Managing the monolingual mindset. SWANS: an authoring system for raising awareness of L2 lexical stress patterns and for inhibiting mother-tongue interference

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Abstract

Until the end of the 20th century many EFL or ESL students were victims of what has been called “the literary tradition”. After 12 years of school and university language study, they would finish their academic careers with a 'reasonable' level in reading and an 'unreasonably' lower level in listening and speaking. Recent pressures of globalisation have lifted some of the psychological barriers to speaking: European students are now far readier to abandon the cocoon-like, tribal security of their mother-tongue and L2 oral fluency has undoubtedly improved. Accuracy in spoken form, however, has made considerably less progress. The intrusive and distracting presence of foreign lexical stress patterns can and often does lead to communication breakdown. In the field of pragmatics such problems are under-researched perhaps because tolerance thresholds are based on diverse linguistic experience and highly individualized perceptual acuity making generalisation difficult. Similarities between arbitrary and irrational racial intolerance and arbitrary and irrational linguistic intolerance are striking.

In the following article we lay the blame squarely with the real culprits in the European tradition - neural commitment towards mother tongue sounds and a vastly underestimated, not to say dangerous, man-made cultural artefact: the Latin alphabet itself. In an attempt to escape from the contradictions of using a standardised alphabet for symbolising languages with highly different lexical stress patterns, a team of 12 researchers from 4 laboratories in Toulouse have developed a new CNRS-funded authoring system called SWANS (Synchronised Web Authoring Notation System) which is currently undergoing testing in several European countries via language centres associated with CERCLES. SWANS manipulates the physical and cognitive nature of the reading experience itself not in order to improve reading skills but in order to improve L2 speech perception and ultimately speech production itself. Synchronised Multimedia Integration Language (SMIL 2.1, W3C, 2006) is used in SWANS to generate web pages, allowing novice teachers to synchronise text and sound and to annotate text typographically in order to raise awareness of lexical stress patterns. Working with a sample of over 250 students, recent studies (Stenton et al, 2005) have shown that computer-based dual coding (Pavio) of animated text improved listening perception and also led to more comprehensible L2 oral production in controlled conditions. This article presents the ideas underlying the development and analyses feedback from an international network of field experiments on the pedagogical aspects of learning through on screen reading of annotated sound synchronised texts. Improving L2 oral perception and production also implies appealing to EUROCALL partners to help improve teacher education and better manage the widespread problem of the monolingual mindset.

Keywords: Speech perception, syllable perception, oral production, SMIL, synchronisation, reading techniques, mother-tongue interference, teacher education.

1. Defining the monolingual mindset
One of the striking paradoxes of modern language learning and teaching is that it is often undertaken from a fundamentally monolingual perspective. Foreign language communication needs are not ignored but are considered of secondary importance besides the academic respectability offered by valuable intellectual exercises which actually reinforce the position and prestige of the community's dominant language. While demonstrating the capacity of educated L1 speakers to absorb, pillage and otherwise profit usefully from the study of the target foreign language, many language teachers convey a conscious or unconscious bias towards their own civilisation or culture and its 'natural' superiority over others. Attitudes may vary from puerile one-upmanship to outright aggressive scorn but such a monolingual mentality is clearly more akin to linguistic imperialism than to linguistic democracy and cooperation, the enlightened and shared examination of communication techniques for mutual benefit and heightened self-awareness. It is perhaps no accident that such attitudes are most frequently encountered in countries with a pronounced imperial past such as England, France, Germany, Spain, Portugal or Italy and are virtually invisible in smaller, more peacefully inclined countries such as Finland or Denmark. Such conservative and protective ethnocentrism is regularly denounced as a pathology, a blight upon the multilingual landscape. Modernised teacher education could improve matters but in those countries where knowledge of literature and grammar/translation are the essential keys to successful training for both specialist and non-specialist teachers and where studies of perception and pronunciation remain neglected poor cousins, the problem prevails rather like those eternally obsolete school history books which extol the benefits of 'enlightened' colonialism. The monolingual language teacher is not only ethnocentric, he or she is usually deeply concerned with and conditioned by written forms of language. The wish of most present day cultures to preserve the culture and language which produced them is at the heart of most writing systems.

