

E-LEARNING NOT E-QUALITY

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Overview

Although e-learning has coped with the COVID-19 2020 pandemic, when face-to-face teaching has been impossible, it has illuminated inequality issues. This is not only that some students lack required technology and home support to access on-line materials but there are those unable to learn without ongoing help. In Britain, we run a prescriptive education system focusing on *what* to learn rather than *how*. Students who perform competently in structured, supportive classrooms have found themselves floundering as they try to manage learning with less individual guidance. This has revealed their difficulties more acutely, resulting from language deficiencies that are rarely identified.

Introduction

As a speech and language therapist, psychologist and teacher, I have worked in Health & Social Services, mainstream Education and latterly in Universities. Studies in a typical Leicester primary school over three years showed all entries had language and cognition below age level (Sage, 2000). At the feeder secondary school, 80% of students were found to operate at a 5-6 year level on psycholinguistic tests when aged 11-12, with the school continually in special measures. The Medical Research Council asked me to look at 300 children in this Midland area testing normally on intelligence (IQ) tests but failing in schools. This cohort all had problems with understanding and producing *extended language*, which component style IQ tests had not revealed. Therefore, a transmission learning style with extended talk and texts proved problematic. Individuals can appear chatty and deal with conversation successfully when able to control action, but have difficulty with lengthy language sequences. Their dialogue ability means that teachers assume they are language proficient, but the monologue style of class discourse is a problem so they depend on direct or indirect help to complete tasks. During the pandemic period, students, at all levels, have talked about missing classmates and teachers along with spontaneous conversations as well as relationships with them. The context of formal education makes them keen to learn, holds them accountable and motivates them to stay engaged, whilst acquiring much more from observing others, sharing information and gaining support and help when required,

Students, described above, would be viewed as having some degree of higher-level language disorder and the pandemic has highlighted issues. This is not only a problem at primary but also at the tertiary end of education, as some students say they cannot cope with webinars and wander off. One suggested '*we'll pass courses anyway as universities don't allow us to fail*'. Transmitting information, in the way we might do so face-to-face, does not work for on-line presentations, which need material broken down into small chunks with more time to absorb visual/graphic input. On-line performances require training to be effective as they rely on auditory and visual material and exclude the haptic (*touch, feeling, position in space*) and non-verbal dimensions necessary for those learning best from real experience (Sage & Matteucci, 2020). This is important for people with subtle communication issues. Increasingly there are many being instructed in a language other than mother-tongue, with the nuances of this often confusing.

Thus, the pandemic highlights students finding it difficult to work under their own steam and it is important to assess communicative competencies for their relevant support. One considers ability to **introspectively analyse** – (terms used in the literature - *inner speech/talk, self-talk, sub-vocal speech, mental verbalisation, internal dialogue/monologue or self-statement*). Alongside *inner-talk* is **external language dialogue and narrative monologues** (*telling/re-telling, giving instructions, reporting, making an argument etc.*). However, the importance of *inner-talk* is not often recognised, but Vygotsky (1934/1986) suggested it was dependent on sequential narrative language and vital for prediction. If students have problems with this, they are unlikely to carry out tasks alone and need prompting for each step of the way. Articulating each step, repeating it and then reviewing and

recalling the whole sequence is necessary to build mental verbalisation for completing tasks independently.

Hurlbert (2011) has made *inner-talk* a focus for study and found that there is only an average 20% frequency of use. External talk is necessary for developing internal self-statements. Is low frequency of *inner-talk* a result of technology as the preferred way of communicating? In countries, like Italy, Japan and Cuba, *talk* is the technology of learning and you do not find silent classrooms as students constantly verbalise to develop higher levels of speaking and thinking. Group work is more common than individual, so that participants constantly exchange ideas, reflect, review and refine performances. With students 4 years above UK counterparts in the *Dialogue, Innovation, Achievement & Learning* studies (DIAL - Sage, Rogers & Cwenar, 2002-10) one has to take their approach seriously, as communication and relationships take precedence over subject learning in policy and practice. In Italy, the Roman tradition of Oratory and Rhetoric Schools is still seen today, with oral examinations important for judging performance, so reflecting their normal use in life. This is seen in the table below.

