

The Impact of Technology on Language Learning and
Teaching: *What, How and Why*

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Mutual Impact – On the Relationship of Technology and Language Learning and Teaching

Jörg Roche

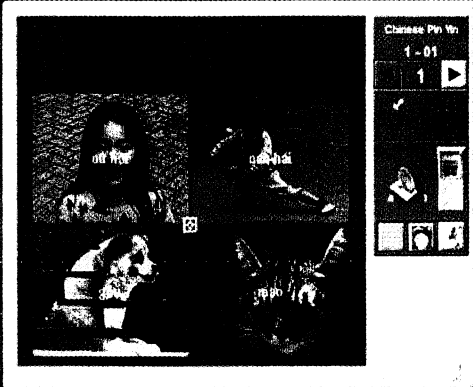
Introduction

The main topic of interest for this conference is to examine the relationship between technology and language learning – a statement which would imply that the use of technology in language teaching would be the prime and perhaps only focus of the conference. However, as we know from other talks and from reports of many colleagues, the impact or the results we see from the use of technology in language teaching and language learning are rather mixed and not always positive. In the following I would like to do two things: first address this question (technology in language teaching), and then reverse the process by asking what impact the teaching and learning of languages might have had on the design and on the use of technology in general. Wouldn't it be nice to discover that the way we go about our language teaching, the methods we use in our classes, would be so captivating and so relevant to the world outside of the classroom that technology designers and developers would actually learn from us? In fact, I think there are a number of areas where ideas have been imported from modern language instruction, and that there are a number of areas where there is room to learn even more from us – particularly when we teach languages in a meaningful way, in an interesting way, in a way relevant to the lives of our learners.

Common conceptions about media use include the notion that they are inherently motivating, entertaining, captivating, and flexible. It is often claimed that there are no time restrictions and no space confinements. The use of media is to provide easier, faster, cheaper access to resources and to information. Communication is made easier at low cost. Media also contribute to teaching core skills, core competences and media literacy as a by-product of language teaching. Some people say or think that just by using media one can solve all problems of learning languages in the first place. Somehow, this idea of media use in language teaching is reminiscent of previous eras where different media were used, e.g. in the 1950s and 1960s, when other technologies were used but people still thought that they would solve all their problems related to language learning by turning to media. I think it is typical for our profession that instructors and students alike have a strong belief in the wondrous powers of technology and every generation, as a consequence, uses new technologies as uncritical as the generation before – although there is little hope that the high expectations in technology will ever be fulfilled.

Classifying language learning technology

A critical look at some of the best-sold language training programs in the world will illustrate that a rather critical perspective on “wonder materials” is a better starting point than an overly optimistic one. A program such as Rosetta



Sie hören Sprache und sehen dazugehörige Bilder. Klicken Sie einfach auf das passende Bild oder Rechteck. Das Programm teilt Ihnen unmittelbar mit, ob Sie richtig oder falsch liegen. Arbeiten Sie solange Sie möchten, mindestens aber 10 Minuten.

The Rosetta Stone installieren

Diese Einführung fortsetzen

Rosetta Stone

Stone (<http://www.rosettastone.com/>), for instance, claims to teach several languages by using the same methodological approach and even identical picture materials. For the most part, the learner is supposed to match auditory and visual clues, from the word level to the sentence level. In fact, programs such as this one are not based on pedagogical innovation but are rather in line with the pattern drill methodology of the 1950s wrapped in a more colorful and pseudo-interactive surface. In a way, such programs present a reinvention of culture-free language training programs, which to my knowledge have never proven effective beyond certain short-lived drill effects. It is not conceivable how such a program could lead to any usable skills in authentic communication.

*TMX (<http://www.tmx.de/>) is another example of software which might appear fancy by allowing the learner to use different presentation modes for learning, but whose efficiency has never been proven. It lets the learner use