1.1. Problems engendered by the excessive attention given to written forms in language study

The extent to which ethnocentrism is reinforced and compounded by a preference for written forms of language - the "grammar school" tradition - is another neglected field of research. Many teachers seem blithely unaware that they teach spoken forms by and through fundamentally confusing written forms. What works in an L1 context is often disastrous for an L2. The photocopied static Gutenberg page of text is the starting point of most oral activities and the idea that by using the same Latin alphabet for symbolising radically different lexical stress patterns they are also creating havoc with sound perception is too often ignored. The Latin alphabet may be an indispensable tool for communication but for foreign or second language teaching and learning of sound perception it's quasi universal character is a tragi-comic case of almost a whole continent shooting itself in the collective linguistic foot. In 1886 Paul Passy and his team of far-sighted pioneering Anglo-French linguists attempted to save the continent from rife confusion with the invention of the International Phonetic Alphabet (IPA) and its 102 letters, 52 diacritics and 4 prosody marks, but as they preferred a large number of abstract and non-intuitive phonemes as their fundamental units of analysis rather than a suitably limited number of more easily recognized syllables, their efforts at a practical level were unfortunately condemned to a relative failure in the non-specialist language classrooms, a failure which even today is still rarely admitted. Professionals, whether today's ingenious financial traders who for a time believed that all risk could be eliminated, or those devoted and erudite European and Arab doctors who accidentally killed millions of patients by blood letting for 2,500 years, usually have a rare gift for sweeping failures, accidents or intractable problems, under the carpet. The expression 'professional failure' is curiously taboo. 'The page has now turned' is the traditional explanation and Obama-like apologies for the mistakes of the past are an exception rather than a rule. Indeed some mistakes appear well-nigh impossible to eradicate. Removing IPA training from the notoriously limited pronunciation training generally offered young non-specialist language teachers is like removing QWERTY from our obsolete keyboards. When logic and credibility have disappeared, inertia and conservatism remain.
1.2. The need for new techniques for visualising sound

If blind people can learn to read with their fingers thanks to Louis Braille then sighted people with listening problems should be able to find more accurate techniques for visualising sound on the computer screen. It is fundamentally a design question. The interminable failure of language engineers in this field is perhaps the greatest problem in modern language learning. Descriptions of mother tongue interference in L2 oral perception and production are far from being generally available, easily comprehensible or easily shareable. This is not of course a utopian attempt to mimic the philosopher's search for a 'perfect language’, a visual symbolic equivalent of God's communication with Adam, rather a more modest attempt to represent sound patterns visually with a simple and easily memorised system and thereby improve oral perception and production. The use of the computer in this field has been unimaginative. Programmes such as 'Praat', 'Winpitch' and others may have contributed to a better appreciation of acoustic phenomena, particularly pitch, but as sound is a pluriparametric phenomenon of great complexity (measured simultaneously as height, length, quality and intensity) few of such tools have found their way into the language classroom. The information gathered is slow to generate, often ambiguous and requires expert knowledge to interpret. Commercially inspired efforts ('Tell me More', 'Rosetta Stone') to allow students to imitate native speaker waveforms have also done much to undermine the credibility of such studies owing to the great variety of potentially acceptable utterances. Waveforms displaying volume or intensity are often used as sales gadgets and are known for their undeniable 'placebo' effect on students. Such visualisation techniques also suffer from confusions over the definitions of the acoustic phenomena which need to be analysed. Should students be studying "pitch accent" - as in Scandinavian languages, "stress accents" - as in English or Spanish, or “tone variations” - as in Chinese, and what exactly is the difference? Should teachers in a multilingual world have ear training in all such phenomena or merely some?