Steil 1991	LISTENING	SPEAKING	READING	WRITING
Percentage	60%	20%	12%	8%
Learnt	First	Second	Third	Fourth
Used	Most	Next to most	Next to least	Least
Taught	Least	Next to least	Next to most	Most

When looking at this table one can easily see that primary language competencies get less attention than secondary ones in educational practice.

E-learning

Many issues are involved with online education but we cannot ignore the importance of it in times of a pandemic crisis. There are always solutions to fix problems. Technical difficulties can be solved through pre-recording video materials, testing content and having a reserve plan so that teaching-learning is not hindered. Online courses must be dynamic, interesting and interactive with information presented in small amounts, as it is not possible to judge audience understanding as in face-to-face contacts. Time limits, reminders and summaries of information for students keeps them alert and attentive (*especially important for those with language difficulties*). Efforts should be made to humanize learning so personal attention and initial face-to-face contact is vital for learners to easily adapt to this new environment. Social media and group forums help connect students and educators. Personal communication is key when texts, messaging apps, video calls etc. prove difficult, as research indicates there is much miscommunication when non-verbal input is reduced (Sage, 2020). Deliver content with an applied task following, so students can practice and hone abilities and encourage their feedback on these experiences. Learning support sets of 6-8 students are more suitable for such exchanges, as some find a 30+ group intimidating in an on-line forum, although others may prefer it to face-to-face experiences.

The quality of courses should be improved continually and designed to be creative, interactive, relevant, student-centred and group-based. Educators must produce effective online instructions which facilitate feedback from learners and encourage them to question and expand course content. Institutions should focus on teaching issues and emphasize collaborative project and case-based learning. Their challenge is not only finding new technology and using it but also reimagining their approach and helping students and staff wanting guidance on digital literacy. This is particularly important for students showing problems with language who find the on-line mode more perplexing.

E-quality: High Level Language Disorder (HLLD)

People come across terms like *articulation, stammering, voice disturbances & linguistic components* like *sentence structure, vocabulary & grammar*. These are problems of individuals seeking help from communication specialists. However, language can be affected outside of the ability to produce a sentence with correct structure, vocabulary, articulation and voice dynamics. Subtle communicative components, known as *higher order/level language or executive function*, can be impaired and more difficult to detect than distinctive limited grammar or defective speech sounds and voice quality. These individuals often score well on basic language (*vocabulary*) and visual reasoning intelligence tests (*like Raven's Progressive Matrices*) but struggle with verbal thinking, in depth explanations and storytelling. High level language includes:

Sequencing

Sequencing impairment affects ability to organise and complete tasks and also impacts on telling/writing a narrative coherently or giving step-by-step instructions correctly. This might present as a difficulty in recounting an event without confusion. It also shows as a problem giving project steps to another person. These subtle skills are all underpinned by ability to correctly sequence within connected language activities. Typically difficulties in telling the time in early development are wrongly interpreted as being 'dull'.

Cause and Effect

Cause & effect is ability to determine the reason for a particular outcome. Without this competence, an individual struggles to understand why something has happened, as they are unable to appreciate how an action leads to a certain outcome. If you did not understand a sudden impact can cause a cup to break, you could not appreciate how knocking it off a table means buying a new one.

Inference and Predicting

This is ability to use clues provided through verbal or visual contexts in order to infer further information & make a prediction based on it. Someone gives an instruction to another: '*switch on the headlights*'. From this we deduce that the person is driving, as headlights are found on a vehicle. We also infer low lighting & vision, as the reason for the instruction. We can predict if lights were not on an accident might occur. Although information is not explicit, connections must be made from experience to make sense of what is happening, if no further facts are given.

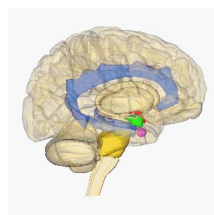
Figurative Language

This refers to non-literal language, including idioms, metaphors & similes, which do not directly convey a concrete meaning & are abstract in nature. This can make understanding jokes & humour difficult. It makes reading material more of a problem to understand. An example of an idiom is '*a dime a dozen*' – meaning something common. Such phrases may confuse people.

