

Original scientific paper

## Interactive Application for Learning the Latin Language

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### Summary

*Computers in education are an integral part of the teaching process, but the use of them mostly depends on the competence and willingness of individual teachers, as well as the availability of adequate hardware and software. When it comes to learning a language, computer assisted language learning software mostly covers languages such as English, or German, while other, less popular languages still do not have a good software foundation.*

*The interactive application for learning the Latin language is an example of software that seeks to facilitate students studying Latin within all grammar schools in Croatia. The Latin language, although very often called a dead language, is still a part of the culture in general, and important in fields such as medicine, law, agriculture, etc. Results obtained by our research confirm that students are willing to use such software and that the increase in student motivation and interest are proportional to the final test results.*

**Key words:** computer assisted language learning, the Latin language, interactive software

### Introduction

Computers significantly affect the concept of modern teaching, whether used by a teacher as a classroom tool, or independently by students. Teachers use computers in classrooms for different purposes. The goal is always to improve student learning and not only make the learning material easily available to students. Computers are frequently used in order to accommodate different learning needs as well as to motivate the learners in general. However, the use of computers only is not enough to maintain student attention at a high level during a lesson. Students have embraced computers as an integral part of teaching and therefore expect it to be applied in interesting ways, very often through fun and playing games.

Since many teachers lack the competence or resources to create computer applications for learning, teachers mostly rely on the existing ones. The usefulness of applying computer assisted learning (CAL) is highlighted in the area of foreign language learning which requires constant practice and repetition. CAL enables students to make decisions on their own about the level of their knowledge, significance of the subject matter and their learning pace (Parsons and Oja, 2010). Within the course *Computer Assisted Teaching* at the Faculty of Humanities and Social Sciences in Zagreb, we designed and created an interactive multimedia application for learning the Latin language. In order to evaluate its application, we conducted a research in two sections of second grade levels at the Fifth Grammar School in Zagreb. This paper presents the results of the abovementioned research.

### **Literature review**

A group of Greek scientists (Haung et al., 2011) conducted a research about the usage of multimedia in learning modern Greek language via Internet. The goal was to investigate the effectiveness of this type of learning and to see if this way of learning would make the Greek language more popular among students from Chinese universities. According to the authors, the results indicated that multimedia learning combined with classical tutoring, positively affected the learning environment. Most of the students (95%) were either completely or partially satisfied with the multimedia learning environment. However, 33% of the students declared that human interaction is necessary due to pronunciation difficulties and vocabulary exercises when working from home. Accordingly, we find that the application for learning the Latin language can also be utilized at its best via blended learning, i.e. the combination of traditional and computer assisted learning.

An empirical quantitative research was conducted among college students learning the English language at Qingdao University in China (Liu, 2010). The aim was to investigate the effectiveness of learning the English language with multimedia at Chinese universities. He compared two groups of students: the experimental group which learned with multimedia learning materials only, and the control group which learned with classical teaching methods. Surprisingly, the difference in final test results between the two groups was rather small, showing how the different teaching methods affected the learning outcomes the same way.

A research on the effectiveness of the usage of software for learning English vocabulary was conducted in Croatian elementary schools (Lauc et al., 2007). The research results showed that students were well engaged in the classroom where the multimedia interactive software was used, which was substantiated by better test results, compared with the control group.

In the following chapters we present our research results regarding the development and evaluation of the Latin language learning application.

## Research

In order to determine the effectiveness of applying the software in teaching and learning the Latin language, we examined the differences in knowledge acquisition among students of two separate class sections of second grade level in The Fifth Grammar School in Zagreb. Computer-assisted instruction was conducted with the experimental group using the multimedia interactive application for learning Latin, and traditional instruction was conducted with the control group. The validity of the main hypothesis, which claimed that the multimedia application helps students learn the material and evokes more enthusiasm among the students to learn Latin was tested. The research involved the total of 62 second grade students and it was conducted by means of a blinded experiment. None of the students from either of the two groups knew of the research being conducted. However, the students were familiar with the existence of the software, therefore it was not completely new to them. The proficiency level of students in Latin is estimated as equal in both groups according to their former test results and term grades. Both class sections follow the same curriculum and obtain equal test results on average. The study was conducted within a lesson, mainly concentrating on verb forms, where students were supposed to review the content learned so far. The lessons in both groups were substantially equivalent, meaning that the covered content in the experimental group was identical to the content taught in the control group. In this experiment, the independent variable was the introduction of the application for learning Latin in the classroom, and the dependent variable were the final test scores.