A recent and convincing answer, at least for the English language, has recently been provided by research based on syllabic perception. Despite long-standing controversies over segmentation and the relative importance of phonemes and syllables (Cutler,1986; Cutler&Norris, 1988; Fear, et al., 1995), cognitive neuroscience is providing a growing body of evidence which underlines the fundamental importance of the syllabic unit during speech processing. The psycholinguistic reality of the syllable appears evident. Jakobson (1969) affirms that the first phonemic sequences which appear in child production (Ingram1978; Allè 1981; Locke 1983) and the last which resist aphasia are based on the CV structure which corresponds to the syllable found in most of the world's languages. Kuhl demonstrates a significant improvement in the recognition of native contrasts in babies between 6 months and 12 months and a decline in nonnative perception over the same time period (Kuhl et al 2005). Chait argues that the short input sound streams (~30 ms) and longer input streams (~300 ms) are processed simultaneously and separately before being bound together in a stable representation called a syllable (Chait M. et al 2005). Working on syllabic recognition offers economies of scale. It does not negate the need to study pronunciation in all its aspects but it does suggest that improvements in oral perception and production are perhaps most measurably improved by concentration on lexical stress of primary and secondary stressed syllables and also on reduced, or 'neutralized' vowels which serve to highlight the stressed forms. Such studies provide a skeleton structure for lexical items making accurate perception more robust and facilitating heightened intelligibility in oral production.

1.3. The emergence of International English

In the context of the emergence of English as an International Language (EIL) the ethnocentric mentality is also sometimes confusingly combined with the legitimate claims of non-native speakers for more tolerance in the English speaking world. When non-native speakers are in the majority, they are entitled to ask anglophone listeners to be more indulgent, to stop the excessive stigmatization of obtrusive foreign lexical
stress patterns. In a word, to make more efforts to understand and accept as legitimate the spoken production of foreigners. It is here that many language teachers and researchers are clearly ‘out of their depth’, capable of noticing that the language is evolving fast but incapable of defining precisely what is going on because their very object of study is changing before their eyes, just as our inner cities are changing under the pressure of immigration. The multiracial mix of European cities and universities has many connected parallels in the controversial multiple lexical stress patterns now commonly heard among non-native English speakers. Tolerating foreigners also means being more tolerant towards the way they speak. When the French Minister for Foreign Affairs announces that “the fa mine in af ri ca is te rr i ble” with excessively lengthened syllables and misplaced stress, he is immediately understood by millions of English-speaking French and European citizens and yet misunderstood by millions of other fluent speakers of English less well acquainted with the French lexical stress patterns and incapable of backtracking rapidly to change “fa mine” with its weak first syllable (like the word “machine”) into a more familiar “fa mine” with its strongly stressed first syllable. Considered in isolation such problems may appear minor but in the context of a rapid speech where the minister goes on to other matters leaving no time for reflection or catching up, the problem is in fact a disturbing one, provoking frustration because the listener cannot backtrack to the problem and listen to continuous speech simultaneously. Such lexical stress errors regularly lead to communication breakdown and in a rapidly changing multilingual world such problems now deserve far more attention than they have received hitherto.

2. SWANS: an authoring programme for improving oral perception and production

Our basic hypotheses are that the plasticity of the computer environment can effectively mirror the plasticity of the human brain and that visualising sound is the most effective way to improve fossilized auditory perception problems linked to mother tongue interference. The authoring system SWANS 1.1 (Synchronised Web Authoring Notation System) developed by a group of 12 researchers working in four research laboratories in Toulouse, attempts to use synchronisation and enhanced typography to transform the experience of reading and listening. New exercises developed with SWANS tap into the brain's adaptive capacities. The use of visual stimuli as a potential remedy for negligent auditory perception is possible because all the brain's intelligences are connected. Consequently, the use of dynamic synchronised audiovisual events, may have implications for oral perception, memorisation, and oral production. This ambitious challenge needs an adapted new technology to allow teachers not only to enhance the learning of pronunciation but also to allow teachers to practice new methods for visualising pronunciation to enhance teaching. The implementation of synchronisation and annotation technologies within an authoring system is the basis of the SWANS, which generates web page documents and integrates audio and video materials synchronised with XML-based SMIL tags.