These difficulties arise in the amygdala area of the brain. This limbic system area is located below the brain lobes- consisting of the hippocampus, hypothalamus & amygdala. The amygdala & hippocampus both ensure memory processing. The amygdala encodes *emotion* and the hippocampus deals with *event details: people, things, situations and where they take place*. We are more likely to remember something if having a feeling or an emotion about it. Narrative processing/production and capacity to respond appropriately to significant visual or auditory stimuli are disrupted with problems in this area.

Thus, the amygdala is primary for perception and expression of social and emotional nuances and largely responsible for comprehension and expression of spoken and then written language. Parts of the auditory neocortex - from the anterior and medial temporal lobe and beyond the insula to include the superior temporal lobe and inferior parietal lobule - are partly an evolution of the amygdala. It is argued that the primary, secondary and auditory association areas, including Wernicke's visual zone, have evolved from the amygdala and are extensively interconnected with this nuclei via the inferior portions of the arcuate fasciculus and claustrum. In consequence, when neocortical auditory areas are impaired, the amygdala is sometimes disconnected and unable to extract or impart nuances to incoming or outgoing sounds and sights. Although the left and right amygdala are functionally lateralized, with the R larger than the L, both contribute to language perception and expression - assisting in maintaining the functional integrity of neocortical auditory areas in R and L temporal lobes. It is through these interconnections that languages are hierarchically organized at the level of the temporal neocortex.

Amygdala *green* and Hippocampus *blue* in this brain section



**Presenting Symptoms of Higher Level Language Disorder
(10+ needed for a diagnosis)
From *Communication and Learning* Course: School of Education, University of
Leicester (written and taught by Rosemary Sage 2000-7)**

- Intelligent & chatty but extended speaking, reading, writing & spelling not at expected levels
- High IQ but academic achievements do not match up;
- Tests well on oral components (vocabulary) but not on extended spoken/written narratives
- Not behind enough for class assistance but regularly gains help/support from peers
- Lacks self-esteem – hides weakness with ingenious strategies
- Easily frustrated and emotional
- Labelled lazy, careless, slow, dull, immature, behaviour problem or not trying
- Often talented in art, drama, music, sports, marketing, sales, design, engineering, building
- Visual and haptic* abilities are strong reflected in their talents
- Learns best from hands-on experience, demonstrations, experimentation, observation, visuals
- Problems in maintaining attention – appears hyperactive or dreamer
- Loses track of time and may easily get lost

Haptic – non-language communication subsystem through physical contact - *touch, feeling, movement and proprioception*. This is our most basic sensory pathway and the first to develop and last to be lost due to disease/injury. It is the easiest, most effective learning pathway but less used than the **auditory** and **visual** modalities in education.

Vision, Reading, Spelling

- When reading complains of dizziness, head or stomach aches
- Confused by letters, numbers, words, sequences or verbal explanations
- Reading or writing shows repetitions, additions, transpositions, omissions, substitutions
- Frequent reversals of letters, numbers and words
- Appears to have visual problems but assessments do not reveal problems
- Grumbles about feeling/seeing non-existing movement while reading/writing
- Observant and sharp-eyed or lacks peripheral vision and depth perception
- Reads and rereads often with limited comprehension
- Spells phonetically and inconsistently

Hearing, Listening, Speaking

- Easily side-tracked by noise and movements and fails to hear and listen
- Problems with putting thoughts into words – speaking haltingly in incomplete sentences
- Dysfluent when stressed – mispronounces words, transposes syllables, words & phrases

Writing, Motor Skills

- Trouble copying or writing; unusual grip; writing varies in legibility
- Uncoordinated, clumsy for sport; prone to motion sickness
- Difficulties with fine and/or gross motor skills and activities
- May be ambidextrous – often confuses left/right, over/under

Time Management, Mathematics

- Difficulty telling and managing time, dealing with sequenced information or tasks
- Computing depends on finger counting & other tricks; knows answers- difficult transcribing
- Can count but slow in counting objects and dealing with money
- Can do arithmetic but not word problems; difficulty grasping algebra/higher maths

Thinking, Memory

- Thinks primarily with images/feeling not sounds/words (little inner-talk)
- Limited memory for sequences, facts and information not experienced
- Excellent long-term memory for experiences, locations and faces

Personality, Behaviour, Health, Development

- Strong sense of justice; sensitive; strives for perfection
- Can be class clown, trouble-maker or too quiet
- Disorderly or compulsively disorderly