*tmx englisch

vocabulary in different modes: the classical mode, the screwed-up-mode, and the techno-mode, just to name a few. Many will be curious to know what screwed-up means in language learning. It is less thrilling than one may think: the program contains different levels of vocabulary, for instance travel vocabulary, and it somehow matches the English and German expressions albeit often with significant delays. The learner does not have many options to adjust the program to individual needs: a learner can adjust the speed by which the words are presented and he/she can change the background music by choosing the respective learning mode (e.g. Las Vegas, Techno). It may sound interesting but in reality this program features nothing but a behavio-suggestopedic methodology. The learner is supposed to learn vocabulary just by listening to it. Again, there is not much more one can do than be exposed to more or less meaningless and largely decontextualised words (e.g. surgery, cholera and other diseases as core travel vocabulary) that may later be combined in different traditional exercise types not surpassing the sentence level. Some of the presentation modes of the program

require a lot of time just to decipher what is presented. This means, that actually the task of learning new words is made more difficult as learners are distracted and overburdened with quite useless processing tasks. The visual stimulus, the graphic design, the pictures do not help the learners to learn the language, but distract from the task. Experiences such as this support the claim that the introduction of new technologies into the realm of language teaching and learning has not always led to progress but has thrown us back by two or three generations in terms of our teaching methodology. With programs such as this one the profession moves back to basic audio-lingual and audio-visual drills or grammar-translation exercises. Both are the methodologies of the last century. Many skill oriented training programs – for instance those that publishers offer with their textbooks – are often similar. They may not be completely useless or outdated but they certainly do not achieve what they promise. Modernity often remains on the surface, that is, in the colors and the clickability, but the pedagogic concepts are outdated. When used in a specific way and at the right time such exercises might be a useful addition for certain purposes but only when integrated in overarching tasks, rarely as stand-alone programs.

In order to understand why there is such a discrepancy between program design and pedagogic concepts, one should first understand how software is usually developed. Most of the time, media developers or companies are fascinated by the opportunities to produce some fancy looking and well selling products but are only informed and guided by an intuitive notion of how language learning works. Their conceptions of methods are usually more geared towards entertainment than learning. As a result, the market is packed with colorful programs where learners are often put in a rather passive position of doing exercises that someone else has created for them. Such programs rarely offer opportunities for creative use of language. However, speaking or writing a language properly always requires a certain amount of creativity, no matter what the actual proficiency level is.

Moving from the instructionist to the constructivist and constructionist models of language learning, one can see how media can be used to open up exciting learning environments and one can see that there are all kinds of moderate forms in between: programs that include instructionist components for more or less guided study but that also allow students to get into the open cosmos of the Internet. However, students in moderate programs are not left on their own when exploring a foreign Internet environment. If they are not properly prepared, they may drown in the Internet, lose interest or lose focus. It is a myth to think that simply exposing students of any proficiency level to the Internet will motivate them to learn a language. Experiences with such widely open, non-focused and non-supported programs have shown that learners will give up working with them as fast as they can or will be distracted by other things they can access better (such

as “games”). An example for a moderate program which combines instructional and open elements is the online program [jetzt.de](http://www.goethe.de/z/jetzt/) (<http://www.goethe.de/z/jetzt/>). It is a collaboration between the major German newspaper “Süddeutsche Zeitung” and the “Goethe Institut”. This program offers current affairs topics which are updated regularly and supported by some tasks and some exercises. It is not overly structured by curricula or other guiding elements.

Goethe-Institut - JETZT Deutsch lernen - Mozilla Firefox

Datei Bearbeiten Ansicht Chronik Lesezeichen Extras Hilfe

<http://www.goethe.de/z/jetzt/>

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<http://www.goethe.de/z/jetzt/dejart65/dejpre65.htm>

This is an example which shows how technologies (often through rather simple means) can help produce an added value in language teaching and learning. The use of technologies does not imply that the teacher, the textbook, and face-to-face teaching become obsolete but that there are certain areas in the wide field where technologies can help us enhance language teaching and support the processes of language learning. However, such beneficial effects do not occur at random. They can be classified by logistical and administrative criteria, by aspects of content presentation, as working and/or learning tools, or as instruments which combine various information and processing channels. In addition, the use of modern (interactive) technologies opens new horizons for badly needed research into language acquisition by “non-invasive” ways.

Logistical and administrative aspects

One of the most important and effective results modern online technologies produce is to help us import foreign culture into our classrooms. It may be obvious to state that this is cheaper and faster than traveling several thousand miles to the target culture but, surprisingly enough, easy access to the target culture by means of online media does not seem to be as widely used as it could be. Portability and flexibility of technologies are advantages as well. Flexibility is particularly important in terms of addressing particular needs or time constraints of the learner. Technology also allows us to design different approaches to learning a language. With some preparatory effort different approaches can be offered side by side, so students can choose according to their particular needs and preferences. Also, technologies can be used for different means of communication – that is, electronically mediated communication. Furthermore, there are additional features of modern technologies which can make our lives as teachers very easy, e.g. with respect to the administration and management of classes and the archiving of homework or the set up of individualized syllabi etc.