SWANS uses typographical annotation and sound to raise awareness of lexical stress patterns. The focal point of explicit learning, the place of the primary, secondary accents and weak vowels, was encoded twice: visually and aurally. According to the theories of Paivio (1986), Mayer (2001) and Sweller (1999) such dual coding should lead to better learning for novice learners and have no effect or even a negative effect (called 'expert reversal effect') on learners who already know the place of these accents.

2.1. Colour and text size in SWANS

Annotations used in SWANS 1.1 are generated first in Microsoft Word (using macros for greater speed) and rely on a combination of 4 colours and 4 sizes. The objective is to offer memorable annotations (simulating acoustic contours: movements in syllable volume, height, quality and duration) without causing cognitive overload due to an excessive increase in visual information.
2.2. Architecture

SWANS is composed of five modules presented in Figure 1. These modules involve the following functions:

- Importing text and media (video or audio) into the working environment.
- Segmenting the text into 'tone units' and tagging with XML codes. It should be noted that this stage is semi-automatic in order to leave the user free to choose appropriate units.
- Synchronising the text and sound. The freeware programme Magpie is currently used for this stage. After synchronising the programme checks the output code for coherence and puts the code into SWANS format, that is to say a the script associated with each tone unit together with the start time and end time which is necessary for the precision of the synchronisation (an animated band of blue which moves behind each line of text in time with the sound).
- Annotating. Annotating is carried out in Word using macros before being imported in SWANS. Development underway of an expert system (based on Deschamps and Guierre) and a dictionary data base should accelerate the process by offering automatic or semi-automatic annotations which the user can validate or modify.
- Generating ready to use web pages in XHTML+SMIL (W3C) This functionality, which provides the most dramatic increase in development speed, allows the user to visualise the document as it can be seen in Figure 2.

Figure 1. Showing the stages in the generation of a synchronised, annotated web page with SWANS. With practise, it takes 10 minutes to produce a finished web page of 20 lines of annotated, synchronised text.

2.3. Animation for improved memorisation

SWANS uses one principal animation technique: animation line by line. A blue band, visible behind the text, is perfectly synchronised with the sound and moves down the text line by line when the user clicks on ‘play’ (animation generated with the language SMIL and the programme Magpie, see Figure 2). The text also scrolls down automatically to avoid page turning.
2.4. Metaguiding: a new reading technique

Line by line animation engenders a new reading technique which, we argue, represents a progress in terms of ocular comfort when compared to reading karaoke texts. It is combined with automatic scrolling techniques now also integrated cleverly and smoothly on the somewhat tiny screen of iPhones. Reading karaoke style text is particularly difficult in a foreign language as the speed of reading is imposed by the animation and the speed of sound. The reader has no choice, he must slow down his normal reading speed and submit to the distracting hop from letter to letter or from word to word. The advantage of line by line synchronisation, however, is the greater freedom given to the eyes which usually scan backwards and forwards along the line of text during sound playback. In this way the visually distracting, jerky karaoke animation is avoided and replaced by a smoother, slower movement offering a compromise. Naturally, the eye reaches the end of the line before the sound. Average speeds of word recognition for native speakers are calculated at 1/8th of a second for visual recognition and 1/5th of a second for listening recognition. In terms of brain perception where activities are measures in milliseconds, the difference is enormous. Without a technique for encouraging the eye to linger on a particular line in time with the soundtrack, the divergence between ocular perception and auditory perception is potentially important too.