## Methodology

The multimedia interactive application for learning the Latin language was used by the students in the experimental group. In order to determine the usefulness of the application by using quantitative indicators, a brief knowledge test was conducted at the end of the lesson, with both groups. The students' motivation and interest was tested by means of a survey. At the end of the research the subject teacher was interviewed to give the research review as well as a reflection on the experiment in general.

The software was designed and developed by the authors of this paper within the course *Computer Assisted Teaching* at the Department of Information and Communication Sciences at the Faculty of Humanities and Social Sciences, the University of Zagreb. The application was designed in Adobe Flash, a tool for designing multimedia applications and other components that support user interaction. While designing the application, we were trying to consider a fact that people are counting on computers to supply relevant, truthful, informative, clear, unambiguous and brief information (Blake, 2013). The application consists of four units. The first unit contains the most important grammar rules which are linked with the relevant exercises throughout the software so that students can quickly get help while answering the questions in the second unit.

This way, there is no need to browse books or notebooks for additional reference. In addition to grammar rules, almost every page contains vocabulary hints that describe the words used in the current window. The other two units contain questions about Latin civilization and Latin proverbs. All units are interconnected in order to facilitate good navigation. An important feature of a multimedia software is interactivity which enables every user to choose their own learning path in navigating through information (Skendžić and Kovačić, 2011). Interactivity is highly supported in this application for learning the Latin language.

The main task of this application is to help students master the Latin language curricula as taught in grammar schools in the entire country. The three main sections are the following: 1) exercises that involve many repetitions stretching through three sections of grammar exercises, 2) Latin civilization section and 3) a section with proverb exercises. As the main resources we used the subject teacher's classroom materials as well as two textbooks (Salopek et al., 1985; Salopek et. al., 1986).

The interactivity in the application is achieved by four types of questions: drag and drop, fill in the blank, true/false and multiple choice. The goal was to motivate the students answer the questions which are formed in an unusual way. The answer checking system provides instant feedback on the correctness of the answer, which is very important to help the learner control the process of learning by either moving forward or referring back. By the simplicity of the design and user friendly navigation, we ensured that students' attention is not distracted by unnecessary details (as displayed in images 1 through 4).



