

Project of Developing the Multimedia Software Supporting Teaching and Learning English Vocabulary

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Summary

Since the Academic Year 2005-2006 we have worked on a project of developing the interactive multimedia software for learning English vocabulary. The software was tested on junior learners in elementary school within the English language course lesson. The results were measured by comparing the test results from the computer-aided lesson with the ones from a traditional one and they showed a great level of disparity both regarding the learners' knowledge and their motivation. Vocabulary of a language does not only consist of separate contextually independent words, but also of contextually bound lexical items, such as collocations. In 2006-2007 we have expanded the software by adding the feature for multimedia collocations. By terms of imitating reality, we have been designing multimedia animated presentations of English collocations comprising picture, text and sound. Our past, present and future phases of the project have purpose of examining the use of animation in educational settings.

Key words: computer assisted language learning (CALL), second language acquisition (SL), multimedia collocation, educational software

Introduction

Entertainment media is more widespread than educational media, especially among younger second language (SL) learners. SL teachers need to arm themselves with the learning content as attractive and motivating as possible, in order to engage their learners in the learning process more effectively. As technology is being more accessible to the masses, more and more teachers approach computer-assisted language learning (CALL) methods as an alternative to traditional time-consuming activities. CALL showed to be useful, not only as a device for drawing the learners' attention, but also as a method for maintaining the learners' interest and long-term memory. Children in Croatia start attending schools with a certain level of English language knowledge. Movies, music videos, video games, etc. play a significant role in SL acquisition. Adjusting the learning content to keep up with the modern media trends proves to invoke higher learners' interest in the learning content and obtains better results. Most learners perceive learning vocabulary as learning new words, contextually independent and separate. But, faced with various multi-word combinations, the learners often tend to translate literally. This word-for-word translation does not function with lexical items that are language specific, that can be instinctively recognized only by native speakers, and therefore SL teachers have to raise the learners' awareness of the existence of these items.

Collocations are the most typical example of language specific multi-word combinations that have to be learnt by heart by SL learners. Of course, having the maintenance of long-term memory as a primary goal, the approach to such learning process has to be as motivating as possible. Ensuring a natural and spontaneous environment for SL acquisition can indeed compete the strength and influence of mass media.

We have been developing our multimedia educational software for English language vocabulary since the Academic Year 2005-2006, and in 2006-2007, together with our students attending *Multimedia knowledge presentation* course, we have expanded the software by adding features of multimedia collocations.

Current state and research

Until recently, computer-assisted language learning (CALL) was a topic of relevance mostly to those with a special interest in that area. Today, the majority of language instructors must begin to think about the implications of computers for language learning. In the practice courseware, the computer serves as a vehicle for delivering instructional materials to the learner. It is proved that repeated exposure to the same material becomes beneficial or even essential for learning. This makes computer ideal for carrying out repeated exercises, since it does not get bored with presenting the same material and can provide immediate feedback. A computer can also present such material on an individualized basis, enabling learners to proceed at their own pace. CALL is one of few methods proved to make the boring drill process of language acquisition inter-

esting and motivating. Multimedia technology integrated with the computer assisted learning allows the different media (text, graphics, sound, animation, and video) to be accessed on a single machine. This creates a quite authentic learning environment and different skills are easily integrated, since the variety of media makes it natural to combine reading, writing, speaking and listening in a single activity. Also, CALL nowadays provides a lot of opportunities for interaction with different characters and cultural information. Computer technology offers an alternative to time-consuming activities that are part of traditional language learning methods.

The aim of our project is to produce multimedia educational software in English language course that additionally motivates learners to learn faster and get better results. Dealing with learning material in electronic environment accelerates the process of material exchange and feedback on exercises allowing the user to learn in a dynamic and interactive way. Therefore, compared to the classic method of language learning, it conveys better results concerning the learner's acquisition of knowledge [3].

The project idea is motivated by multimedia software Globetrotter [5] that is the first prototype of multimedia software aimed at making the study of the lexicon of a foreign language (English) more efficient and less boring. The tool is destined for the teachers and pupils of the primary and junior high schools and can be exploited by even the least experienced computer technology users. The tool is child-oriented, highly interactive, open and flexible. These features make it particularly interesting from a didactic point of view. It allows the users (teachers and pupils alike) not only to consult but also to enrich the dictionary of the system. The teacher, with the aid of multimedia technology, can prepare efficient and appealing didactic units, while the pupils can explore and increase the material available, by constructing, completing and structuring their lexical knowledge in a foreign language.