Here are a few examples from an online platform that we have developed in my lab in Munich – a platform for teaching German and others languages – Deutsch-Uni Online 2004-2009 (www.deutsch-uni.com). This Internet platform has more than 3,000 hours of language teaching materials. With its German section, the Deutsch-Uni Online allows students to improve their knowledge of German and prepare for a study stay in Germany. In its foreign languages section it features language courses for French, English, Portuguese/Brazilian and Japanese. There are courses for beginners, for intermediate learners, and for advanced learners, as well as a set of courses for technical languages such as German for medical purposes, German for engineers, business German, business French, English for political scientists etc. Some of the courses teach reading skills in an intensive format, mainly geared towards specialists in a certain field. The programs

are designed to combine elements of tutoring and instruction with opportunities for

Deutsch-Uni Online - Online-Deutschkurse von DUO - Mozilla Firefox

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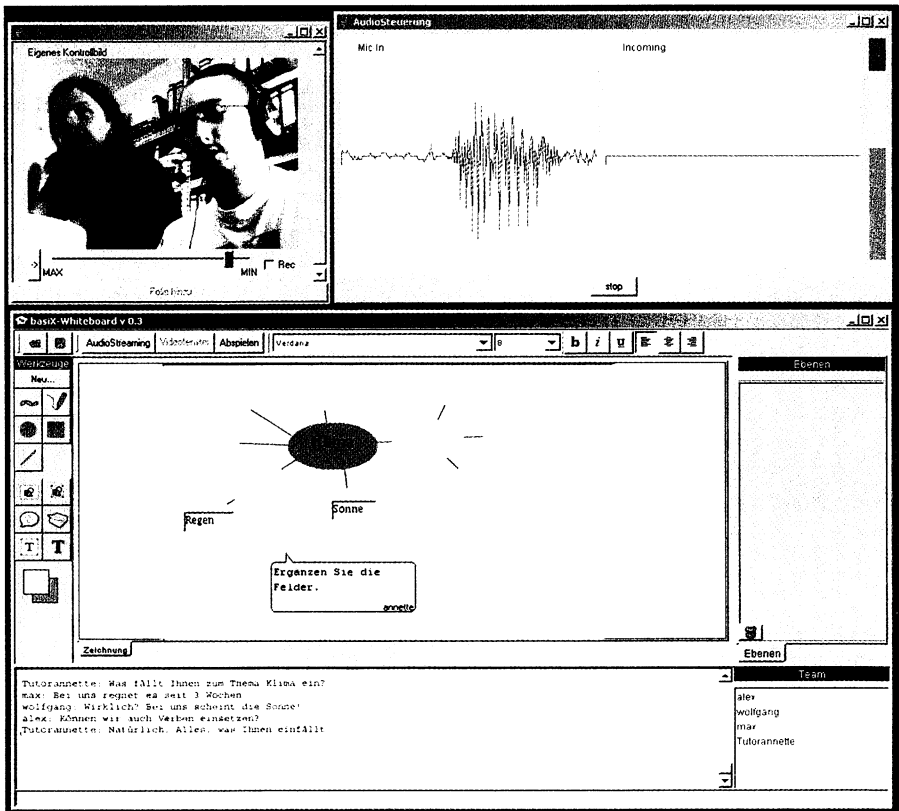
Fertig

Deutsch-Uni Online

self-guided studies in the open learning environment offered by the Internet. Students can choose from different formats such as self-study, e-tutored courses

and blended learning courses as well as intensive summer courses in conjunction with individually designed cultural programs. Even when studying on their own, learners can always use a vast array of working and learning resources such as online dictionaries, online grammar guides with grammar animations, an e-tutor for spelling and grammar checks, communication tools (blogs, e-mail, voice chat, forums etc.), and an individual learning plan.

The DUO advanced level courses – ‘fach-deutsch’ – offer subject-specific language courses in combination with in-depth subject matter teaching. For advanced learners and researchers, fach-deutsch is a tool for customised, individual



White board tool by Deutsch-Uni Online

preparation for studies or scientific projects in a foreign environment. Each course module contains about 100 hours of multimedia language lessons per subject area. All contents were developed by some of Germany’s most renowned experts in each

respective discipline and adapted to fit the teaching requirements of each subject. For instance, medical students learn to assist in various medical operations in the operating room, engineering students get involved in advanced robotics and nanosciences, students in biology work with digital tools to identify plants and insects and business students participate in intercultural negotiations.

