

Computer-aided Education: Experiencing Writing in the Digital World

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Abstract — This study examines the link between computer-aided English lessons and students' performance and motivation. The experiment was built on one of Campbell and Stanley's experimental models for educational research. Two groups of students with similar socio-economic backgrounds were randomly appointed to represent G1, the experimental group (N=40) and respectively, G2, the control group (N=40). Both groups were given similar types of written tasks, computer aided in G1. The statistical analysis shows significant differences between the two groups after 39 weeks, differences which were inexistent at the beginning of the experiment. Both proficiency and motivation are much higher in G1, which is attributed to the use of computerized tasks. The findings support the feasibility of integrating the computer in the English classes and suggest that more research be done to evaluate the metacognitive aspects of authentic, computer-aided writing in a foreign language.

Keywords — authentic writing, computer-aided, educational research, experiment, motivation, performance.

I. INTRODUCTION

ENGLISH plays the role of lingua franca in our global village. Students start learning it, aware they will have to master it in order to function as citizens of this world. Such awareness may lead to frustration unless dealt with in due time and writing suffers most. The teacher's struggle to meet the curriculum requirements, the limited time, the standardized tests, the large number of students in the class, the parents' and students' high expectations, the teacher's lack of expertise in computerized tasks [1] may lead to the easy way out when writing skills are built: the use of pencil and paper. Seen as a bore by most students, writing can be invigorated and enlivened by the computer, which may gradually become an integral part of the class writing experience.

This study examines whether and to what extent the integration of the computer in the English lessons may help pupils build and develop their writing skills, the result being higher grades for correct and creative writing and implicitly higher proficiency in English.

Another question that this study attempts to answer is whether and to what extent the integration of the computer in the lessons dedicated to building and developing writing

skills may change the students' attitude towards writing, turning a hateful and boring activity into an interesting and meaningful experience.

II. THEORETICAL CONSIDERATIONS

When compared, speaking and writing reveal differences in the three dimensions implied: the situation, the type of language used and the way of thinking and organizing the process, reflected in the types of cognitive behavior.

As far as the situation is concerned, it goes without saying that those who write, unlike those who speak, don't share the same space with those for whom they write so they cannot use gestures to emphasize or make their point and cannot see or hear if they have made themselves understood. They have the advantage of time, though, the possibility to reflect longer to what they intend to write, but lacking immediate feedback, they have the obligation to express themselves clearly, anticipating the readers' understanding difficulties [2].

The language used in writing is different, too. Years ago, linguists considered writing a mere record of speech in visible symbols. Modern linguists consider writing an autonomous system, with distinctive rules of syntax and vocabulary [3]. For the pupil, learning to write and use this skill as a vehicle of communication implies not only writing words on paper but also learning to use a new and different linguistic system [2, 3].

The third difference between the oral and written expression is found in the ways of thinking and organizing the process. Unlike the oral one, the written product is visible, requiring effort and reflective thinking. Even the simplest composition like "A Walk in the Park" is a decision-making process arising questions like: what content shall I choose? What level of detail? What should be the order of events? How can I make it clearer the relationship between cause and effect, action and consequence, etc.? That is why the process of writing often becomes an experience of discovery, in which the elements of content and form are brushed up and rearranged in accordance with the writer's own reaction or the reactions of his readers [4].

The pupils should be given the opportunity to gain cognitive control over the process of writing [5]. The computer can facilitate that. Usually employed in the phases of writing a draft and editing, the computer proves a wonderful aid in the pre-writing phase as well, allowing the students to arm themselves with lots of background

knowledge, which they can easily find on the web, and which can stimulate their imagination and curiosity and enhance their motivation and desire to write.

Successful writing has to take into account three main elements that determine its rhetoric characteristics: aim, public and form. In the traditional classroom, even if the purpose of writing is clear, the students do not have the opportunity to address a real audience, apart from their teachers and classmates [6]. The computer has opened them the gate to the real world: their writings, uploaded on various sites on the Internet, can now reach a large, unknown public that may react to what they read. The potential feedback strengthens the student's belief that they have a real aim to write: they write for a real, interested public and must find the most suitable form to get their message across. This transforms writing into an authentic and meaningful activity, an experience in which time and effort are worth investing.

