considerable time. They may never have attended a lipreading class, and yet are very competent lipreaders. They will probably never have thought about any identifiable theory behind it; they have simply "picked it up" as they have struggled to get by in every day situations. A comparison might be an English speaking person finding themselves in France, and "picking up" the language through necessity to communicate their needs!

Other people attend lipreading classes. This is where they are taught in small groups of usually 6 – 12 students in a class. A lipreading teacher is someone who has qualified and holds a Certificate of Teacher of Lipreading to Adults. The length of teacher training varies depending upon where the training has taken place and whether it has been part-time or full-time education. Lipreading classes are usually run in Adult Education Centres, but in some geographical areas can also be found in Social Services or Health Care environs.

People learn theory and practice at lipreading classes. They learn with others, so giving them peer support, and very often classes include occasional outside speakers, so that they can also access information that might support them e.g. how to access local services for environmental aids. Lipreading classes are structured learning sessions that give the opportunity to learn and develop lipreading skills and help people develop and practice communication strategies. Classes can also serve as a lifeline for many hearing impaired and deafened people, enabling them to learn from and mix with other people who experience similar communication difficulties, and promote empowerment as individuals.

Some NHS Audiology patients can access lipreading tuition from their local Hearing Therapist if there is one in their area. For many Hearing Therapists, however, the volume of patients requiring their specialist rehabilitative interventions restricts how much lipreading tuition they are able to offer. In many cases, suddenly profoundly deafened patients can access 1-1 lipreading tuition along with other 1-1 therapeutic interventions and support from their local therapist, with a view that they will then be referred forward to a local lipreading class.

Auditory Training in Adult Rehabilitation – The Basics

The term “Auditory Training” has been used over the years to mean many different things to different people. There are also numerous “varieties” of auditory training, usually dependant upon who is offering it and to whom it is being offered to.

For the purposes of this document, we will look at some of the forms that Auditory Training can take within patient focused rehabilitation programmes that aim to improve communication abilities for people with hearing loss.

What do we, as Audiologists, actually mean?

What are we talking about when we use a term like Auditory Training? Are we saying “training to hear?” Are we saying “training to hear everything?” Are we saying “training to hear specific sounds?” Are we saying “training to hear everything OR specific sounds *for the first time*”?

Unless we are working with someone born profoundly deaf and who for example, has received a cochlear implant, rendering it the first time they have ever heard sound, most certainly we are NOT saying *for the first time*.

Indeed, work with adults born profoundly deaf is a small proportion of work in Audiology. The greater proportion of work carried out by audiologists is with people who have acquired hearing loss post-language acquisition, and who have spent a proportion of their lives – usually a significant proportion - hearing sounds and able to participate in conversation. Generally speaking, it is this group of patients that are identified as being able to benefit from interventions that will improve their speech/sound reception ability. And because it does not involve hearing sounds or speech for the first time, it could be deduced that a more accurate term for this type of work is Auditory Re-training (ART)

What can ART be used for?

In theory, Auditory Re-training can be used to improve a person’s “reception of speech performance” in most every day situations. The individual may benefit from improving abilities ranging from one-to-one listening skills in quiet environments to listening in noisy environments; and for severe/profoundly deafened patients, from identifying differences between speech sounds to identifying what environmental sounds are, and identifying differences.

There have been some superb communication improvement programmes developed over the years by very eminent rehabilitationists in the hearing loss field, including Geoff Plant from Australia. His comprehensive COMTRAM and COMTRAK programmes being two such excellent publications. These continue to be highly popular and effective for enabling severe/profoundly deafened people improve their speech perception ability. There are also numerous communication strategy programmes in many forms, from very well known and eminent people such as Dr Anthony Hogan PhD, one of his excellent publications being Hearing Rehabilitation for Deafened Adults: A Psychosocial Approach (2001) Whurr, to individual Healthcare Science practitioners in Hearing Therapy who have developed and delivered their own local programmes to best meet the needs of their own patients.