The programs also feature a main (virtual) white board which can be operated from various locations at the same time. Students from different regions of the world can thus complete a task interactively. In other words, modern communication technologies allow us to simulate or support most if not all social and communicative tasks that are common to classrooms. It is important to emphasize that this tool was developed based on the special need for interactivity in language teaching. Whereas the teaching of content in other subject areas is often mainly focused on knowledge or information transfer, language teaching requires a lot of interactivity. So, this is clearly an area where technology can profit from what we do in language classes.

Intercultural Communication

Technology developers think very often that communication works the same way everywhere in the world. Therefore, they develop tools such as computers in the belief that people use them in the same way all over the world.

Tandem-Server

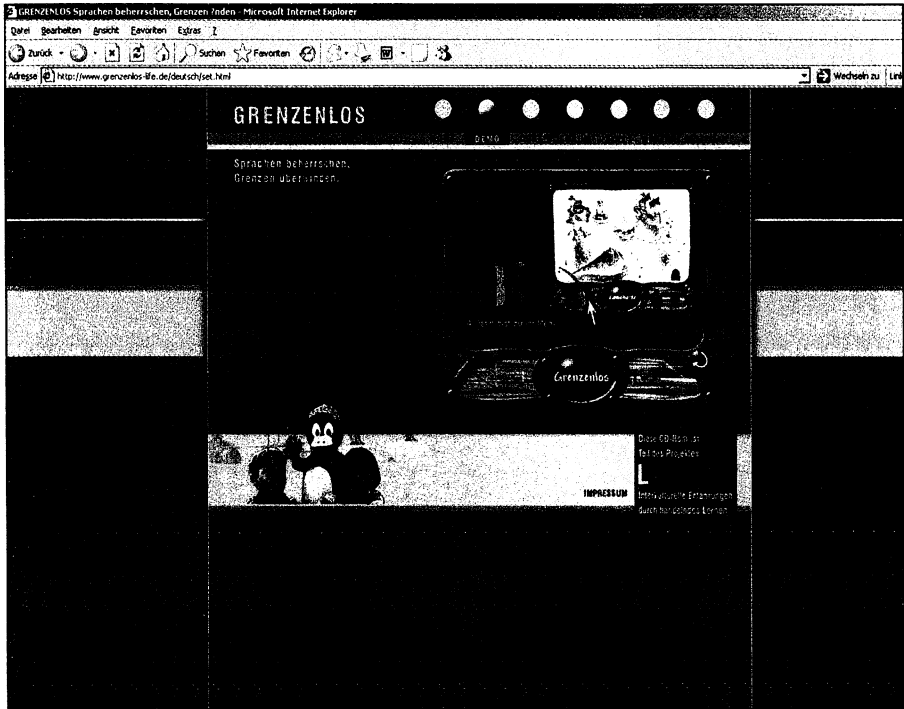
But as we know, cultures do not quite work this way as communication practices and standards vary between cultures. In fact, a study which a number of colleagues

and myself conducted in Canada may illustrate how culturally different the use of media may be. We designed a computer-based distance education course on intercultural communication – with two face-to-face meetings – and we had students from all kinds of cultural backgrounds. One of the observations we made during the course was that the three First Nations Canadians dropped out of the course one by one, and we were wondering why that happened. When we did some research it turned out that those students simply were not comfortable with the fact that most of the communication with the teachers was “public” as opposed to the one-on-one format they had expected. They felt very uncomfortable with the public way of teaching, so they dropped out and did not finish the course (Chase et al. 2002). This is just one simple example to show how culturally sensitive media use can be.

People who are sensitive to intercultural aspects of communication, for instance language instructors, notice and analyze such differences and are able to design appropriate teaching methods. In fact, language classes are a fertile ground to study intercultural communication and to try out various designs, to manage communication and to help develop programs that teach language and intercultural skills at the same time. Programs which have done this already include *Cultura* developed by Gilbert Furstenberg and her colleagues at MIT. It is a program that can be used to enable and foster intercultural communication. Originally designed for French-American settings it has been opened to allow other cultural set-ups as well (cf. also the Tandem server at the university of Bochum, <http://www.slf.ruhr-uni-bochum.de/> , a clearing site enabling learners of all languages to team up with speakers of all languages, and also the concept of the now defunct Web constellations site as a forerunner to a wiki-like learning cosmos).