Image 1: Software interface – first frame

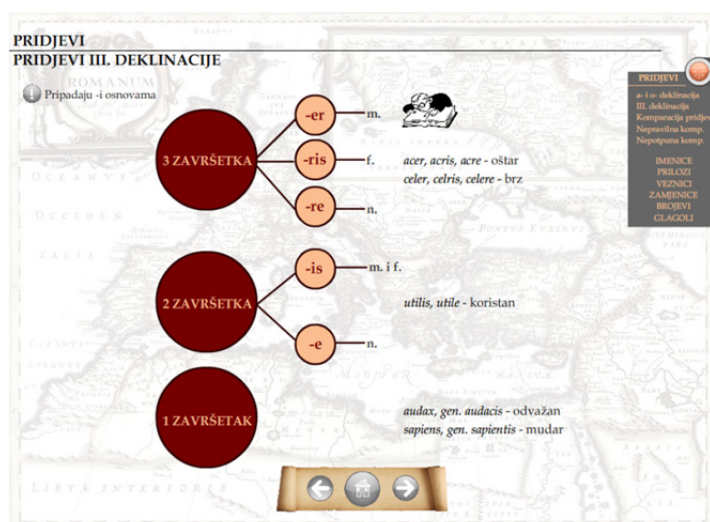


Image 2: Software interface – frame with grammar rules and navigation menu

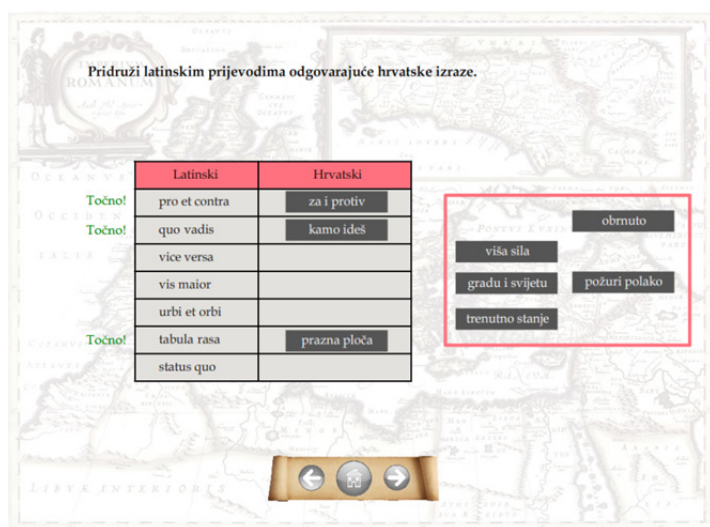


Image 3: Software interface – drag and drop type of question

The hypothesis that students from the experimental group will be more successful in acquiring knowledge than the students from the control group was tested with a short knowledge quiz at the end of lesson with both groups. As well as the learning content was identical in both groups, the knowledge test was also identical for both groups of students, i.e. for both class sections. The students

had to answer questions from the Latin grammar, more precisely verb forms. The maximum score a student could earn by the test was 19 points.



Image 4: Software interface – fill in the blank and multiple choice questions

Motivation and enthusiasm were examined via short questionnaire distributed to students at the end of the experimental lesson after the knowledge test. The survey aimed to confirm additional hypothesis that students from the experimental group will show higher enthusiasm and motivation for learning Latin by using the application than by classical teaching methods. The questionnaire contained four closed types of questions assessed with the Likert scale and one open type of question.

Finally, an interview with the subject teacher was conducted. The aim was to review the entire research and to obtain feedback from the subject teacher as well. The teacher positively reflected on the usefulness of this software, emphasizing the importance of repetition during studying the language. The economy of time very often does not allow extensive repetition to happen in a classic classroom setting with no adequate technology available. Computer software this way fosters individuality in classroom teaching enabling repetition and learning at one's own pace.

## Results

The results of a short knowledge assessment indicate the difference in success between the experimental and the control group. The knowledge test contained

19 questions in verb forms. The results have confirmed the research hypothesis and proved that the experimental group has mastered the learning material more successfully than the control group. The average grade in the experimental group was 3.8 and the 3.3 in the control group which is shown in Table 1.

Table 1: Results obtained by the knowledge assessment

Grade		5	4	3	2	1	Average grade
Group	Number of respondents	Percentage (%)					
Experimental	32	28	44	9	16	3	3.8
Control	30	16	27	40	7	10	3.3

Table 2: Descriptive statistics of achieved scores

Group	MEDIAN	MODE	MIN	MAX	RANGE
Experimental	16	18	7	19	12
Control	14	13	3	19	16

Data in Table 2 shows the difference between the experimental and control group referring the achieved scores. Medium score (median) is 16 in the experimental group, 14 in the control group. Data shows that the most common achieved score (mode) is 18 in the experimental group, and 13 in the control group. Besides that, the minimum amount of scores (7) for the experimental group significantly differs from the minimum score (3) in the control group, while the maximum amount of scores is identical in both groups (19) which means that in the experimental group, as well as in the control group some of the students have achieved a 100%. The span between the minimum and maximum amount of scores is bigger in the control group (16) which results from difference in minimum scores, considering that the maximum amount of scores is equal.

Table 3: Descriptive statistics of achieved grades

Group	MEDIAN	MODE	MIN	MAX	RANGE
Experimental	4	4	1	5	4
Control	3	3	1	5	4

Table 3 shows descriptive statistics of achieved grades. The difference between the experimental and control group is presented by median and mode values. Medium and most common achieved grade in the experimental group is 4, while in control group those values are 3.