Software description

Within our project the software is being designed in the authoring tool Adobe Flash. It comprises of picture, sound, text and animation and is very intuitive, user friendly and children oriented, offering clear and unambiguous navigation. The part developed so far consists of an introductory comic and six activities. The comic introduces the learning material by illustrating a spontaneous everyday-life sequence of events. The protagonists' actions are animated and accompanied with both text and sound. The vocabulary to be learnt is highlighted and is repeatedly presented through the six different activities (fill-in-the-blank, coloring book, spelling exercise, drag-and-drop, make a selection and memory game). It counts 24 words, consisting of contextually linked 8 verbs and 16 nouns designed as a learning content of an English language lesson for SL elementary students aged 9 or 10.

The software's interface is two-dimensional and simply designed in a form of a vector graphic using little memory space. However, having in mind that a purely graphical presentation may fail to aid comprehension, as Sundberg [6] claims, we have accompanied the animated graphics both with text and sound. Our interface is based on a psycholinguistic point of view, where language is perceived as a multi-level, symbolic system connecting audible (phonological) representations with semantic representations.

The two-dimensional presentation is enriched, not only by text and sound, but also by adding another dimension – a dimension of time illustrated by animated frame-by-frame motion, i.e. sequence of events. Text and sound are "played" during the animated presentation, not before, nor after, because, according to Paivio's dual coding theory [5], simultaneous use of both visual and verbal code is preferable. Learning concrete vocabulary items simultaneously with their physical-world counterparts should improve both speed of comprehension and retention in long term memory. With maximum effectiveness being the goal, we introduced the sequencing in presentation of instructional modes – text, sound and animation.

Another important aspect of the software is the interactivity of the exercises with an instant feedback. Learners become active participants of the learning process. Interactivity of the exercises and user-friendly navigation enables the learners to feel in charge, to decide which part should they pay more attention to, to control the time needed to deal with an exercise, to repeat the exercises by trying them several times in order to, either understand them better or to memorize the learning material. Depending on the type of activity, the learners are informed on their success, measured by their results or by an instant feedback on the correctness of their answers. Anitha Devi [1] claims that immediate feedback with a pleasant animation should be a positive reinforcement only for a correct answer and not a wrong answer. Any animation given for a wrong answer as feedback should not be as pleasant as the one given for the correct answer. However, we have deliberately not paid much attention to the difference in feedback mood depending on the correctness of the answer, not only for not discouraging the learners to proceed, but also in order to support the simplicity as much as possible. We believe that any redundancy draws the learners' attention away from the learning content, especially the attention-getting devices which should be used sparingly. Therefore, the cosmetics being of secondary importance to us, we used simple graphics with a limited choice of colors. We set focus on the content presented by imitation of reality, especially within the latest feature of our software – the multimedia collocation. Multimedia collocation feature builds up on our already existent software [3].

Multimedia collocation

As mentioned in the introductory paragraph, language does not only consist of stand-alone vocabulary items and grammar, but it also consists of multi-word combinations, such as collocations. A collocation is an arrangement or juxtaposition of words, especially those that commonly co-occur. Native speakers are spontaneously aware of these language-specific, context-bound and ready-made chunks in their mother tongue, because the sequence of native speakers' language acquisition has a natural flow, in the reality itself. With spontaneity and reality being the formulae for a natural language acquisition, our SL teachers should try to provide our learners with at least illustration of reality. Animation of both lexical segments of a collocation gives an impression of connectivity, i.e. stresses the juxtaposition itself, the motion enriches the picture-only presentation in terms of adding the sense of reality to the presentation, and this aspect enables a learner to perceive a collocation on a non-abstract level. This approach creates an illusion of an incidental, spontaneous and not stressful learning environment, engaging the learners on a latently obligatory level, and we believe this will prove highly efficient in our further research. Studies of language acquisition have increasingly given recognition to the role of memorization and repetition of these units [2] and therefore we added to our software multimedia collocations that develop the learner's ability to retrieve and combine ready-made chunks of language through interactive multimedia usage.