As we have already seen with programs such as the DUO programs, teaching language through content (content- and task-based language learning) can be very effective and motivating. The widespread practice (despite a considerable amount of research and despite modern teacher education programs) of putting grammar first before a learner can actually get to the more interesting things in life in fact does not produce the best results. Rather, using the previous content knowledge of a learner as a basis for language teaching has proven much more effective. New technologies let us develop all kinds of interesting programs with the help of experts in their fields without requiring the language teacher to be competent in the subject matter. Content- or task-based approaches to language teaching are not restricted to serious contents such as the ones mentioned above. The same positive effects can also be produced by programs that offer meaningful options for playing with language. The CD ROM *grenzenlos* produced by BMW is such a program (<http://www.grenzenlos-life.de/>). The ultimate goal for the 7 to 13 year old learners is to do all kinds of tasks while exploring the program. Whenever a task is successfully completed they earn a puzzle piece to put into their (virtual)

rucksack. For kids, the playful tasks are as authentic as the operating room is for

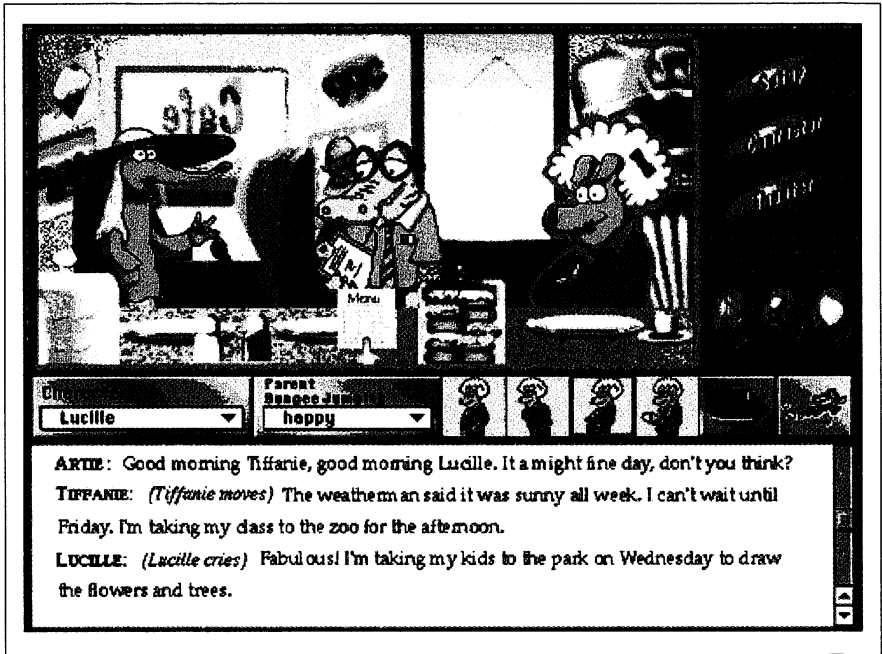


Grenzenlos

medical students.

Another important aspect of media use in language learning and teaching is the availability of working tools. There are a lot of media-adequate texts and tools available for free on the Internet which would be well suited for incorporation into language learning: online questionnaires, online schedules, resources etc. With a little common sense and some preparation a lot of such tools could be made accessible for students and linked to syllabi and curricula. As a by-product, using such tools would also help achieve higher competencies in media literacy. Hollywood Theatrix is such a program. It is not a language learning program, it is designed for kids to make movies by allowing them to write scripts and by having the movie synthetically generated according to the script. The most important thing for us: it is all governed by language. The new born movie directors can choose a setting or stage, pick characters from a menu, they can assign certain characteristics to those actors, and in case they don't know what "bored" or

“confused” means, they can click on those items to hear a bored or confused voice sample of their actor. They can give directions, they can make the characters turn and move and all kinds of other things. If a director runs out of ideas, there is



Hollywood by Theatrix Interactive

access to an idea machine which contains different hints, plots and story twists. The script is written by the actor/student/learner and director's cues, chosen from a preset menu, are automatically entered into the manuscript. Once the script is complete the program generates a cartoon movie which can then be “publicly” presented in theatre mode. Such tasks produce an intrinsic motivation for students as the program can be publicly viewed and everyone wants to get good reviews if not an Oscar right away. Actually, it would be easy to take such a movie then as a starting point for in class movie reviewing, discussion and critique. Also, other students can either continue working with the movie or they can discuss different options and produce their own script. Similar in kind, not as fancy but freely available, is a program which allows students to use various languages in a movie mode, mainly English, as usual, but the program accommodates other languages as well (cf. Text-to-Movie by Xtrnormal, www.xtrnormal.com/).