Chart 1: GPA in experimental group

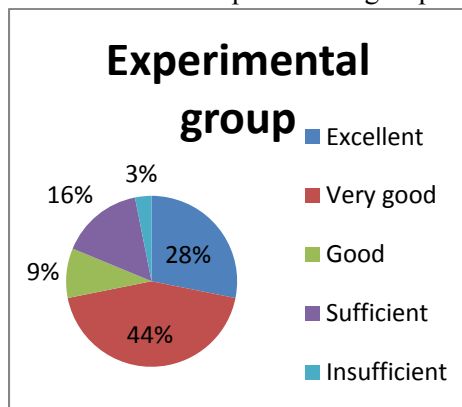
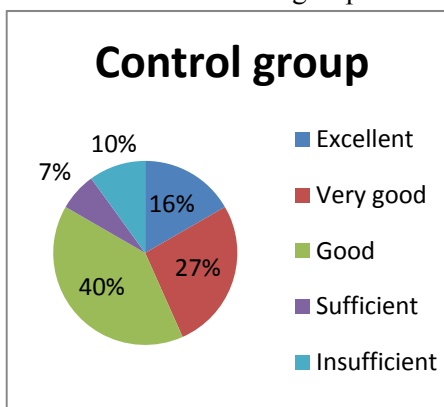


Chart 2: GPA in control group



As displayed in Chart 1 and Chart 2, 72% of students in the experimental group got an excellent or very good grade, while the overall percentage of excellent and very good grades in the control group was only 43%.

Apart from the knowledge assessment, the results of the inquiry in students' motivation and interest are also significant. The survey on the students' motivation and interest brought positive results. 88% of the students said they liked using the application for learning Latin, and none of the participants have expressed that they disliked the application (see Chart 3). From these results it is evident that students are open to computer assisted methods of learning.

Similar to the previous results, 84% of respondents agreed or strongly agreed to the statement that learning Latin is more interesting when using the multimedia interactive software. 12% of the respondents have not stated their position while 3% of them disagreed with the statement (see Chart 4).

The third statement aimed to investigate how many students wanted to have such materials for learning Latin for work at home. 72% of students agreed with the statement and would like to have access to these materials at home which is a good incentive for further work. In contrast, 18% of students would not like to use these materials outside of school. It is very likely that the result shows the percentage of students' attitude toward learning Latin in general. However, the fact that not all students have the ability to use computers in their homes should not be neglected.

Furthermore, 66% of the students showed a distinct preference to this type of learning and showed interest for similar tools in other subjects, which can be expressed as the desire to learn, accomplish or stimulate (Vallerand et al., 1992), while 21% have no opinion on the matter.

In the 5th question (which was an open ended question), respondents were given the opportunity to describe their impressions in their own words, give suggestions or criticism. Through the answers to other questions, the majority of respondents expressed positive attitudes regarding the use of the application de-



scribing the application as interesting, useful, great, excellent, creative, fun and easy, noting that learning this way is easier, the material is accepted quicker and well-remembered. In addition, respondents state that learning this way is more creative and useful than by the usual method of learning Latin *ex cathedra*, and several of them have pointed out that it was the first Latin class that was fun. The survey analysis indicates that the students liked the computer assisted lesson in great respect. The survey results showed that the interest and desire for these and similar systems is undoubtedly present.