An area that is less well researched and published is ART for hearing impaired adults who have mild to moderate hearing losses, and indeed, adults with apparently normal hearing thresholds yet also experience speech perception difficulty, especially when there are competing sounds in the form of background noise. The “condition” is generally referred to as APD (Auditory Processing Disorder), OAD (Obscure Auditory Dysfunction) or KKS (King Kopetzky Syndrome)

One of the most often cited complaints of people with hearing loss, whether the loss is mild or greater, is a problem hearing in background noise. This difficulty impacts on home, social and work life and very often results in people withdrawing from conversations, withdrawing from social activities and in some cases, limited progression in their career or workplace, especially when progress would include attending and participating or leading in group situations such as meetings with colleagues and/or management. Where the hearing related issues are not addressed, the individual can self-isolate and self-esteem can decline significantly.

There are diagnostic audiometric tests that identify an individual’s ability to hear speech in noise, and with the advancement of digital hearing aid technology has also come the ability to manipulate sound frequencies that go some way to improving the speech:noise ratio, but technically, nothing at this point in time can enable the listening brain to filter out unwanted sound better than the brain itself.

Rehabilitative techniques have been developed that have the effect of re-training the listening brain to filter out unwanted interfering noise, improving a listener’s ability to hear through background noise. Although this work has been undertaken and refined over a ten year period by Debbie Featherstone, Hearing Therapy Manager at East Lancashire Hearing and Balance Services, it is only now being rolled out to other Hearing Therapists in the first instance, to affirm its effect and invite feedback using defined outcomes. It is hoped to publish results in 2007.

Combining Lipreading with ART

Traditionally, lipreading is taught by the teacher “de-voicing”. This means that the teacher presents only the visual aspect of spoken communication. The methods employed have stood the test of time, and continue to be used in most if not all lipreading class situations.

Working in the field of Audiology and Hearing Therapy, however, is different to presenting a lipreading lesson to groups of hearing impaired students. Most of our work is carried out on a one-to-one basis, and individual person focused rehabilitative programmes need to be tailored to meet many different and also many combined clinical needs.

It is sometimes essential that aspects of rehabilitative care are delivered in isolation from others, in order to obtain optimum progress to benefit the patient. For example, where a patient is being given a hearing aid for the very first time, the last thing that should be done is to confuse the patient by trying to address too many issues at once. Most people find the procedure daunting, or worry if they will be able to remember everything they are having explained to them for the first time, or are so busy thinking about what they can and cannot hear with their new hearing aid, they take little in of what is being told to them anyway. A time of new learning, when all these thought processes are going on

simultaneously, is not the ideal time to realistically expect a person to deal with other aspects of a prospective care package. The Audiology practitioner will be using several skills simultaneously to ensure the patient can hear and understand the instructions: their voice needs to be at an appropriate volume, they need to use clear speech and they need to use clear language to impart the instructions to ease understanding. They need to have an easy yet professional manner, they need to make the patient feel comfortable about asking questions and they need to enable the patient to feel as confident as possible that they will be able to use the hearing aid, including fitting it to their ear, change batteries, keep it clean. An experienced Audiology practitioner does all of these things, but the patient is not experienced and therefore cannot be expected to take in and retain an overload of information.

There are other aspects of rehabilitative care that complement one another, where a patient benefits from receiving combined interventions. One such combination may be lipreading and auditory re-training. The broad aims of both interventions are to improve a person's ability to communicate in every day situations. So, if a person has a need to improve listening skills in background noise, there may well be times during that programme where lipreading theory and practice will augment over all listening skills. This is not to say that all of the ART must be done in conjunction with lipreading – there are very good practical reasons for removing any visual clues in some of the defined areas of ART, however, more especially when it has been identified a patient would benefit from improving their lipreading skills, it is not necessary to conduct the whole programme in a de-voiced manner. In fact, results do demonstrate a benefit from amalgamating the two, using de-voicing only to reinforce or press home a very specific learning point.

In Summary

Audiology practitioners are not expected to be experts in either teaching lipreading or delivery of communication and auditory re-training programmes. They are specialist areas of rehabilitation that require separate study and qualification as well as experience. But, as Audiology practitioners, you are expected to have an excellent underpinning knowledge of how people communicate, and how communication can be enhanced for people who have a hearing disability.

In order to better understand the communication difficulties that hearing impairment can cause, it is appropriate to have a broad understanding of some of the theory behind these specialist areas of rehabilitation, in order that you can identify where patients would benefit from specialist intervention and can confidently refer to those specialist services.