Text-to-Movie by Xtranormal

Yet another category of content-based learning and teaching using modern technologies is represented by a program that uses fiction as content. This program is particularly interesting in various ways: first, it proves that fictional literature and technology do not exclude each other (as many language instructors seem to think); second, it shows that some genres depend on modern technologies or gain by using them; third, it demonstrates how traditional forms of accessing a foreign language can be enhanced by modern technologies. This program is part of a hyperfiction chapter found in DUO's uni-deutsch.de module (Brunnauer, 2001). In the centre is a text produced by an Austrian author, not for language teaching purposes, but for purely literary purposes. It is a fictional form of a hypertext which contains animations, pictures and some background noises. The reader/student is not only reading the text but actively helping to construct it. In order to make this an authentic task the reader takes the position of a detective or a private investigator whose job it is to find out who the victims are, and perhaps who the murderer is. The task for students of the foreign language is not to read another text but to solve the mystery. In order to succeed they have to use all kinds of language resources such as background information, house rules, contracts, newspaper clips and flyers, dictionaries etc. As detectives they can listen in on a

number of (written) conversations between the people living in an apartment building. In order to reconstruct the chronology of those conversations they can refer to a clock that is showing when the conversation occurred. This may seem to be a pretty playful access to literature – in fact, it is. In this way, hyperfiction shows us, shows the learners, what reading processes are all about: research into the cognitive processes of reading shows that reading is an active reconstruction process of a text which involves constant processes of connecting the text to existing knowledge, searching for connections, inventing new meaning and reordering the knowledge base. Hypertexts are thus ideal tools to demonstrate on the surface what our brain does in secret.

All of the examples mentioned here put the learner in the middle of the action. The learner is completing tasks that he or she is free to shape in one way or



Zwei Tote - Hyperfiction chapter in uni-deutsch.de

the other. The tasks generate an intrinsic motivation and provide focus and challenge. Technology allows the presentation of content in a sufficiently realistic and authentic way and it provides a rich working/learning environment for the learners to complete the task, to access all kinds of resources and to use help tools such as dictionaries. The learner is not a passive recipient of some kind of training

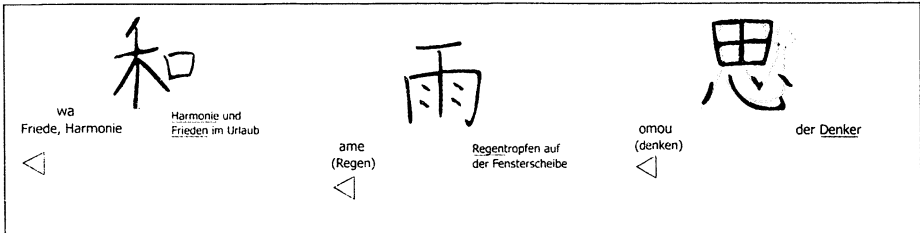
program but actually actively using the tools to do things with language. I will briefly mention those learning tools as well. They work similar to the tools just mentioned and they are readily available in the programs which we use every day – think of thesauri or grammar checkers, think of digital dictionaries such as Leo (<http://dict.leo.org/>) and online grammar programs for reference and training. These are authentic tools which we can use as L1-speakers but which we can also use for language learning and teaching purposes. For instance, when writing a text all of these resources can be used to edit the text. The resources are integrated in most word processors.