Chart 3: Students' point of view about the usage of the application

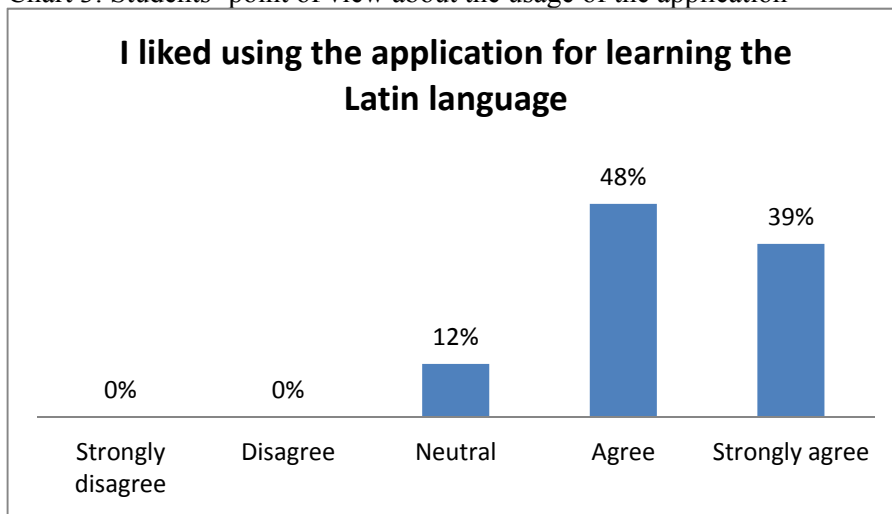
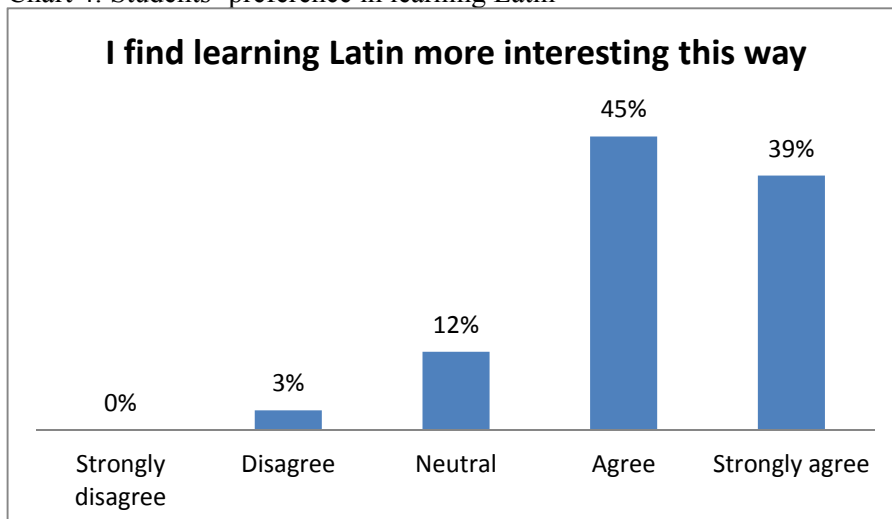


Chart 4: Students' preference in learning Latin



And last but not least, from a short interview with the subject teacher, we learned what it looked like from the teacher's perspective. The teacher confirmed that the results obtained by a short knowledge test were quite expected, both in the experimental group and in the control group, noting that the students in the experimental group were much more interested in the lesson, which was expected to result with better scores. Depending on the needs of the lesson, students of The Fifth Grammar School in Zagreb often use the computer in their Latin class, mostly for presentations and seminars, while they haven't encountered specialized software applications for learning the Latin language so far (although it was only presented to them prior to the experiment). There is a large disparity between the availability of software present for learning languages such as English or German, and those for learning Latin due to their popularity and presence. According to the teacher, there is no doubt that the presence of these tools would increase the popularity of the Latin language among high school students. She especially emphasized the usefulness of the Latin language learning application for grammar repetition and practicing, as part of a lesson which is usually uninteresting and monotonous to students. Although students repeat the learning material through oral and written exams, the teacher also gives great importance to repetition during new lessons. She sees a big potential of using the Latin language learning application. By means of different interactive exercises, repetition is done in an efficient and interesting way. At the end, the teacher claims that without no doubt will this type of learning system become a required part of every teaching in class. She considers that this language learning tool will help the popularization of Latin among students.

### **Conclusion**

The research has shown that the Latin language learning application has helped students with their learning and increased their motivation as well as their enthusiasm for learning the Latin language. Obtained results show that a good relation is accomplished between learning and having fun, the two actions which students frequently experience with different emotions. On one side there is the computer, which they attribute to games, fun and friendships and on the other side there is studying which is mandatory and not always fun. The results point to the importance of motivation in the process of learning, as the students who were using the Latin language learning software have become more interested in the learning material and had better results than students who participated in classical teaching. Motivation is first of all reflected through active participation in lessons which is a postulate for easier language learning.

Due to instant feedback on the correctness of the answers, the possibility to overview the grammar rules and the linkage of different segments within the application, using the Latin language learning application fosters easier and faster learning. Obtained results substantiate the claim that students are prepared

to use applications like this in general, so they give a good rationale for upgrading the application and for further research involving more classroom time over multiple lessons.

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