III. THE RESEARCH STUDY

A. Main objective

The main objective of this study is the exploration of the process that links the integration of the computer in the English lessons and the students' performance and motivation.

B. Method

The participants were 80 high school students, of the proficiency level stage I, age 15, with the same academic profile and similar socio-economic background, who were randomly divided into two groups.

The experiment was based on one of Campbell and Stanley's experimental models for educational research: two "natural" equivalent groups, G1&G2, with pre-test and post-test [7].

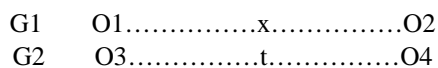


Fig. 1. The model on which the experiment was built

G1 represents the experimental group whose writing lessons were aided by computers. Modification x, the computer aided instruction, was introduced as independent variable IV and its influence upon the dependent variable DV, student performance, was observed and measured.

G2 represents the control group, whose instruction was not computer-aided.

The participants were engaged in 45 minutes long activities for a period of 39 weeks, during the school year. The computer assignments were designed to be enjoyable and reinforcing, with difficulty gradually increasing over time [8].

The data was collected by means of objective tests [9], questionnaires and interviews. The students' performance-based tasks and projects were also studied and analyzed.

The instruments for statistical analysis included the measured scores distribution of frequencies, central tendency indicators, correlation and significance tests.

C. Results

The results of this study prove that both strong and weak students can benefit from computer-aided English teaching and learning and that weaker students benefit more. The statistic analyses confirm significant differences between the two groups that participated in the experiment, differences that did not exist at pre-test and may, therefore, be attributed to the modification made in the experimental group by integrating the computer in the English lessons.

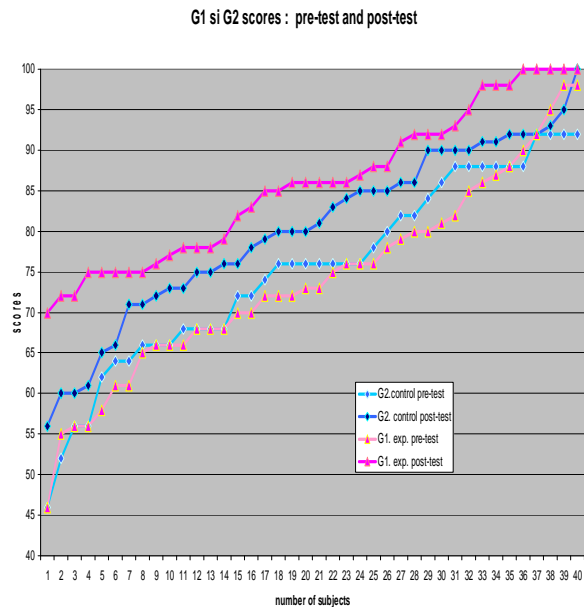


Fig. 2 – Comparative scores of G1 and G2 at pre-test and post-test

G1's attitudes towards what they see as benefits of computer-aided education are illustrated in Fig. 3. Most students believe that computer-aided lessons helped them to improve and develop their writing skills, increasing their motivation, pleasure and desire to express themselves in accurate, rich and fluent English, choosing a form suitable to the purpose of their writing and to the potential readers.

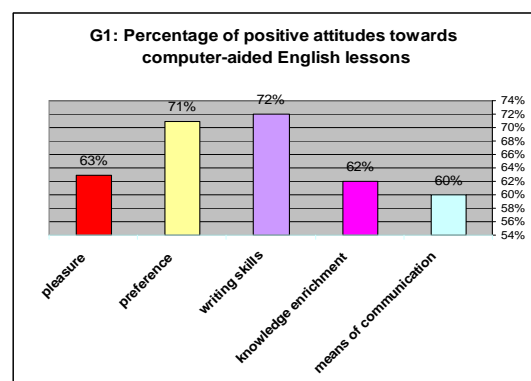


Fig. 3 – Positive attitudes towards computer-aided English lessons

Fig.4 reflects G1's vote in favor of computer-aided learning. Considering the favorable light in which the students viewed the integration of the computer in their lessons, the outcomes were expected.

