# Development and formation aria of transversal computer skills through own designed educational software

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## Abstract

*There is reporting about ensemble of transversal computer skills able to be developed and forming by the instrumentality of own designed educational software in present article. Described educational software can be applicable in expanded ways in the modern didactical process.*

**Keywords**: Transversal Computer Skills, Educational Software

## 1 Introduction

The educational process in the information society is absolutely inconceivable outside the concepts of: *digital skills (DS)* and *educational software (ES)*.

According to the European Commission acceptation digital competence (IST - Information Society Technology) is a component of *Common European Reference Framework of Key Competences for Lifelong Learning.*

Predominantly the development and formation of transversal computer skills (TCS) and / or of digital competencies (DC) are performed within computer classes pursuant to curriculum in force and is studied beginning with grade 7-th during of an academic hours (equal with 45 minutes) per week at this moment.

Analyzing the existing typologies of educational software shown at the different authors, in our opinion, now many classes of software dedicated for be using in education could and must be subjected to an ample repartition that respects determining factors of psycho-pedagogical and information-technological order [Burlacu Natalia, 2014].

The problem is that there are not enough suitable ES, designed according to determining factors for its integration into pre-university education, able to develop and form the students' TCS not only in the computer classes.

Ultimate solution for the development and forming of TCS represents the high performance own designed ES these will prepare learners to solve some situations, based on skills and knowledge obtained before, which are evaluated and trained and finally, in the ideal scenario, formed systemically.

## 2 Description of own conception's ES oriented towards formation of TCS

A good example of a complex interactive multimedia ES corresponding to the level, quality, functionality specified in line with the format of pedagogical-technological development of digital educational products stipulated serves "Digital laboratory specialized to study Romanian language" ("DLSSRL") "(Burlacu Natalia, 2013a; 2013b)" (see Figure 1).

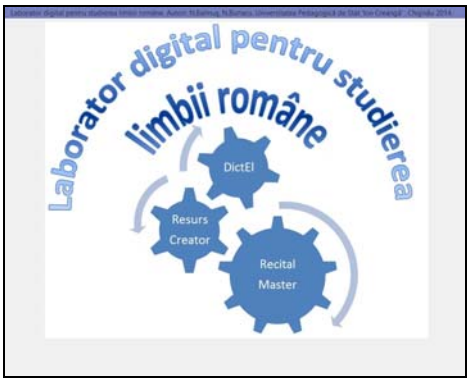


*Figure 1.* **Presentation's screen of ES**
**"Digital laboratory specialized to study Romanian language"**

Present ES is focused to linguistic education is devoted, has been developed in programming environment Borland Delphi and is oriented towards formation of TCS.

ES "DLSSRL" surnamed - complex - contains several applications, including:

### 2.1 Software application "DictEl"

Orthographic methodology of digital laboratory "DictEl" [Burlacu Natalia, 2013a; 2013b; Burlacu and Balmuș, 2014], being amplified by the inclusion of learning the correctly spelled of various analyzers, such as motoric, visual and / or auditive, is presented to be distinct from the traditional technique of making dictation in classroom at the Romanian language lessons. Thus, in case there is a typical dictation scroll thereof imposes certain standard circumstances, such as:

- For the situations when dictations are made at the Romanian language lessons must be found a competent person, more or less, who directly could dictate the text; in the framework of classes, it is the teacher;
- Must well established the place of dictation, here - at the dictation time, is required an absolute silence, allowing discerning the text by students and their focus on exercise (in the school it is happens usually in class of study; normally during the lesson);
- Whatever the circumstances of making the dictation, sooner or later, will be needed the presence of a competent person for evaluating contained;
- In the case of independently training estimating and / or marking objectively, correct of the work is difficult because the probability that the person who has already committed a certain number of errors in a given text will be able to identify own integrated shortcomings in his work - is very low.

Electronic dictation's advantage consists in allows us the luxury not take into account the above mentioned conditions. Such, it is necessary just ES - recipient of the digital laboratory "DictEl", computer on which is installed and, of course, student's desire to know and teacher's desire to modernize educational process. These facts impose continuous execution of some self-initiated efforts to prepare the ground for implementation of new electronic (digital) technologies in the classical training process.

Our application can be used both by the Romanian language teacher during classes and independently by students outside the educational institution.