Furthermore, the presentation is also accompanied by text and sound. The interactivity of multimedia collocation exercises is achieved by fill-in-the-blanks activities. According to our previous experience with the fill-in-the-blank method, it proved to be effective in checking the learners' comprehension in a way that it examines the learners' awareness of the contextually linked missing words they have to fill in. This way the learners' attention is concentrated upon these ready-made chunks they have to recognize. As Lewis emphasizes, ready-made chunks are of high importance for language fluency and accuracy. Also, developing the learners' ability to recognize these chunks should be of high importance for SL teachers.

Implementation and research

Once we made the six-part software ready for test usage, we presented the approach for teaching and learning English language vocabulary within the English language course lesson using multimedia educational software. Its usage was tested within a Croatian curriculum with third graders, learners of English as a SL. The level of motivation and achieved results was measured by comparison of the computer-aided lesson with the traditional one. We offered two different presentations of the same content – the traditional lesson and the computer-aided one. All the learners' existent knowledge was tested before the two lessons in order to make sure that the learners' knowledge from both of the groups was in balance. After each of the lessons we gave the learners the final

test to examine their acquisition of the learning material. The learners from the group attending the computer-aided lesson conveyed significantly better results than the learners from the group attending the standard lesson. Not only did our approach make a difference regarding the learners' results, but it also showed a higher level of motivation among the learners dealing with the software.¹

We had an opportunity to present our software in a workshop on multimedia for elementary, secondary and higher education teachers and the reactions of the attendees were more than welcoming. The multimedia collocations' usage will also be tested with SL learners when the level of difficulty is established. Also, as a further project researching the use of animation in educational settings, we intend to develop multimedia features for learning language tenses and prepositions.

Static versus dynamic

The use of animation in second language learning showed to be instructively efficient, especially with segments of vocabulary involving temporal and spatial aspects, such as prepositions, tenses, multi-word forms, etc. Except for the interactivity of animated exercises engaging the learners' attention and motivation to actively participate in a learning process, illusion of reality is also an important feature of instructional dynamics. By illustrating the natural sequence of events, i.e. by imitating reality, an illusion of spontaneity helps the learners, especially younger ones, to memorize the context-bound lexical items more easily. This way the content becomes non-abstract, and therefore easily understandable. A text-only approach, as in linear textbooks, is limited in engaging the learners' perception. Furthermore, textual content involving pictures is not as efficient in imitating reality as animated content is. Two-dimensional and three-dimensional presentation is highly enriched by including the fourth dimension – time. Images move sequentially within a time frame and this motion follows the natural way of human thinking, and therefore the process of learning becomes less abstract. With the implementation of sound, the list of things and events to be presented is endless. Animated presentation comprises of real objects, real events and real participants of action and therefore fosters contextual comprehension among learners. What we perceive as animation, is a slight change in a sequence of images, presented within a time frame and giving an illusion of connected movement.

¹ For a more detailed description with statistic research data, see: Lauc Tomislava., Matic Sanja., Mikelic Nives. Educational multimedia software for English language vocabulary. // *Current Research in Information Sciences and Technologies- Multidisciplinary approaches to global information systems: VOLUME I* / Guerrero-Bote. Vicente P. (ed.). Merida: Open Institute of Knowledge, 2006, 117-121

Conclusion

The multimedia educational software for English language vocabulary has been developed since the Academic Year 2005-2006.

In Academic Year 2006-2007, we have expanded the software by adding features of multimedia collocations. This new software feature is of high importance, since the animation of both lexical segments of a collocation gives an impression of connectivity. This approach creates an illusion of an incidental, spontaneous and not stressful learning environment, engaging the learners on a latently obligatory level.

The results of our project so far show that the interactive multimedia environment for learning proves to be useful from several aspects; it influences the learners' cognitive abilities by following the natural way of human thinking, invokes the learners' interest in learning the content by drawing and maintaining their attention and provides significantly better results. The higher the motivation for learning the learners have, the better the results they obtain. Furthermore, applicability of computer-assisted language learning in a form of an interactive multimedia interface saves time and energy. Animation can indeed be used in language instruction for more self-reliant learning. Interactivity of multimedia exercises engages the learners to commit themselves attentively to their work and therefore actively participate in the learning process.

Finally, our next step in this project will be the research on use of animation in educational settings, followed by the development of multimedia features for learning language tenses and prepositions.

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