The compromise solution involved in line by line reading of a synchronised text allows a closer association of visible forms (the text with its annotations showing stress) and the sound of the speaker. Not only are associations made more memorable but the activity of reading itself becomes somewhat easier. The physical effort of focalisation is guided by the animation and student users have described this new process explicitly in terms of reading, or 'ocular', comfort and reduced eye fatigue. The eyes are more relaxed because there is a guide to follow. The process is called metaguiding and we all use it with our index finger or a pen when hunting for information in a directory. The developers of SWANS have simply replaced the cumbersome technique of the pen on the page with a discrete blue band with has the added advantage of not masking any of the text. It is because the activity of reading has become easier that the dual decoding of text and sound becomes more acceptable. Laboratory behavioural studies in Toulouse reveal that most readers do indeed scan the line of text backwards and forwards while waiting for the sound to catch up. Visual forms and auditory perception are thus united. The eye tolerates the 'slowness' of auditory perception because ready to participate in a pedagogical experiment, ready to examine the proposition that synchronised text and sound can help inhibit subvocalisation and thereby weaken the role of mother tongue interference in oral production.
Figure 2: Showing the animation technique employed in a webpage generated by SWANS. The blue band is perfectly synchronised with the sound and the text scrolls up automatically allowing the reader to concentrate on the complex pattern of English stress. In theory, the presence of the English sound track inhibits or shuts out subvocalisation with its mother-tongue influence which is normally, or always, encountered when reading. The author would like to apologize in advance for the absence of (indispensable) colour on this printed page owing to Gutenberg traditions beyond his control.

3. Teaching and Testing

SWANS has been use for generating synchronised, annotated texts - usually the scripts of video or audio documents lasting 3 to 5 minutes - in several languages, including English, French, German, Spanish, Dutch and Arabic, in European language centres. Feedback from teaching and testing concerns principally English language documents read by European, mainly francophone, students (levels A2 to C1) in language centres in the CERCLES association. Our starting point was the particularly low levels of perception and performance in a sample of over 250 students and school children in Toulouse (Stenton, 2005).

Teaching techniques in the multimedia laboratory involved:

- Manual written annotation of paper-based texts after using SWANS
- Reading aloud in pairs (Student A with an unannotated text and student B listening and correcting from the annotated text.)
- Distance teacher correction of student keyword annotations (20 keywords sent by e-mail) in preparation for 3-minute oral exposés
• ‘Carrousel’ techniques where a student makes the same short 2-minute oral presentation to five different partners and so progressively spends more time thinking about language form rather than content.

Testing combined two modalities:

• sound synchronised with text (dual coding), or sound without text, or sound heard separately before the text is read
• text with or without annotation.

Perception testing included stress and reduced vowel recognition while reading, recognition while listening, and correct use of stress and reduced vowels in oral production.

3.1. Results

Globally dual coding improves performance. Students exposed to dual coding scored at least 10% higher than the others in the stress recognition reading test. The synchronised experience in SWANS produces higher (+8%) results than the separate experience of listening first to the (lossless) wave file then reading the annotated document in Word. This was a potentially important finding as the multimodal synchronised experience is theoretically more demanding. Annotations appear to improve short-term memorisation in all cases. Unimodal results are inferior to the multimodal results - bare text and bare audio being the lowest. Whilst many students cautiously hesitate before choosing which syllable is stressed they often overlook entirely the presence of reduced vowels suggesting that teachers need to highlight this problem more in their teaching.

Oral testing, based on video recordings of 3-minute talks and analysis by native speaker teachers, suggested significant, and greater than expected, improvement in controlled conditions for certain individual students and a small global improvement after preparation via keyword annotations. On the other hand, the results of oral testing in the context of spontaneous conversation did not confirm the idea of improved oral production. Student feedback suggests that removing fossilized habits in L2 oral production should be a long-term and legitimate ambition.