Implementation of digital laboratory "DictEl" by the teacher lets to organize the lessons in another format than the traditional one; offers an adaptive-individual realization of educational goals; optimizes dictations' control, greatly reducing verification time and excluding subjective processing and marking of works results.

Individual apply of digital laboratory "DictEl" enables fully adapt the dictation's content to each student, apart, from his class's contingent, depending on the theme and objectives, excluding, in case of necessity, students' opportunity to copy from each other. Teacher manages program resources at the lesson, giving oral indications to students about the fact how to access educational software and / or, anew, selecting in advance didactical source - the text of dictation, it being different absolute or relative at the student and / or group of students to another student and / or group of students. The hearing of electronic dictation by students will be done through headphones. Such, now we can create absolutely individual conditions of time and way of performing the work for all control group representatives.

In case of using our software in an independently regime, as training tools for studying spelling and punctuation of the Romanian language after hours in any computer classroom or at home, decades the need to assist, help, examine and / or mark student prompt by the teacher.

### 2.2 Software application "RecitalMaster"

In during of studying the integrated course of Romanian language and literature the expressive reading holds a major importance. At the hours of modules study of Romanian language and literature is performed expressive reading of three types: teacher's expressive reading, learner's expressive reading and artistic reading of masters of the word in audio records. One crucial importance is the teacher's reading. The teacher cannot teach an art which does not possess. The reasoning goes for the expressive reading art of literary work, whether it's prose or poetry, epic or lyric text [Burlacu Natalia, 2013a; 2013b; Burlacu and Balmuș, 2014].

Methodological delimitation of expressive reading's (ER) learning caused us to study given educational activity in three ways: *(1) Expressive Reading - art in schools; (2) Teacher's Expressive Reading; (3) Student's Expressive Reading.*

So, our educational software for learning expressive reading works in three modes:

*Module 1* - Hearing of the model source file;

*Module 2* - Recording by user text for ER in an audio file (see Figure 2);

*Module 3* - Saving the audio recording results.

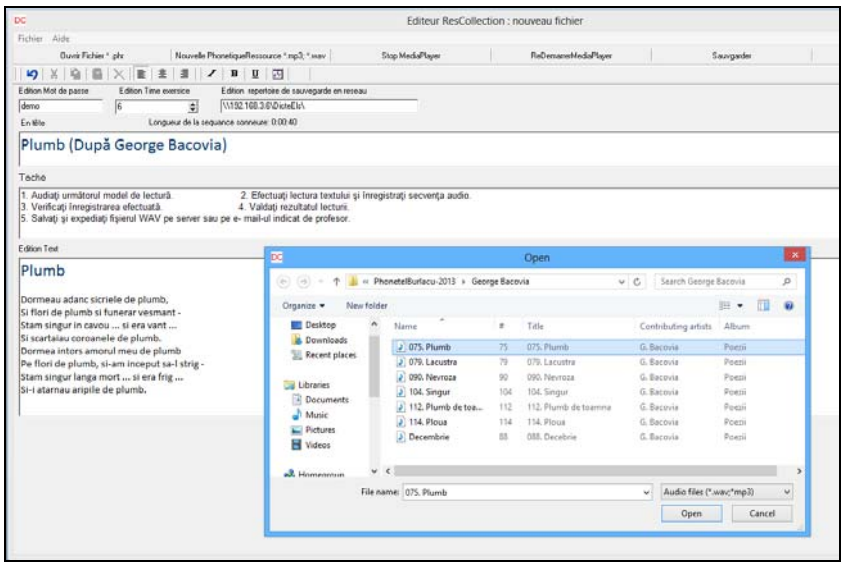


*Figure 2.* **The application interface "ResursCreator"**

**3 Aria of transversal computer skills developed and formed through own designed educational software**

In order to determine the degree of efficiency of given apps in the process of studying the integrated course of Romanian language and literature in the school, during the spring of academic years 2014-15 in theoretical lyceum "Petre Ştefănucă" from Ialoveni (Republic of Moldova), was triggered a pedagogical experiment with implementation of ES developed for "Digital laboratory specialized to study Romanian language" ("DLSSRL"). At the stage of familiarizing teachers and students participated in the experiment with the educational software "DLSSRL" have been taken into account precious requirements and suggestions of teachers, who have worked with us in pedagogical collaboration, also have been included students' wishes.

