

"Voce Viva ScriviFacile" and "ScriviFacile MathAlgebra": technological tools and new opportunities for teaching

Information technology and new media technology at the service of educational activities in the Primary and Secondary School

Alessandro Danieli

Software design and development
SLD SOFTWARE
Via Traversa, 2 - 25031 Capriolo (BS) Italy
alexvdvl@libero.it

David Giovanni Danieli

Setting graphics and multimedia
SLD SOFTWARE
Via Giardini,13-25080 Calvagese d. Riviera (BS) Italy
cfh_1981@libero.it

Giovanni Raudino

Collaborator software development
SLD SOFTWARE
Viale Teocrito, 14 - 96100 Siracusa Italy
g.raudino@gmail.com

Rosanna Tuzza

Language support: Italian-language foreign
SLD SOFTWARE
Via Traversa, 2 - 25031 Capriolo (BS) Italy
rosanna.tuzza@libero.it

Presentation of software applications, designed to educational activities in primary and lower secondary school, useful for learning reading and writing for language integration, for the acquisition of calculation abilities with the four mathematical operations, guided and assisted to carry out algebraic expressions. This proposal is intended to ensure that the development of applications in computer science can take the form into useful tools for teaching, able to approach the needs of the school and to adapt to traditional teaching methods. In this context, the computer can become a compensatory aid, capable of performing integration services to current teaching strategies, useful to promote the acquisition of certain abilities and knowledge in specific learning paths. Detailed information is available at the web site: <http://www.voceviva.it>

I. EXPLANATIONS AND PROJECTS

The software applications "Voce Viva ScriviFacile", "ScriviFacile MathAlgebra" and implementation of the TTS voice synthesis "Voce Viva" were designed, developed and built by Prof. Alessandro Danieli (Teacher with 30 years of teaching) with the help of a small group of work and research:

- Dr. Giovanni Raudino for the design and implementation of the TTS voice synthesis "Voce Viva";
- David Giovanni Danieli for the design and setting graphics and multimedia;
- Prof. Rosanna Tuzza (Teacher with 40 years of teaching) for language support: Italian-language foreign.

The vocal synthesis "Voce Viva", Text to speech, has been designed, developed and implemented in full, starting with the processing of the entire map phonemic Italian

idiom, until all the design, development, processing and practical implementation of software products, by Prof. Alessandro Danieli and Dr. Giovanni Raudino.

Our team of software design and development began in 1993 and was motivated by the direct experience gained within the world of school.

As teachers, we have set ourselves the aim of integrating the traditional didactic methods of teaching in schools, with new opportunities and new application possibilities offered by technological innovation.

The main objective of our work has been continued research in an attempt to adapt the new technological means to make them flexible and complementary paths to the characteristics of traditional teaching in schools.

The characteristics of accessibility and complementarity of the new technological means with traditional teaching methods are vital in proposing new learning strategies.

The technological tool allows the student to work in the most stimulating and engaging environment, use paths characterized by the maximum interactivity with immediate checks and inspections carried out for each individual action, also allows you to integrate the various areas of study and work and go easily implemented by traditional forms of learning in the notebook, the activities carried out at the keyboard of the PC and vice versa.

II. PURPOSES AND OBJECTIVES

Within this context, the deployment of a software application need to approach and adapt to the conventional methods, adapting the approach of teaching units and learning processes in use, avoiding complex environments, in order to perform compensatory and integrative functions to traditional methods, in accordance with the evolutionary stages of the pupil:

- Be developed and targeted to individual and specific learning paths;
- Propose ways of working which is common with the traditional educational activities;
- Propose ways of carrying out similar and related to traditional work procedures in the exercise book;
- Present a multimedia environment, fun and stimulating with dynamic and interactive features;
- Enable the development of processes of learning with gradual and progressive steps;
- Propose and carry out work procedures consistent and consequent useful and beneficial to induce good behavior marked by rationality and fairness;
- Promptly report any cases of confirmation or error;
- Support the implementation of a direct personal experience with reporting and real-time communications, in order to develop the skills of attention, concentration, and the timely activation of the situations of control, error prevention and self-correction;
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- Procedures to allow free choices for multiple choice and attempts;
- Report and highlight each step and each sequence in order to facilitate learning the correct procedures and working methods;
- Encourage interaction and collaboration between student and teacher.

III. FUNCTIONS OF "VOCE VIVA SCRIVIFACILE"

The Italian version called "Voce Viva ScriviFacile" contains (more information, demos and videos in <http://www.voceviva.it/page4.html>):

- vocal synthesis in Italian TTS VOCE VIVA with advanced extemporaneous reading, able to read out any text written with high affinity and lexical precision;
- N° 7 software applications for teaching reading and writing;
- N° 5 application integration software for Italian-language foreign languages;
- N° 5 software applications for learning computing abilities in mathematics;
- N° 5 application software for learning algebra;
- N° 1 software application to enhance accessibility;
- N° 1 application software for voice communication easy.

The version "SCRIVIFACILE MATHALGEBRA" contains only ten functions for learning math and algebra of "VOCE VIVA SCRIVIFACILE" and is available in Italian,

English, Spanish and French (more information, demos and videos in <http://www.voceviva.it/page9.html>).

IV. UTILITIES TEACHING

In carrying out educational activities, the teacher can facilitate the approach to the various activities to the PC using the latest educational and pedagogical strategies, such as:

- Reproduce the same procedures and the same mode of conduct in use in the exercise book;
- Display and highlight each step or process of work;
- Provide interactive control of individual processes and individual work;
- Enable the implementation of processes controlled by a tight feedback between the action taken by the pupil and the resulting signal confirmation or correction;
- Allow the acquisition of a better organization of individual procedures and working methods;
- Encourage the involvement and activation of attention through playful interactions that encourage voice, guide and assist in various phases of the task given.

V. THE CONDUCT

The main innovations presented in this project are represented by the opportunities offered by the pupil in the new learning environment, such as:

- The execution of the work is assigned entirely to the student and the software implementing tight controls from first to last action;
- The software environment that faithfully reproduces how to conduct in use on the exercise book and offers maximum compatibility with the functions and processes in use in traditional teaching methods;
- The environment dynamic and the events happen in close interaction between the actions performed, voice messages and visual confirmation or error;
- Immediate checks to every single action, by the strict feedback, promote the implementation of the learning process more virtuous rational and consequential.

VI. CONCLUSIONS

It is possible to imagine a world in which, in any specific course of study, each teaching unit can be coupled with computer aids with additional features and support, enabling substantially increase the potential success in school, with benefits for the individual acquire the knowledge and skills, with benefits for new generations that flowing in the channels of a more general and significant improvement in expectations and quality of life, affecting the whole social community.