4. Conclusion: visual memory must help 'negligent' auditory memory

We have suggested that managing the monolingual mind set requires breaking with the Gutenberg obsession with standardized static written forms and its stranglehold on teacher education. Its means helping teachers and students with oral perception and production with dynamic synchronised tools. Noticing lexical stress patterns and heightening awareness of problems of L1 interference in the perception and production of speech are the essential first steps in redressing the balance of education so that the written forms no longer dominate and spoken forms are given equal attention. Correcting the presence of 20 th century style linguistic imperialism in 21st century teaching, however, means addressing only a limited set of problems. It will not provide answers to today’s very real problems of language identity. Just what is the English language and how are teachers supposed to teach it? Our answer to this question in the European context can only credibly be found in the European democratic tradition. The English language as an international or second language for millions of European citizens is whatever those European citizens make of it. Similarly, language teaching does not require native-speaker priests who guard the sacred flame but experts of diverse origins who can recognise socially produced language norms and explain how they operate. It is in this context that associations like EUROCALL can now make a more decisive contribution. What laboratory observation of Swans and feedback from language teachers in CERCLES is revealing is the need for an even more adaptive approach which takes on board the diversity of interferences which are not necessarily
always confined to the mother-tongue. The majority of the world’s citizens speak more than one language and yet scientific and didactical literature is centred, for the essential, on the analysis of monolingual communication.

In Europe, the shared annotation of the same L2 documents according to local L1 interference is a way of giving instant feedback into what teachers diagnose as local problems of perception and production. In Czech, Latvian, Hungarian, Swiss German (Bernese dialect), Finnish, and Swahili, stress is always placed on the first syllable. In French, Spanish, Portuguese, Turkish, and Polish stress is rarely placed on the first syllable. Teachers whose annotated texts make no attempt at exhaustively analysing all stressed syllables but which concentrate on the essential problem areas of their own students are thus participating in a networked effort to tailor textual annotation to real needs. The European Socrates EXPLICS project has now placed a large quantity of case studies in 11 languages on line for language learning in universities. Explics case studies and simulations which cover a wide range of levels and which generally conclude with student oral presentations or debates, offer an excellent testing ground for measuring effective communication through the integration of SWANS annotated documents in an environment ideally adapted for blended learning and continuous assessment. Similarly, in the context of the current widespread adoption in European Universities of CLIL (Content and Language Integrated Learning), problems of perception become even more urgent. The expertise for correcting Finnish mother-tongue interference in Spanish oral production is probably easier to decipher with experts from Spanish and Finnish universities, for example, rather than with those in universities in other parts of Europe. A shared and common approach on the networks is clearly needed.

In the field of English language teaching, the collation and distribution of annotated texts is more than just a contribution to widening pedagogical resources, it is also a pan-European dialogue between language teachers on the evolving nature of the English as an international language itself. Textual annotation is one way of making tolerance thresholds visible according to locally perceived needs of communication. It sheds light on what is, and what is not, considered linguistic deviance. The stigmatization of a stress pattern judged unacceptable in one centre may provoke vehement protest in another. As language teachers and their students slowly abandon the monolingual mindsets of the 20th century it is distinctly possible that new mentalities will reflect the multilingual muddle of the 21st. Pupils at White Hart Lane Comprehensive School in London currently share between them over 65 different mother-tongues. Networking and sharing notions of linguistic deviance at a European level is a democratic and intelligent way forward. Pedagogy should be shared and textual annotation can become a sharing mechanism, not to say a teacher training tool, over the internet in the field of perception.