Pedagogical experiment's (PE) scenario provided the evaluation in the classroom and, also after lessons activity, individual work of TCS of school population. Evaluations prescribed testing skills set from the start and its measurements continued in the following.

*TCS developed and formed through own designed educational software has been targeted such abilities as:*

- Navigating in proper way via resources of personal computer file system, considering the tree structure and location of the computer system documents and files in the given hierarchy.
- Sure handling results of navigation via file system resources, applying its in order to execute the assignments set by teaching approach.
- Right working with connected to the personal computer devices, such as keyboard, headphones, speakers, microphone.
- Running audio sequence issued through interactive-multimedia robot of educational applications "DictEl" and / or "RecitalMaster".
- Management of audio sequence launched and translated through the interactive-multimedia robot of educational applications "DictEl" and / or "RecitalMaster".
- Hearing and editing of own recently performed audio sequences and issued by interactive multimedia robot of educational applications "DictEl" and / or "RecitalMaster".
- Hearing audio sequence (reproduced through the interactive-multimedia robot of educational applications "DictEl" and / or "RecitalMaster") and reproduce it by registering from keyboard unit in a textual sequence.
- Developing and training a suitable typing that consists in the correct spelling from keyboard unit, process of text's writing being optimized by proper placement of the fingers of both hands on the keyboard surface.
- Developing and training a suitable typing synchronized with the correct spelling from keyboard unit, process of text's writing using accordingly the Romanian language-specific diacritical marks.
- Developing and training a suitable typing, being implemented own virtual keyboard of our educational software and / or Touch Keyboard Built-in current version of Windows.
- Storing on local computer, local server and / or remote server own records of dictation (type as: dictation of words // selective dictation; auto dictation; commented dictation; instructive dictation; control dictation; preventive dictation, etc.) made under the running an audio file delivered via interactive-multimedia robot of educational application "DictEl".
- Recording into audio file format a literary text exposed orally, in accordance with the reproduced model of expressive reading by the multimedia robot of educational software "RecitalMaster".
- Verification of own records maintained in a sound file format a literary text exposed orally, in accordance with the reproduced model of expressive reading by the integrated multimedia robot of educational application "RecitalMaster".

— Saving on local computer, local server and / or remote server own records in an audio file format a literary text exposed orally, according to the model emitted through the agency of expressive reading by the multimedia robot of educational software "RecitalMaster".

It is noteworthy that in the during of PE computer, with other components and implemented peripheral devices, have not been included in order to substitute teacher and his role in the didactic process. Embedding of digital systems in the daily school's study of integrated course of the Romanian language and literature have formed a harmonious creative tools called upon to promote, improve, refine, fertilizing, varying, to complement traditional forms of teaching-learning-assessment through the educational applications components of interactive-multimedia complex "DLSSRL". Within PE teacher's role is authorized person to exercise the position of instructor / ICT trainer guiding the student activity.

All learning student's actions is based on active-participatory methods and techniques, group interactive and constructivist. Therefore entering the game following elements of learning: (1.) guided discovery mediated by the interactive-multimedia ES; (2.) collaborative learning, sometimes versus competition, finally expressed as: (a.) positive interdependence; (b.) promoting learning through direct interaction; (c.) personal responsibility of the student, manifested predominantly during the interaction with applications of educational kit "DLSSRL"; (3.) the interpersonal communication skills (also in the small groups), especially certified in the activity of recording dialog sequences of epic literary texts, dramatic, lyrical in working with the app "Recital Master"; (4.) activity monitoring of information processing in group (group processing), valid also for ES "RecitalMaster".

## 4 Conclusions

Comparing the initial and final competences of the school population in during of studying integrated course of the Romanian language and literature we have noted a visible increase in the quality of TCS.

Obtained success could be registered not only as model of ES elaborated based on *the pedagogical-technological format of modern ES development* [Burlacu Natalia, 2014; Burlacu and Balmuş, 2014], but also as an effective method of language training for representatives of gymnasium and / or lyceum levels, both applicable in an auditorium contact of learner-professor partially, or fully, or at the distance learning and self-regulated learning mode.

From technological point of view applications of ES complex "DLSSRL" are completely customizable and can be perfectly adjusted in cases to study others modern languages.

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