On the impact of language teaching on technology

In other areas, we can see how language teaching and learning practices actually have a great impact on the design of new technologies. For instance, learning management systems and content management systems have been improved by the input of language instructors and designers of language learning programs. Blackboard/WebCT (<http://www.blackboard.com/>) is one major LMS that has become more interactive and has added new features better suitable for language teaching. As mentioned before, most academic disciplines are mainly concerned with teaching content, not necessarily with providing the communicative basis for knowledge transfer. This is the particular asset that “language people” can draw on when designing teaching and management systems. Knowing how communication works across cultures is a further invaluable advantage that language instructors have over IT personnel. The same is true for skills that language instructors can bring to the design of language recognition software. People who design language recognition software for hotel reservation systems and so on are very interested in collaborating with language instructors as foreign accents and learner language in general poses highly interesting challenges to the design of sophisticated software. The same is also true for intelligent grammar parsing. Most grammar parsers in programs such as Word do a decent job but are not very sophisticated or user adaptive. However, there are some electronic tutors and electronic assistants developed for language learning purposes which are much more accurate because they use more precise parsers as well as learner databases to adjust to the individual conditions of the user. They can be much more precise in the results than ordinary language recognition software or grammar parsing software. The same is also true for visual thesauri (<http://www.visualthesaurus.com/>). In the interactive program called visual thesaurus, word fields can be accessed and rearranged by clicking on a new node. As a result, semantically linked elements pop up and the whole word field is rearranged. Words are classified as nouns (red), adjectives (yellow) and verbs (green). This also serves to illustrate how the mental lexicon may be organized. An

interesting feature of the visual thesaurus is its bilingual trial section where the lexica of two languages are matched. However, it shows that even closely related items in languages such as English and German do not match completely: there may be voids in one of the languages or there may be overlaps or various over-specifications in other cases. The visual thesaurus is an experimental tool which was designed for L1 use, not for language learning. However, without the expertise of multilingual experts who study the structure and acquisition of the (bilingual) mental lexicon it would not have reached such a high standard of sophistication. It is thus another example where the influence of linguists and language acquisition experts on the design of modern technologies can be demonstrated.

One final example where this is the case: most people including L1 speakers of a given language struggle with grammar. In fact, very few L1 speakers who have acquired their language by using it are also able to explain it to those who want to learn the language. By combining very simple technology such as the one needed to design flash programs we can design concept based approaches to grammar which are derived from language teaching contexts. Rather than referring to traditional ways of describing grammar for L1 speakers, it is possible to explain grammar in much easier terms, that is, functional terms based in cognitive approaches. To give two examples here: 1. The writing of Japanese characters can be taught more efficiently and with better lasting effects if we build semantic bridges to the characters as in the Japanese program of DUO. 2. Learning the German two-way prepositions is not easy even for advanced learners. Many grammar books spend several chapters on the subject listing all the rules and exceptions. However, in functional terms the case assignment in question can be explained fairly easily by distinguishing between static and dynamic conditions. To be more precise, the crossing of a real or imaginary boundary triggers the use of the accusative case, not crossing the boundary requires the dative case with two-way prepositions. Animations are ideally suited to help visualize this simple rule. It is that easy to learn from foreign language classes even if you are a L1 speaker of German. In a study done with similar animations Julja Scheller compared four groups of students: those who worked with traditional grammar explanations with or without animations, those who used a conceptual approach yet with no animations and those who worked with animations and a conceptual approach to grammar. In the study it was found that animations produced a positive learning effect but only when combined with the proper functional explanation of the grammatical rules in question did a significant lasting effect occur (cf. Scheller 2009, Roche and Scheller, 2008).



Semantic bridges for learning of Japanese characters in the Japanese module of Deutsch-Uni Online. Left to right: peace/harmony (while on vacation), rain (drops on a window), think (the thinker)

All of these examples show that there are a lot of areas where technology can be used in meaningful ways to enhance language learning and teaching beyond a nice to have effect. Technology can produce added value. But there are also a large number of areas where our experience with foreign languages can actually influence the design of technology in meaningful ways. It seems that language learning and teaching and technology are a perfect match, most of the time.

References

Software

- *tmx Vokabeltrainer (2008-2009): <http://www.tmx.de/>.
- Blackboard (1997-2009). Blackboard Inc.: <http://www.blackboard.com/>.
- Brunnauer, Romana (2001). Zwei Tote? Ein digital-literarisches Rätsel. In: Deutsch-Uni Online (2004-2009). uni-deutsch sprachkurs. Kapitel Literatur: <http://www.uni-deutsch.de>.
- Deutsch-Uni Online (2004-2009): <http://www.uni-deutsch.de>.
- Grenzenlos (2003). BMW group: <http://www.grenzenlos-life.de>.
- Hollywood (1995). Theatrix Interactive: abandonware.
- Jetzt Deutsch lernen. Deutsch für Fortgeschrittene (2009). Goethe Institut: <http://www.goethe.de/z/jetzt/>.
- Leo (2006-2009): <http://dict.leo.org/>.
- Rosetta Stone (1999-2009): <http://www.rosettastone.com/>.
- Tandem-Server Bochum. Ruhr-Universität Bochum: <http://www.slf.ruhr-uni-bochum.de/>.
- Text-to-movie (2006-2009). Xtranormal: <http://www.xtranormal.com/>.
- Visual Thesaurus (1998-2009). Thinkmap: <http://www.visualthesaurus.com/>.