- Prone to ear infections; sensitive to foods, additives & chemical products
- can be light/deep sleeper; bed wets beyond appropriate age
- Unusually high/low pain threshold
- Symptoms and mistakes increase with stress, pressure, confusion or poor health
- Unusually early/late development stages (crawling, walking, talking)

Not all symptoms are seen in a HLLD diagnosis, but 10+ of these would suggest it. Generally, there is no concern until starting school when **reading & writing** are prioritized, with severe problems often labelled as **dyslexia*** and taking precedence over subtle language issues. Communication specialists take a more holistic view and see symptoms in the linguistic-cognitive domain, with problems of integrating left (*L-verbal*) & right (*R-visual*) brain activities. Management is based on L & R brain integration, as well as development of narrative language & thinking. When given learning strategies fitting a creative, visual, active, hands-on style, progress is normally excellent. Those with HLLD often have higher than average intellectual ability & develop exceptional creative talents with many historical geniuses showing these problems. At school, college or workplace, adjustments are necessary for maximum performance. Sadly, these issues are often not identified accurately and people continue to have life-long problems from incorrect management and bullying behaviour from others.

Review (Consider the following ideas to produce effective e-learning)

Use....

e- Learning to stand out

3D worlds and video presentations capture interest, making e-Learning stand out from PowerPoint ones and are processed more easily. Surprise the learner and they will be more likely to learn.

Video

An image paints 1000 words, but a video, with moving images, produces many more by introducing some **haptic** input. Therefore, the use of video conveys more than an inserted still picture.

Design

Multimedia should reflect learning goals. If the course is about *language development* choose a video showing the main stages in a real person. Ensure multimedia does not distract from the learning message.

Humour

Humour helps to get a point across. An amusing presentation will keep attention to make the lesson memorable if the subject is dull. If unsure it will work, then avoid humour.

Interaction

Interaction breaks up the information and helps share views and assist understanding. Some learners find it frustrating when interactions spoil the information flow and these can be hard to use on mobile devices. As a rule use interactions when contextually necessary.

Higher level

Set e-learning expectations at a higher level. E-Learning should resemble a documentary film. It uses sets, has video actors and is based in a 3D world. The language should be intelligent, simple in structure and amusing where appropriate. Study TV documentaries to consider how they get over the message. You are presenting a story so make it stick!

Audience knowledge

Audiences are diverse and a person's first language dictates how they think and interpret, so learning in another one requires great concentration and more time for information processing. Research shows that communication and language are problem areas in plural societies (Sage, 2020), so assume that any audience will have listeners and viewers with additional needs. Make sure that there is no information overload, short sentences are used with good pausing between them with important ideas having suitable word stress. Some will find it difficult to integrate visual with auditory input, so ensure the main messages separate these two mediums. Present the visual (*picture/film/graphics*) and make the explanation afterwards.

E-learning has accelerated in education as a result of the COVID-19 pandemic and we are all reflecting on how to use it more effectively with special attention for those not well suited to the predominately auditory and visual input. With preferred processing through the haptic sensory channel some will find e-learning as the major instruction mode frustrating.

The Organisation for Economic Cooperation and Development (OECD) says that UK education is well supplied with technology, but staff are not trained sufficiently to deliver it effectively. The Director suggests Britain has made the slowest educational progress of the 37 OECD nations, because memorization remains the dominant learning strategy in a narrow, exam driven culture (Schleicher, 2020). He reports that education today is not about teaching people something, but helping them develop a compass to integrate personal, practical and academic competencies. Education must rebalance to develop a more holistic, world approach for coping with life - fixing on real not abstract issues. The OECD Educational Working Paper (Bertling, 2020) reports 25% of schools & colleges will never return to former teaching ways following the 2020 pandemic, with 50% preparing for a future of blended learning. There is an urgent need for ongoing professional development that monitors new teaching activities, using practitioner recording models to review evidence amongst colleagues. Since 60% of students worldwide do not reach required educational standards (Luckin, 2020), it is vital to review policies and practices at a time when education has been disrupted by pandemic lockdowns. The speedy introduction of e-learning has thrown up communication and language-based issues. These have previously received minimal attention in traditional teaching models. Communication matters. Let us make it matter more so that less people struggle with e-learning!

Note: Dyslexia is a descriptive term meaning difficulty with reading

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