Perhaps the greatest mistake of the 20th century monolingual mindset was to believe that there is no fundamental difference between learning to read in a mother tongue and learning to read a foreign or second language. L1 reading techniques rely on the alphabet or phonemes for initial learning and whole word recognition once the process becomes rapid, automatic and error-free. L2 reading is almost never so rapid, automatic or error-free but is accompanied by deviant subvocalisation characterised by L1 interference as a permanent, lifelong and often disturbing presence. In fact difficulties are in part related to the degree of morphological proximity, a finding interestingly confirmed by a recent Danish paper (Rikke 2005). English and French, for example, share a common lexis estimated at over 60% if words of latin origin are included. Their lexical stress systems are completely different. English is generally to the left and irregular, French stressed syllables are usually on the right and more regular. The English use reduced vowel sounds as background to highlight the stressed syllables whereas the French (but not all Francophones) often make an energetic point of preserving syllabic integrity. Stigmatizing francophone stress patterns in English (‘doll AR’ and not ‘doll ar’) often simply means stigmatizing an unusually chequered history of over 9 centuries of continuous linguistic exchange. The French and the English have become morphological friends but acoustic enemies, a fact which should temper
unjust and unjustified Europe-wide prejudice. Moving attention away from the familiar decoding of abstract phonemes or whole word units towards the decoding of SWANS-style annotated, intuitively recognised syllables means changing cognitive processes quite radically but not subversively. In SWANS the reassuring and ancient visual shapes of the alphabet letters have been preserved (the letter ‘A’, for example, is still recognizably the wonderfully familiar inverted head of an ox or aleph as the Phoenicians once put it). It means, as suggested in Stenton 2009, adding to often deficient auditory memory a new layer of more accurate syllable-based visual memory which with time and, above all with efficient synchronisation, may begin to destabilize fossilized speaking habits based on years of far too rarely corrected mother-tongue interference.

Managing this monolingual mindset now requires a sustained effort in proportion to the weight of inertia, conservatism and widespread technophobia ranged against teacher education reform and the integration of ICT in each country. The evidence that associations like EUROCALL and CERCLES, (which represents some 290 higher education language centres in Europe ) have a role to play in this battle should strengthen existing ties. In our heterogeneous school and university classrooms where the mix of nationalities is steadily on the increase, the monolingual mindset of much language teacher education denies trainee teachers the time to gain precious insights into the source of spoken errors and problems related to listening perception. In a word, language teachers are not properly trained for a multilingual world. EUROCALL partners and langue centres from each European country can help remedy this problem by exchanging and analysing annotated documents which are tailor-made to indicate L1 language-based interference problems when reading or listening to a foreign language document. The Europe-wide collation of Swans-type documents would enable students to choose document presentation style according to their mother-tongue. Predictable, stereotypic perception problems for each mother-tongue, would leap out at students from the screen through automatically generated, highly memorable animation techniques; 21st century techniques which improve upon the static but irreplaceable Latin alphabet typography with colour, dynamic size change, sound synchronisation and superior ocular comfort. Gutenberg will no doubt be revolving in his grave but language teachers, researchers and the CALL community may at last begin to take pride in a joint, cooperative, networked contribution to answering the real multilingual communicative needs of 21st century students.

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Synchronized Multimedia Integration Language (SMIL 3.0): http://www.w3.org/TR/SMIL3/
SMIL is an XML-based language that allows authors to write interactive multimedia presentations. Using SMIL 3.0, an author may describe the temporal behavior of a multimedia presentation, associate hyperlinks with media objects and describe the layout of the presentation on a screen.

Explics: http://www.zess.uni-goettingen.de/expics/

The aim of the Socrates-financed EXPLICS project is to improve language competence of students by preparing models of best-practice in how to exploit Internet case study and simulation templates and by familiarising language teachers with these models. Participating institutions include universities from 12 European countries. Specialisations include: task-oriented and problem-based learning and teaching; use of global simulations; use of case studies in language teaching; development of language level descriptors and methods of language testing, use of ICT for corpus analysis and concordancing and the use of ICT for language testing.

CERCLES http://www.cercles.org

CercleS is a confederation of independent associations from 22 countries in Europe. It brings together some 290 Language Centres, Departments, Institutes, Faculties or Schools in Higher Education whose main responsibility is the teaching of language. Its members have several thousand academic, administrative and technical staff, and some 250,000 students who learn all the world’s main languages.