Literature

- Chase, M, Macfadyen, L, Reeder, K and Roche, J. 2002. Intercultural Challenges in Networked Learning: Hard Technologies Meet Soft Skills. *First Monday* 7-8, 2002. (http://www.firstmonday.dk/issues/issue7_8/chase/index.html)
- Hubbard, P. 1992. A methodological framework for CALL courseware development. In Sharp, D, Pennington, M & Stevens, V. (Eds.) *Computers in applied linguistics: An international perspective* (pp. 39-65). Clevedon: Avon.
- Hufeisen, B. & Leitner, P. 2007. *A checklist for the assessment of language learning software*. <http://www.daf.tu-darmstadt.de/forschung/wfs/wfs.shtm#Lehrmaterialanalyse>
- Issing, L. 1997. Instruktionsdesign für Multimedia. In: Issing, Ludwig J. and Klimsa, Paul (ED.) *Information und Lernen mit Multimedia*. Weinheim.
- Knowles, S. 1992. Evaluations of CALL software: A checklist of criteria for evaluation. *ON-CALL*, 6(2), 9-20.
- Langacker, R. W. 1999. *Grammar and Conceptualization*. Berlin, New York: de Gruyter.
- Mayer, R. E. 2005. Cognitive Theory of Multimedia Learning. In R. E. Mayer (Ed.) *The Cambridge Handbook of Multimedia Learning* (pp. 31-48). New York: Cambridge University Press.
- McClelland, J. L. & Rumelhart, D. E. (Eds.) 1996. *Parallel Distributed Processing. Explorations in the Microstructure of Cognition. Vol 2. Psychological and Biological Models*. Cambridge/London: MIT Press.
- Paivio, A. 1986. *Mental representations: A dual-coding approach*. New York: Oxford University Press.
- Reeder, K, Heift, T, Roche, J, Tabyanian, S, Schlickau, S & Gözl, P. 2001. E/Valuating New Media in Language Development. *Zeitschrift für Interkulturellen Fremdsprachenunterricht* 6(2), 18 pp. http://www.spz.tu-darmstadt.de/projekt_ejournal/jg_06_2/beitrag/reeder1.htm
- Roche, J. 2001. *Interkulturelle Sprachdidaktik*. Tübingen Gunter Narr Verlag.
- Roche, J. 2005. *Fremdsprachenerwerb – Fremdsprachendidaktik*. Tübingen. UTB.
- Roche, J. 2007. *Handbuch Mediendidaktik*. Ismaning: Hueber.
- Roche, J. and Scheller, J. 2008. "Grammar Animations and Cognitive Theory of Multimedia Learning". In: Barber, Beth/Zhang, Felicia (Eds.) *Handbook of Research on Computer Enhanced Language Acquisition and Learning*. IDEA, 2008: 205-219.
- Rösler, D. *E-Learning Fremdsprachen – eine kritische Einführung*. Tübingen: Stauffenburg. 2004
- Sadoski, M. & Paivio, A. 2004. A dual coding theoretical model of reading. In Ruddell, R. B. & Unrau, N. J. (Eds.) *Theoretical models and processes of reading* (pp. 1329-1362). Newark, DE: International Reading Association.

- Scheller, J. 2009. *Grammatikanimationen und die kognitive Theorie des multimedialen Spracherwerbs am Beispiel von Wechselprepositionen*. Hamburg/Berlin.
- Scholfield, P. J. 2000. *Evaluation of CALL software. Work in progress*. Department of Language and Linguistics, University of Essex UK. <http://privatewww.essex.ac.uk/~scholp/calleva.htm>.
- Schnotz, W. 2005. An Integrated Model of Text and Picture Comprehension. In Mayer, R.E. (Ed.) *The Cambridge Handbook of Multimedia Learning* (pp. 49-69). New York: Cambridge University Press.
- Sweller, J. 2005. Implications of Cognitive Load Theory for Multimedia Learning. In Mayer, R.E. (Ed.) *The Cambridge Handbook of Multimedia Learning* (pp. 19-30). New York: Cambridge University Press.