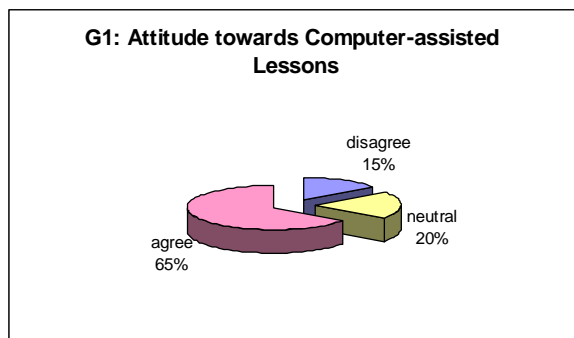


Fig. 4 – In favor of computer-assisted lessons

D. Discussion

Today's student will spend his adult life in a world in which the computer is an integral part. Therefore, it is the duty of the educational system to enable him to function in that world by providing him with the necessary skills to use that instrument [10].

This study examines the possibilities offered by the computer to teach and learn English as a foreign language, focusing on building and developing writing proficiency in the existing curriculum [11]. On the way to proficiency, both the process of writing, in all its stages, and the final product, were taken into account.

The various options offered by the computer allow the individualization of learning, in accordance with the student's specific needs and the pace at which he can advance. The work on the computer may develop the student's awareness of his own mistakes in a metacognitive process of self-inquiry and reflection [12]. Self-correction in an interactive way causes the transfer of the learned material into the long term memory [13]. The on-line dictionaries and thesauruses facilitate the access to the semantic wealth of the language. The editing functions of the word-processor pave the way to the creation of documents that look professional, similar to those in the real world. Surfing the Net opens the gate to an almost infinite number of writings and illustrations that may be used sources of information. Being able to write and talk to people all over the world emphasizes the importance of knowing English. Given the chance to write for international youth magazines and newspapers or express an opinion in youth forums in clear and accurate English boosts the student's enthusiasm and desire to write in order to be read, to make his voice heard, to be published. He becomes aware that the new situation imposes concentration and work discipline.

In computer-aided education, the teacher's role changes, but it is not less important. The teacher becomes a facilitator, she carefully plans and prepares each computer-aided activity, allowing the student to advance at his own pace, monitors his progress, supplies additional activities or suggests alternatives when needed, explains when the computer definition is insufficient or unclear, advises, encourages and praises. Sophisticated as it may be, the computer is still a machine that cannot replace the teacher's

warmth and care for her students.

This study confirms the link between motivation and performance. The computer-aided lessons changed the students' attitude towards learning English. The weak and failing students showed a particular interest in this new way of teaching and learning. They started and continued to invest more time and effort in completing the computerized tasks, in understanding and correcting their own mistakes, in improving their projects, succeeding to rise much higher than their measured level at pre-test.

IV. CONCLUSION

Our pupils live in a highly technological world. They send and receive instant messages, photos, video clips and mail on their mobile phones, they use their computers and web cams to talk to other young people, anywhere in the world, they are present in international online forms and chat rooms and they don't have to go to the library to find the information they need, since it is only a click away. The teacher has to find ways to engage impatient students, using elements in the world the students are familiar with to teach them to write clearly, cohesively and accurately in the foreign language they try to use anyway [14]. This study shows that computer-aided writing lessons in English a foreign language are beneficial to students and teachers alike.

The study has its limitations. A small number of students participated in the experiment. Not all the school age groups were represented. All the same, a limited number of hours were allotted to the computer-aided tasks during the school year. Many questions have remained unanswered. For example, the limited number of computer-aided lessons was mentioned [15]. What would happen if the number of computer-aided hours were increased? Would the enthusiasm or the boredom grow?

The study focused on one of the four main skills, writing, in computer aided lessons. May the other three main skills, listening, speaking or reading, be developed to the same extent in similar circumstances?

Last but not least, questions about the teacher's role in a computer-aided class [16] arise. What training does the teacher need in order to prepare success oriented tasks for such a class? How much effort and time does the teacher have to invest in the preparation of computer-aided lessons that would lead to higher result than those obtained in the traditional class? What language aspect can be easily computer-aided? Which of the teaching strategies are better suited in a computer-aided class? How efficiently is the time of the lesson used?

A follow up study attempting to answer these questions would lead to a clearer understanding of the sense and a more accurate evaluation of the efficiency of computer-aided education.

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